Green Skills Committee

REPORT 2025

MTI MINISTRY OF TRADE AND INDUSTRY SINGAPORE

SKILLSFuture SG

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Foreword

The world is navigating a confluence of profound challenges. Geopolitical realignments and tariff wars are reshaping global supply chains and straining the multilateral trading system. Rapid advances in artificial intelligence (AI) technologies are transforming industries and the nature of work, even as they raise new questions about security, governance, and trust. Societies are also grappling with the wide-ranging social, economic and fiscal implications of ageing populations.

Despite these pressures, climate change remains one of the defining challenges of our era. More than 120 countries came forward with their 2035 Nationally Determined Contributions (NDCs) at the recently concluded 2025 United Nations Climate Change Conference (COP30). Asia continues to make steady progress, particularly in clean energy. For instance, China installed more renewable energy capacity than the rest of the world combined in 2024. Singapore too remains steadfast in our commitment to transform our economy into a low-carbon one over the long term. For us, the green transition is not just an environmental imperative, but an opportunity to redefine our economic competitiveness, enhance energy resilience, and create good jobs for Singaporeans in a climate-impaired and carbon-constrained future.

The global transition to a low-carbon economy will catalyse the demand for green manufacturing, clean energy, carbon mitigation technologies, climate adaptation, carbon services and trading, and sustainable finance. By building on our strengths in advanced manufacturing, innovation and enterprise, finance, as well as our position as a leading hub in the global economy, Singapore is well placed to address the need for credible decarbonisation solutions and create opportunities for our businesses and workers.

However, to thrive in a low-carbon economy, our workforce must be equipped with the right skills. These include technical skills in areas such as renewable energy engineering, carbon accounting and trading, and green building design; horizontal skills in green procurement and sustainability reporting; and digital-enabled skills in climate-tech and smart grid systems. Developing these skills at scale requires a concerted national effort with government, industry, and unions working together to train our workers and transform our businesses.

This report by the Green Skills Committee (GSC) sets out practical pathways to build these capabilities. It reflects the culmination of a two-year effort by the government, industry, training providers, unions, and the trade associations and chambers (TACs). Together, we have identified emerging green growth areas and priority skills, strengthened training pathways, and developed resources for businesses, workers and educators to use to drive green skills development.

Even as the GSC concludes its work, the mission continues. This report seeks to provide the foundation for our businesses and workers to meet the challenges of climate change and help shape the green economy of tomorrow. We thank all GSC partners for their commitment and contributions to this national effort.

Mr Wong Kim Yin
Group CEO
Sembcorp Industries Ltd

Dr Beh Swan Gin
Permanent Secretary
Ministry of Trade
and Industry

Executive Summary

The Ministry of Trade and Industry (MTI) and SkillsFuture Singapore (SSG) established the Green Skills Committee (GSC) in November 2023 to study how Singapore can better prepare our workforce for a low-carbon future.

The 20-member public-private committee conducted a review of the demand for green skills as well as existing interventions by government agencies and industry partners across four horizontal[1] and nine vertical sectors[2]. The findings show that the green transition is already shaping career pathways, business models, and workforce needs across the 13 sectors. Horizontal sectors/functions such as Financial Services/Finance, Supply Chain Management and Legal Services are extending into areas such as climate risk analysis and sustainable procurement. Vertical sectors such as Aviation and Maritime anticipate new and transformed job roles associated with lower-carbon fuels, with new jobs emerging in areas such as Carbon Services and Trading. Collectively, more than a hundred interventions and programmes have been implemented by agencies and stakeholders to develop green skills that will be relevant for existing and future job roles.

The GSC also identified the Sustainability Reporting and the Energy sectors as areas which are crucial for the economy to prepare for a low-carbon future and have strong near-term demand for green skills, with about 5,000 workers projected to be needed by 2030. Two sub-workgroups were created to address the skills gap in these areas respectively, and together, developed nine new interventions. For Sustainability Reporting, these include new training resources through a national Body of Knowledge – a standardised framework that guides training providers to create consistent, high-quality courses and informs Train-the-Trainer programmes – alongside job attachment opportunities offered through the Small and Medium Enterprises (SMEs) Sustainability Reporting Programme (SME SRP). For Energy, new Continuing Education and Training (CET) programmes have been launched in partnership with local Institutes of Higher Learning (IHLs) and other training providers.

Beyond these targeted interventions, the GSC worked with SSG and Workforce Singapore (WSG) to strengthen the national ecosystem for green skills training and development. New initiatives launched include a dedicated green skills portal, enhanced funding support for approved courses, and practical tools to guide businesses, human resources (HR) teams, trainers and workers through their upskilling journey.

This report consolidates the GSC's findings, insights and recommendations. By tapping into the programmes and resources identified here, we hope our businesses and workers can seize the new opportunities for growth, innovation and long-term competitiveness in the green transition.

[1] Financial Services/Finance, Legal Services, Supply Chain Management, and Sustainability Reporting.

[2] Aviation, Built Environment, Carbon Services and Trading, Electric Vehicles, Energy Efficiency in Industry, Environmental Services, Maritime, Tourism, and Energy.

Summary of Sectoral Green Skills Opportunities and Interventions

Sector	Opportunities and Interventions
Horizontal Sectors/Functions	
Financial Services/Finance	Finance professionals can broaden their skill sets and expertise in new sustainable-finance related work, with training offered by the Institute of Banking and Finance (IBF).
Legal Services	Legal professionals can pursue emerging opportunities in climate disclosures, carbon services and green finance structuring, by tapping into training programmes offered by professional bodies, as well as platforms such as the Sustainability Apex Programme, to build inter-sectoral partnerships.
Supply Chain Management	Supply chain professionals can upskill through CET programmes. Young talent joining the workforce who are keen on green supply chain roles can leverage Pre-Employment Training (PET) programmes to capitalise on the increasing demand for sustainable and ethical procurement expertise.
Sustainability Reporting *(Deep Dive)*	Demand for sustainability reporting skills is projected to double from 2,000 in 2023, to 4,000 by 2030, as companies strive to meet reporting requirements from regulators, investors, banks and customers. The Accounting and Corporate Regulatory Authority (ACRA), SSG and Enterprise Singapore (EnterpriseSG) introduced three new interventions to advance the local knowledge base and expand training opportunities.
Vertical Sectors	
Aviation	The Aviation workforce has a need for green skills ranging from managing the adoption of Sustainable Aviation Fuel (SAF), to operating and maintaining clean-energy airside vehicles, to segregating waste. The S$200 million OneAviation Manpower Programme was launched in 2025 to support the attraction, development and retention of aviation talent, in response to new sustainability needs and demands.
Built Environment	Professionals in the Built Environment sector can develop expertise in sustainable building practices, driven by the Singapore Green Building Masterplan (SGBMP) and supported by comprehensive industry training programmes.
Carbon Services and Trading	With over 150 firms, Singapore's growing Carbon Services and Trading sector offers a wide range of job opportunities across project development, project financing, carbon trading, and low-carbon advisory. To sustain the long-term growth of this sector and develop a pipeline of skilled workers, EnterpriseSG and the Economic Development Board (EDB) have worked with SSG to develop the Skills Framework for Carbon Services and Trading, and are working with the National University of Singapore (NUS) and Nanyang Technological University (NTU) to run Carbon Academies.
Electric Vehicles (EV)	Technicians are supported by subsidised training and specialist certifications to broaden their skill sets to include electrical safety and charger installation, as Singapore moves towards greater adoption of EVs by 2040.
Environmental Services	Growing demand creates pathways for professionals in the Environmental Services sector to hone their skills in technology-enhanced cleaning, waste management and recycling. This is supported by industry-aligned training programmes.
Energy Efficiency in Industry	The Energy Conservation Act requires registrable corporations to employ certified energy managers, thus providing aspiring engineering professionals with opportunities to specialise through established certification programmes.
Maritime	As the Maritime sector transitions to alternative marine fuels and new technologies, workers can build their expertise in the handling of these fuels and technologies. This is supported by the Maritime Energy Training Facility's (METF) comprehensive training infrastructure, as well as the Maritime and Port Authority of Singapore (MPA) and SSG's development of a sustainable maritime skills rubric for incorporation into the Skills Framework for Sea Transport.
Tourism	Opportunities in the Tourism sector are in sustainable operations and experiences, which require skills such as sustainability marketing and green procurement. The Singapore Tourism Board (STB) has launched the Tourism Sustainability Programme, which includes key skills needs and interventions for the workforce.
Energy *(Deep Dive)*	Singapore's 2050 goal of net-zero emissions and energy transition creates emerging opportunities in solar energy, energy storage systems, smart grids, and electricity imports. The GSC has developed six new CET interventions to meet near-term workforce needs.

Identifying Green Skills and Demand

The transition to a low-carbon economy will create demand for a broad range of green skills across sectors and industries. This section attempts to better define green jobs and skills, to enable a coordinated approach to identifying in-demand green skills and developing targeted interventions.

Impetus for the Low-Carbon Transition

Climate change is intensifying, with rising sea-levels and more frequent extreme weather events that disrupt lives and economies. As a low-lying island-state, Singapore is especially vulnerable. To safeguard our future, we have charted our path to become a low-carbon economy under the Singapore Green Plan. Singapore aims to cut emissions to between 45 and 50 million tonnes of carbon dioxide equivalent as part of our 2035 NDC, and to reach net zero by 2050. Singapore is also developing comprehensive adaptation measures across critical areas such as coastal protection, heat resilience and flood prevention to withstand the impact of climate change.

Besides managing the impact of climate change, Singapore must also adapt to structural shifts in the global economic landscape, such as geopolitical tensions, the rise of protectionist measures, and technological disruptions. Hence, the green transition is not just an environmental imperative, but an opportunity to redefine our economic competitiveness, enhance energy resilience, and create good jobs for Singaporeans in a climate-impaired and carbon-constrained future. Singapore is helping our businesses and people to adapt and seize new opportunities in three ways:

Greening Businesses

1. Invest in low-carbon technologies that help industries reduce their carbon emissions.
2. Support businesses in tracking and managing their carbon footprint, through better disclosure of their environmental impact and more efficient energy use.

Equipping Our Workforce

1. Acquire new skills to take on new and redesigned green jobs.

Capturing Growth Opportunities

1. Help local businesses and SMEs to:
   a. Meet rising sustainability standards that global supply chains demand;
   b. Unlock access to green financing from banks and institutional investors; and
   c. Differentiate from competitors through capabilities in navigating sustainability requirements across jurisdictions.
2. Tap into new growth areas, such as carbon trading, clean energy, and sustainable finance.

What are Green Jobs and Skills?

A common definition of green jobs and skills will enable a coordinated, national approach to developing talent for a green economy.

The GSC adopted the following definitions:

A **green job** is an occupation that performs tasks contributing to environmental sustainability. Its core functions must support at least one of the following objectives.[3]

1. Climate change mitigation
2. Climate change adaptation
3. Protect healthy ecosystems and biodiversity
4. Promote resource resilience and circular economy
5. Pollution prevention and control

A **green skill** refers to specific knowledge and abilities needed to carry out "green" tasks. For example, a solar photovoltaic (PV) design engineer requires specialised technical skills to optimise a solar system's design to meet performance and quality standards, such as:

1. Solar PV Systems Design
2. Solar PV Energy Assessment

With clear definitions, HR professionals, line managers and educators can:

1. Identify in-demand green skills and design training programmes; and
2. Differentiate between the types of green skills, allowing targeted and sector-relevant interventions.

This translates into two complementary development approaches:

Horizontal

Broad-based Development

Build foundational green competencies, such as environmental awareness, sustainable business practices, and basic carbon accounting principles.

Vertical

Sector-specific Development

Develop specialised skills tailored to each sector's green transition needs – from sustainable facilities management in real estate to green fintech solutions in financial services.

[3] These five environmental objectives are aligned with the *Singapore-Asia Taxonomy for Sustainable Finance* and the EU Taxonomy's six environmental objectives.

Sectoral Green Skills Plan

This section outlines the green job opportunities and skills development interventions in selected sectors that are key to the growth of the green economy and are experiencing higher demand for green skills. These include horizontal sectors/functions relevant for firms across the economy (e.g. Financial Services/Finance, Supply Chain Management) as well as vertical sectors with green growth potential (e.g. Aviation, Maritime, Carbon Services and Trading).

The Skills Plan Framework

The GSC developed a Skills Plan framework to guide the development of jobs and skills that support Singapore's transition to a low-carbon economy. The framework provides a structured process for sector leads to:

1. Identify emerging jobs and skills demand,
2. Assess the effectiveness of current initiatives, and
3. Develop new interventions where gaps exist.

As the green economy evolves, sector leads should also monitor implementation and track outcomes to ensure that their initiatives remain responsive to industry needs.

1

Priority Setting

Establish key economic priorities in green or sustainability-related areas and gather early insights on jobs-skills in demand, prioritising sectors with workforce development needs.

2

Job-Skills Identification, Development and Validation

Work with industry partners to identify specific job-skills needs in priority sectors.

3

CET Strategy Formulation and Implementation

Work with relevant agencies and training providers to design and implement targeted training programmes to address the identified skill gaps.

4

Manpower Needs and Gap Analysis

Compare the existing supply of training interventions with the projected job-skills demand, to identify manpower development gaps.

Horizontal Sectors/Functions

Horizontal green skills are cross-cutting competencies required across multiple industries. Singapore is building the foundational enablers needed to help businesses meet the rising demand associated with sustainability requirements, and enable workers to seize the opportunities in the green transition.

Financial Services/Finance

Opportunities

Job roles in the Financial Services sector/Finance function will increasingly incorporate sustainable finance-related tasks, arising from three key drivers:

Growing demand for sustainable financing to support clean energy projects, carbon markets, and broader economic transition needs;

Stricter sustainability regulations and standards, requiring financial institutions to evaluate climate-related risks and disclosures; and

Technological innovation.

Which improves sustainability data capabilities and serves as an enabler for Environment, Social and Governance (ESG) analytics and climate-risk assessment tools.

As outlined in the Sustainable Finance Jobs Transformation Map (JTM), the following are some of the key implications:

- A majority of existing job roles will be augmented to include sustainable-finance related tasks within the next few years.
- Finance professionals in roles which drive sustainability outcomes will be prioritised for upskilling.
- New sustainability-focused roles, such as in risk and strategy, will emerge.

Interventions

Monetary Authority of Singapore (MAS) has allocated S$35 million to the Financial Sector Development Fund to develop a pipeline of sustainable finance specialists over the next three years. MAS is also partnering IBF to scale sustainable finance training. To date, over 4,100 professionals have been trained through IBF-accredited and in-house courses, and more than 8,200 IBF Skills Badges have been issued to individuals who have completed IBF-accredited sustainable finance courses.

For more information:
IBF | Jobs Transformation Map

Legal Services

Opportunities

The Legal Services sector is playing an increasingly important role as ESG requirements and stakeholder expectations grow. Demand is rising for legal expertise in areas such as structuring green finance deals and carbon credit projects and transactions.

The market for sustainable legal services is projected to grow significantly, with PricewaterhouseCoopers (PwC) estimating a 10% Compound Annual Growth Rate (CAGR), rising from S$140 million in 2023 to S$450 million by 2033.

For more information: PwC | Sustainability-Linked Opportunities

Interventions

The government supports the growth in sustainable legal services in the following ways:

1. **Enabling legal capabilities to serve ESG demand**

   Sustainability Legal Catalyst Programme: Helps businesses manage legal risks by subsidising access to sustainability-related legal guidance. EnterpriseSG will defray up to 50% of the legal fees for eligible businesses, with a cap of S$90,000 per company.

   For more information: EnterpriseSG | Sustainability Legal Catalyst Programme

2. **Fostering cross-sector partnerships within professional services**

   Sustainability Apex Programme (SAP): Connects accounting and law firms through networking opportunities, fostering a community of knowledge and ideas exchange. SAP is a joint initiative by the Institute of Singapore Chartered Accountants (ISCA) and The Law Society of Singapore (LawSoc), supported by EnterpriseSG.

   For more information: EnterpriseSG | Sustainability Apex Programme

3. **Uplifting ESG literacy within the legal profession**

   ESG Knowledge Guide: Helps legal professionals build literacy in sustainability-related issues and their impacts. The Ministry of Law (MinLaw) will also work with legal associations such as LawSoc, Singapore Academy of Law (SAL) and Singapore Corporate Counsel Association (SCCA) to develop tailored ESG training programmes.

   For more information: SAL | Knowledge Guides

Supply Chain Management

Opportunities

Driven by regulatory pressures and growing environmental consciousness among consumers, more companies are pivoting towards sustainable supply chains. This includes working with suppliers and adopting technology to enhance transparency in tracking sustainability performance. It also includes mitigating downstream emissions through processes such as reverse logistics, where companies facilitate the return of goods for recycling, refurbishment or proper disposal. There is thus an emerging demand for professionals with green skills for the following job roles:

- Demand Planning Analyst/Manager
- Procurement Specialist/Manager
- Sustainable/ Responsible Sourcing Officer
- Supply Planner
- Merchandising Executive

Interventions

There are a variety of CET and PET programmes offered at local institutions to support the supply chain talent pool in Singapore. Some examples are included in the table below:

Overview of CET and PET Pathways

Programme Name ● **CET** ● **PET**	**Training Provider**
● Transitioning to Green Supply Chains ● Environmental Management and Sustainable Development ● Procurement Strategy and Policy ● Bachelor of Science in Supply Chain Management	Singapore University for Social Sciences (SUSS)
● Executive Certificate in Corporate and Environmental Sustainability ● Executive Master of Science in Sustainability Management	NTU
● Introduction to Carbon Accounting: Carbon Emissions and Reporting for Corporations ● Advanced Certificate in Strategic Sourcing ● Master of Sustainability	Singapore Management University (SMU)
● Green Supply Chain Management ● Environmental Assessment and Management System ● Carbon Economy and Reporting ● Carbon Footprint Management	Republic Polytechnic (RP)
● Master of Science in Supply Chain Management ● Bachelor of Engineering in Industrial Systems Engineering and Management[4]	NUS

For more information: EDB | Supply Chain Management Skills Plan

[4] Specialising in Sustainability Analytics, with electives such as decarbonisation, energy systems modelling, and marketing mechanisms.

Vertical Sectors

Vertical green skills are sector-specific, specialised competencies. As Singapore transitions to a low-carbon economy, we identified early opportunities in both existing and emerging sectors, such as Aviation, Maritime, Built Environment, and Carbon Services and Trading.

Aviation

Opportunities

The Aviation sector is transforming its workforce to meet growing demand for sustainable air travel. Ongoing decarbonisation efforts include the adoption of cleaner-energy vehicles at airports, increasing the use of sustainable aviation fuel, and improving waste management practices.

This transformation is creating opportunities for job redesign and upskilling across the sector. For example, in the ground handling sub-sector, technicians will need to upskill and specialise in EV maintenance and management to support cleaner-energy airside vehicles. For in-flight catering, workers will need to be trained in advanced waste segregation techniques to comply with environmental regulations and implement effective waste reduction strategies.

Interventions

The Civil Aviation Authority of Singapore (CAAS) has launched a S$200 million OneAviation Manpower Programme to support the attraction, development and retention of the aviation workforce. This includes enabling workers and employers to capture new opportunities through job redesign and workforce upskilling efforts, driven by trends such as automation, digitalisation, AI, and sustainability. WSG has also launched a Job Redesign Playbook to support companies in identifying and implementing job redesign opportunities effectively.

Under the Memorandum of Understanding on Aviation Talent Development between CAAS and nine local IHLs, CAAS is also working with industry and academia to strengthen curriculum relevance and expand educational pathways in line with evolving industry needs for green skills.

For more information:
CAAS | Aviation Jobs Transformation Report

Built Environment

Opportunities

Developed by the Building and Construction Authority (BCA) and the Singapore Green Building Council (SGBC), the Singapore Green Building Masterplan (SGBMP) reflects a commitment to pursue more ambitious sustainability standards in the Built Environment sector. To support the SGBMP, industry practitioners will need to be equipped with the knowledge and skills to design and implement effective solutions for an integrative, adaptable and sustainable urban system.

For more information:
BCA | Green Building Masterplans

Interventions

As the appointed CET centre for the Built Environment sector, BCA Academy offers training programmes to support BCA's priorities. It will also develop industry-relevant competencies in line with the Built Environment Industry Transformation Map (ITM). To ensure that the BCA Academy's programmes remain targeted and relevant, BCA Academy engages regularly with relevant stakeholders such as the TACs, to align programmes with industry skills needs.

For more information:
BCA | Built Environment Industry Transformation Map

Carbon Services and Trading

Opportunities

Carbon markets enable countries and companies to finance decarbonisation through generating and trading carbon credits. Southeast Asia (SEA) holds up to 20% of the world's biodiversity, creating significant potential for nature-based solutions such as from peatlands and mangroves. Singapore plays a key role in supporting capacity building and the scaling of carbon markets in our region and internationally.

Outside of carbon markets, the transition to a low-carbon economy in SEA is generating demand for advisory and professional services across a full spectrum of decarbonisation pathways. As of June 2024, 107 countries have adopted net-zero pledges, and more corporates in SEA are implementing climate targets and ESG mandates. Growing Singapore's ecosystem of services in decarbonisation advisory, carbon accounting, and reporting will serve both domestic and regional needs, building on our strengths in the Financial and Professional Services sectors.

Today, Singapore is home to over 150 carbon services and trading firms with roles such as:

- Carbon Accountant
- Decarbonisation Consultant
- Insurer for Decarbonisation Projects
- Carbon Investment Specialist
- Carbon Trader
- Carbon Project Developer
- Carbon Auditor
- Carbon Verifier

Interventions

Defining Skills and Career Progression

EDB and EnterpriseSG have partnered with SSG to create the Skills Framework for Carbon Services and Trading.

For more information: SkillsFuture | Carbon Services and Trading

Training and Education Opportunities

EDB and EnterpriseSG are working with IHLs to develop CET and Post-Graduate (PG) courses on carbon services and trading (e.g. NTU's Carbon Markets Academy of Singapore, NUS's Sustainability Academy) to bridge knowledge gaps in this sector.

Support for Mid-Career Switchers

WSG's Career Conversion Programme for Sustainability Professionals provides structured support for upskilling and job placements, including roles in the Carbon Services and Trading sector.

To support the upskilling of our workforce for roles in this sector, Singapore's IHLs offer a suite of courses to build capabilities.

Training Provider	Programme Name ● CET ● PG
NUS	● Professional Certificate in Carbon Services and Trading ● Master of Science in Biodiversity Conservation and Nature-based Climate Solutions
NTU	● Executive Certificate in Carbon Markets ● Carbon Credit Quality and Due Diligence ● Executive Master of Science in Sustainability Management

Electric Vehicles

Opportunities

Singapore aims to phase out internal combustion engines (ICE) vehicles by 2040 in favour of cleaner-energy vehicles, including EVs. To support this, a key priority for the Land Transport Authority (LTA) is to ensure that EV and charger technicians are equipped with the safety skills for EV handling and charger installation per the Technical Reference Standard 25 (TR25).

Interventions

Together with SSG, LTA has collaborated with industry partners and IHLs to offer subsidised training to equip the workforce with the required skills and to develop two specialised certifications.

Training Provider	Programme Name
Institute of Technical Education (ITE) College West and RP	**Certification Course for EV Charger Specialist** The course accredits workers and technicians as Equipment Specialists to certify and inspect EV chargers.
Ngee Ann Polytechnic, ITE College West, Singapore Polytechnic (SP), ComfortDelGro Engineering, NTUC Learning Hub, and RP	**National EV Specialist Safety (NESS) Certification** The programme equips workers with essential skills and knowledge of high-voltage systems and basic EV safety.

Environmental Services

Opportunities

To create a cleaner, safer, and more liveable environment, there is growing demand for environmental services, which has led to the adoption of:

1. Robotics and Automation,
2. Environmental Health & Safety (EHS) digital solutions, and
3. Data Analytics, which can enhance conventional roles in cleaning, waste management, and vector control.

Additionally, in line with the National Environment Agency's (NEA) zero waste ambitions, skill demands are high for areas such as:

1. Environmental Engineering,
2. Waste Treatment, and
3. Sustainability Management, in support of e-waste and plastics recycling.

Interventions

NEA has partnered SSG, WSG and the Environmental Services industry to develop the Skills Framework for Environmental Services, which identifies in-demand and emerging skills and competencies.

NEA has also collaborated with IHLs, trade associations, and training providers to develop and launch the following CET programmes:

1. Diploma in Applied Science (Environmental Services & Management) by RP, which covers e-waste, food waste management, health and safety, and sustainability management.
2. Zero Waste Manager (ZWM) course, which covers competencies in waste management and the integration of the 3Rs (Reduce, Reuse, Recycle) into organisational culture, and is part of WSG's Career Conversion Programme for Sustainability Professionals. The course is offered by NTUC LearningHub, RP, and the Waste Management and Recycling Association of Singapore (WMRAS).
3. SkillsFuture Career Transition Programme (SCTP) for Environmental Services by Temasek Polytechnic (TP), which offers skills training and job-matching services for mid-careerists, and covers environmental standards, outcome-based contracting, robotics and automation applications, recycling, and Internet-of-Things (IoT) dashboards to monitor cleaning performance, amongst others.

For more information: NEA | CET Courses and Programmes under Environmental Services ITM

SME Success Story 1: [Sustainable Asset Management Solutions Pte Ltd] Enhancing workforce capabilities through the ZWM Course

Established in 2017, Sustainable Asset Management Solutions Pte Ltd (SAMS) is a leading electronics waste management company that provides sustainable IT asset disposition and e-waste recycling solutions to local and regional clients. SAMS helps organisations manage e-waste responsibly while ensuring data security and environmental compliance. The company advances circular economy goals, aiming to achieve zero landfill with maximum resource recovery and minimal carbon footprint.

Through the ZWM Course, SAMS strengthened its workforce capabilities in sustainable waste planning, the 3Rs programme implementation, regulatory compliance, and sustainability culture-building. These competencies have transformed one of SAMS's employees into a highly skilled green specialist, empowering the team to design robust e-waste audits, innovate recycling solutions, and advocate best practices.

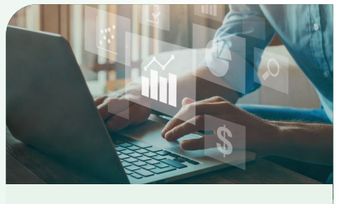
Investing in green skills has enhanced SAMS's operational resilience, strengthened stakeholder trust, and positioned the company to capture opportunities in the green transition. Better resource optimisation lowers operating costs, while stronger green credentials attract more eco-conscious clients and support compliance with international sustainability standards.

Energy Efficiency in Industry

Opportunities

Manufacturing is the largest energy consumer and emitter of greenhouse gases (GHGs) in Singapore. Improving energy efficiency in industry is therefore critical to emissions reduction, complementing other decarbonisation measures such as shifting to lower-carbon fuels for power generation.

NEA's Energy Conservation Act is a legislative lever which mandates registered corporations to carry out energy management practices, such as:



Appointing an Energy Manager;

Monitoring and Reporting Energy Use and GHG Emissions Annually; and

Submitting Energy Efficiency Improvement Plans.

A key manpower priority is equipping energy managers with the right skills to fulfil these regulatory responsibilities and deliver real energy efficiency gains.

Interventions

The Singapore Certified Energy Manager (SCEM) programme, offered by the Institution of Engineers, Singapore (IES) Academy and the Sustainable Energy Association of Singapore (SEAS), certifies engineering professionals who aspire to be energy managers. The programme gives them an understanding of the key energy issues in the Building or Industry sectors. Additionally, IES maintains a registry of certified SCEMs and updates them on relevant professional development courses.

For more information: NEA | Singapore Certified Energy Manager Programme

Maritime

Opportunities

The Maritime sector is witnessing a growing adoption of green marine fuels, spurred by the targets in the 2023 International Maritime Organization (IMO) GHG Strategy. Maritime workers will need to be equipped with the skills to safely handle and operate alternative marine fuels and dual-fuel vessels to support international shipping's multi-fuel transition.

Interventions

MPA has worked with 54 stakeholders across the maritime ecosystem to set up the METF. The METF provides a decentralised network of training facilities to support training needs, with a focus on alternative fuels (e.g. methanol and ammonia) and new technologies (e.g. electrification) to support the industry's energy transition. By end-2030, the METF expects to have trained around 10,000 seafarers and maritime personnel.

MPA and SSG have collaborated to develop a sustainable maritime skills rubric for incorporation into the Skills Framework for Sea Transport. This framework will guide the sector in building competencies for vessel electrification, including the configuration, installation, and maintenance of charging infrastructure.

Tourism

Opportunities

With more tourists and business travellers looking out for experiences that are sustainability-friendly, the STB has developed a vision for Singapore to become a City in Nature, where 'Large Experiences come with Small Footprints'. Singapore's strategy for sustainable tourism will focus on greener operations and showcasing Singapore's sustainability efforts. To realise this vision and capture opportunities, workforce capability development is a priority.

Interventions

Launched in 2022, the Tourism Sustainability Programme (TSP) serves as a one-stop portal for businesses to access sustainable tourism resources. The TSP's jobs and skills roadmap was developed around four clusters of green skills: sustainability certifications, carbon management, green procurement and supply chain management, and sustainability marketing. STB also introduced learning journeys for key stakeholders (e.g. hotels, business events companies, and attractions) to promote knowledge sharing.

For more information:
STB | Tourism Sustainability Programme

Deep Dives

This section presents deep-dives into two areas that the GSC has identified as critical for our economy's transition to a low-carbon future: the Sustainability Reporting and Assurance (SRA) and the Energy sectors. Both will experience strong near-term demand for green skills, with a projected 5,000 workers needed in both sectors by 2030.

Deep Dive 1 Sustainability Reporting and Assurance

Priority Setting

As we journey towards a lower-carbon economy, more companies are progressively disclosing more climate-related information to meet stakeholder expectations. To address this growing demand, we need to strengthen the pipeline of professionals who can take on sustainability reporting-related roles in Singapore. As part of this effort, the GSC established a sub-workgroup on SRA to identify the skills and training needed for companies to prepare climate and sustainability reports aligned with international standards, and for assurance providers to audit greenhouse gas emissions reports.

The SRA sub-workgroup was co-led by Ms Esther An of City Developments Limited (CDL), Ms Kuldip Gill of ACRA and Ms Ong Lixia of EnterpriseSG. It comprised representatives from industry, TACs, IHLs and professional bodies.

Quote from Ms Esther An, Sub-Workgroup Co-Chair/Chief Sustainability Officer, CDL

Preparing high-quality sustainability disclosures provides decision-useful information that enables businesses to meet the needs of investors and stakeholders along their value chain.

To better build capacity and a strong foundation in sustainability reporting, the SRA sub-workgroup sets out to identify and close the knowledge and skill gaps among SRA professionals. The sub-workgroup brought together key stakeholders from across the SRA ecosystem and conducted extensive consultations to identify job roles and skills required in SRA, uncover gaps in the training landscape, and develop targeted solutions.

We hope these efforts will better equip businesses and professionals with the skills needed to increase knowledge, seize new opportunities and remain competitive.

Job-Skills Identification, Development & Validation

The sub-workgroup engaged extensively with members and industry partners to identify emerging job roles and skills[5] in SRA. These were then developed in collaboration with SSG to update the Skills Framework for Accountancy.

Emerging Job Role	Emerging Skill
Chief Sustainability Officer, Sustainability Head/ Lead, Sustainability Director	Sustainability Assurance
Sustainability/ESG Specialist	GHG Accounting
Sustainability/ESG Analyst	Environmental Impact Assessment
	Climate Reporting

For more information: SSG | Job-Skills Portal – Frameworks

Manpower Needs, Skill Gaps and Interventions

The demand for SRA professionals is expected to increase from about 2,000 professionals in 2023 to around 4,000 by 2030. This includes the manpower required for in-house sustainability reporting and professional services.

Through extensive consultations with sub-workgroup members and industry, we identified several gaps in the SRA training ecosystem. While there is a wide range of foundational sustainability courses, professionals increasingly require more advanced courses that equip them with practical skills. At the same time, training providers face challenges in developing appropriate content that keeps pace with evolving sustainability reporting standards, and in establishing a sufficient pool of experienced professionals in this emerging field. Training opportunities will also need to be enhanced to strengthen the talent pipeline.

In response to these skill gaps, the sub-workgroup developed the following interventions:

1. Sustainability Reporting Body of Knowledge (SR BOK)

ACRA launched the SR BOK to provide an outline of essential knowledge areas to guide training providers in developing better quality and more advanced courses for professionals involved in sustainability reporting. It also seeks to ensure consistency in the depth of training programmes across different training providers.

The SR BOK covers five main topics:

1. Introduction to Sustainability Reporting
2. Application of International Financial Reporting Standards (IFRS) S1 General Requirements for Disclosure of Sustainability-related Financial Information and Materiality Assessment
3. Application of IFRS S2 Climate-related Disclosures
4. Application of GHG Protocol
5. The importance of governance in sustainability reporting, and the value and business case for sustainability reporting (beyond reporting and compliance)

[5] Refer to Annex A1 for details on emerging SRA job roles. Refer to Annex A2 for details on emerging SRA skills.

Key Applications of SR BOK

Stakeholders Involved	Application of SR BOK
Training Providers	The topics outlined in SR BOK can help training providers curate content that meets industry needs and regulatory reporting requirements, serving as a guide for designing new training programmes and enhancing existing courses in sustainability reporting.
Professionals	SR BOK can be used to assess a professional's current skills and identify knowledge gaps in SRA. This will help professionals identify suitable courses to address their learning needs.
Employers	SR BOK can be used to craft job descriptions for sustainability reporting–related roles.

For more information: ACRA | Sustainability Reporting Body of Knowledge

2. Train-the-Trainer (TTT)

The TTT programme was developed by SSG to ensure consistent and high-quality delivery of training programmes that are aligned to the SR BOK. It aims to enhance the proficiency of training providers in the latest SR standards, regulations and frameworks outlined in the SR BOK. By building their capabilities to keep pace with evolving sustainability reporting standards, the TTT enables training providers to effectively deliver the BOK materials, addressing the limited pool of experienced professionals in this emerging field. The TTT also incorporates industry-specific case studies to contextualise skills for different sectors.

Main Content Areas

Aligned with SR BOK, TTT will focus on:

1. Regulations on sustainability reporting,
2. Sustainability reporting, and
3. GHG emissions accounting, materiality assessment, and scenario analysis.

Specific Objectives

Enhance trainers' proficiency in latest SR developments in standards and regulations, including:

1. Updates on climate risk (physical and transition) and International Sustainability Standards Board (ISSB) readiness for companies subject to mandatory reporting
2. Progress in future reporting frameworks, including ISSB and GHG Protocol
3. Research findings and insights

Provide trainers with practical experience in:

1. Case studies and discussions, and
2. Digital sustainability and reporting tools.

For enquiries on the TTT, please reach out here.

3. SME Sustainability Reporting Programme

The SME SRP was developed by EnterpriseSG in response to two key areas of feedback, namely:

1. SMEs faced challenges in reporting their performance to stakeholders along their value chain due to a lack of resources and expertise, and
2. Shortage of hands-on training opportunities in sustainability reporting for interns.

To address some of these challenges, the SME SRP was piloted with select service providers. The service providers also collaborate with IHLs to train a pipeline of interns to support the development of sustainability reports. The SME SRP aims to help local, non-listed SMEs in developing their first sustainability reports, while providing attachment opportunities for interns to gain hands-on sustainability reporting experience. Participating companies receive guidance on identifying material areas, collecting data, and drafting reports in line with international reporting frameworks.

For more information:
EnterpriseSG | SME Sustainability Reporting Programme

SME Success Story 2: [TS Group Pte Ltd]
Developing Sustainability Reporting Expertise Among In-House Professionals

TS Group, a specialist in managing accommodation facilities, tapped the SME SRP for support to develop its sustainability report and build in-house sustainability reporting expertise, including identifying material topics through stakeholder engagement, collecting accurate ESG data, and establishing methods for measuring emissions. With these capabilities embedded in its core sustainability team, TS Group is now fully equipped to manage future sustainability disclosures independently and efficiently.

TS Group's first sustainability report has enabled it to strategically highlight its ESG initiatives and commitment to sustainability, thereby enhancing its appeal to key stakeholders such as customers and investors. In preparing the report, TS Group also established processes to monitor areas such as resource efficiency, climate risks, and workplace safety. This enabled TS Group to identify reduction opportunities across resource areas, strengthen ESG risk management, and build stakeholder confidence, strengthening future access to green financing opportunities.

Deep Dive 2
Energy Sector

Priority Setting

The Energy sector – which encompasses the generation, transmission, and distribution of electricity – accounts for about 40% of Singapore's carbon emissions. To support Singapore's goal of net-zero emissions by 2050, the Energy Market Authority (EMA) has developed an energy transition plan focusing on measures across supply, demand, and grid infrastructure.

To support this transition, the Energy sub-workgroup has identified four sub-sectors to prioritise for green skills development:

1. Solar
2. Energy Storage Systems (ESS)
3. Smart Grid
4. Electricity Imports

Quote from Sub-Workgroup Co-Chair, Mr Robert Chong, Sub-Workgroup Co-Chair/Chief Corporate and Human Resource Officer, Sembcorp Industries Ltd

Singapore's clean energy transition is full of possibilities. We need to build a workforce with the right skills that can seize these opportunities both domestically as well as in the region. This will benefit both the individual and businesses as new jobs are created across the Energy value chain. By leveraging the collective expertise of industry, IHLs, training providers and government, the technical sub-workgroup for Energy has developed training interventions to equip the workforce in emerging jobs and skills in clean energy. Let us embrace the change to make Singapore's energy transition a reality.

Jobs-Skills Identification, Development and Validation

The sub-workgroup identified key job roles and skills for each sub-sector, including their current (as of 2022) and projected demand by 2026. Workforce demand for the identified job roles across the four sub-sectors is expected to grow by 70% from 2022, reaching approximately 720 workers to support both local and regional projects.

expected ↑70% from 2022

720 worker to support both local and regional projects

Sub-Sector	Number of In-Demand Job Roles	Projected Employment Size (2022 / 2026)	Top Value Chain Activities
Solar	26	215 / 317	Operations and Maintenance Solar System Design Project Management
ESS	52	129 / 253	Operations and Maintenance ESS System Design ESS Software Creation Power and Control
Electricity Imports	16	40 / 86	Pre-feasibility and Feasibility Assessments
Smart Grid	11	36 / 57	Development of Software to Optimise the Remote Control and Operational Efficiency of Devices and Distributed Energy Resources (DERs) Connected to the Grid

In consultation with Industry, 16 new clean energy job roles and five new skills were prioritised for development with SSG to update the Skills Framework for Energy and Power. These will facilitate curriculum development and enhancement by IHLs and training providers.

New Job Roles

Sub-Sector	Job Roles[6]
Solar	Solar PV Asset Performance Engineer
ESS	Battery and Energy Storage System (BESS) Battery Management System (BMS) Research and Development Engineer BESS Electrochemistry Research and Development Engineer BESS Engineer BESS Mechanical and Material Research and Development Engineer BESS Quality Assurance and Certification Engineer BESS Test and Commissioning Engineer
Electricity Imports	High Voltage Direct Current (HVDC) Building Specialist HVDC Infrastructure Specialist HVDC Operations and Maintenance Specialist HVDC System Integration Engineer Lead Engineer Technical Feasibility Engineer
Smart Grid	Edge Connectivity and Solution Engineer

Cross-functional roles
Optimisation Engineer
Power System Engineer

[6] Refer to Annex B1 for job role descriptions.

New Skills[7]
Battery and ESS Testing and Diagnostics
Distributed Generation System Performance Monitoring Management
HVDC System Engineering and Design
HVDC System Operations and Maintenance
Sub-sea Electricity Transmission Engineering Management

Manpower Needs, Skill Gaps and Interventions

Across each of the four sub-sectors, jobs and skills specific to building technical capabilities were prioritised for manpower development. A review of existing CET programmes was also conducted to assess their ability to meet demand for the key skills by 2026. The review highlighted potential areas where training provision could be enhanced.

Building on this, the sub-workgroup and industry partners shortlisted priority skills for manpower development across the sub-sectors, and developed sector-specific CET short courses to address these clean energy skill gaps. These efforts are complemented by WSG's Career Conversion Programme (CCP) for the future Energy and Chemicals (E&C) sector, which supports new and existing employees in transitioning into clean energy roles.

[7] Refer to B2 for Technical Skills and Competencies (TSC) description.

Solar

Sub-Sector Maturity:

Mature

Number of In-Demand Job Roles Prioritised for Manpower Development: 10

Number of Skills Prioritised for Manpower Development: 8

Results of CET Provision Scan (2023)

1. There is sufficient CET provision across the entire solar value chain, from design, installation, and operations and maintenance.
2. There is scope to augment CET provision in (i) Solar Site Surveying and (ii) Solar Modelling, Design and Simulation skills.

Top Skill Areas

1. Modelling, Design, and Simulation
2. Site Surveying

CET Interventions Developed

1. Sembcorp Solar Singapore SkillsFuture Queen Bee (SFQB) programme

ESS

Sub-Sector Maturity:

Developing

Number of In-Demand Job Roles Prioritised for Manpower Development: 33

Number of Skills Prioritised for Manpower Development: 20

Results of CET Provision Scan (2023)

1. CET provision for skills is predominantly in areas of Regulatory Compliance, ESS and Grid Integration, and Battery System Design.
2. Many ESS technical skills are unserved or underserved and require further CET interventions.

Top Skill Areas

1. Battery Safety Compliance
2. Renewable Energy Integration
3. Modelling, Design, and Simulation

CET Interventions Developed

1. Industry Best Practices in Compliance with International Safety Standards for Safe Installation, Operation and Maintenance of ESS course at TP
2. Grid Integrated ESS: Technologies, Standardisations and Applications Course at the Singapore Institute of Technology (SIT)

Electricity Imports

Sub-Sector Maturity:

Early Stage

Number of In-Demand Job Roles Prioritised for Manpower Development: 8

Number of Skills Prioritised for Manpower Development: 16

Results of CET Provision Scan (2023)

1. CET provision in areas such as sub-sea cables and regional power integration remain in its early stages.

Top Skill Areas

1. Renewable Energy Asset Operations Management
2. Renewable Energy Generation Optimisation
3. Imports Project Technical Assessment

CET Interventions Developed

1. HVDC Power Transmission Course at the Singapore Institute of Power and Gas

Smart Grid

Sub-Sector Maturity:

Early Stage

Number of In-Demand Job Roles Prioritised for Manpower Development: 6

Number of Skills Prioritised for Manpower Development: 8

Results of CET Provision Scan (2023)

1. While some relevant skills such as programming and data management are covered under general computer engineering diplomas and existing CET short courses, there are limited dedicated CET courses available.

Top Skill Areas

1. Algorithm Optimisation
2. Communication Protocols

CET Interventions Developed

1. Smart Grid Masterclass at SIT
2. Optimising Power and Energy Efficiency through IoT and Digitalisation at SP

Tools and Resources for Green Skills Development

This final section documents the key programmes and self-help resources for businesses and workers to tap on to seize the new opportunities in the green transition. This complements the government and institution-led interventions detailed in Sections 2 and 3.

Self-Help Resources

SSG's Green Resources page on the Jobs-Skills Portal offers easily accessible information for individuals and businesses looking to build capabilities for a low-carbon economy. The platform serves as a curated repository of green skills plans, training programmes, and insights to support Singapore's transition toward a more sustainable future.

Resource	Function
The Green Jobs-Skills Tools and Guides	Provides practical guidance on green job roles and competencies. A key feature is the Green Task Evaluator Tool, which helps users assess whether their job tasks contribute to environmental sustainability and suggests enhancements to improve the clarity of job task descriptions.
Green Skills Plans	Provides information on emerging green priorities and insights on jobs-skills opportunities. This guides training providers in curriculum development, enterprises in enhancing their talent development programmes, and individuals in planning their upskilling or reskilling journey.
Green Jobs-Skills Insights	Allows users to access data driven insights on workforce trends and evolving skills that are in-demand in the green economy.
Identification of Green Skills	Allows users to explore green skills mapped across workforce sectors. The list of green skills is drawn from the SSG Skills Framework and available for download here.
Green CET Programmes	A comprehensive listing of CET programmes to help individuals build green skills. These programmes are supported by SSG, government agencies, and IHLs.
Green Resources for Businesses	Provides businesses with information on key sustainability topics aligned with the Singapore Green Plan 2030 (e.g. sustainability reporting and carbon, energy and resource management), government support schemes, and training courses.
Skills Plan Capability Development Programme (Available from early 2026)	To support agencies and partners to develop a Skills Plan that aligns their workforce needs with sustainability goals, identify jobs and skills requirements, and develop workforce capability development plans.

Funding for Green Skills Training

SSG-registered providers with credible programmes aligned to the Skills Plan Framework may receive expedited funding approval for new sustainability courses, subject to prevailing SSG funding criteria. Sustainability-related job roles featured in sectoral JTMs may also qualify for WSG's funding support.

Catalysing Participation in Skills Development

Learning from Industry Leaders

SSG introduced the SkillsFuture Queen Bee (SFQB) initiative to help SMEs build green capabilities. SSG appoints industry leaders in key sectors to champion green skills development and support SMEs in implementing sustainable practices across their operations. Currently, there are more than ten active SFQBs focusing on sustainability, which aim to support more than 2,800 SMEs.

SSG's SFQB network includes:

1. **ST Logistics**

   Since 2023, ST Logistics has strengthened its role as a SFQB by launching its first SFQB-endorsed course under the Sustainability Job Redesign and Reskilling (JRR) initiative, complemented by a series of Sustainability Masterclasses. Between 2023 and 2025, four runs were conducted, drawing on expertise from both ST Logistics' in-house specialists and external partners including NTUC LearningHub and RP.

   Designed to strengthen the long-term sustainability and competitiveness of ST Logistics' supplier and vendor network, the masterclasses covered advanced and emerging topics including ESG reporting, circular economy practices, agile operations and digital transformation. This enabled participants to build practical capabilities aligned with evolving industry standards and operating requirements.

   Through these initiatives, ST Logistics continues to work with suppliers and vendors to promote continuous improvement, enhancing ecosystem resilience and supporting the long-term stability and growth of its supply chain.

2. **Sembcorp Solar**

   The first SFQB for the Energy sector, Sembcorp Solar Singapore (a wholly owned subsidiary of Sembcorp Industries) focuses on strengthening Singapore's solar energy ecosystem through skills development and capability transfer to support Singapore's Solar switch in the national energy transition.

   Sembcorp Solar's SFQB programme aims to help at least 45 companies and 500 workers in the sector:

   a. build competency across the solar project lifecycle from design and installation to operations and maintenance;

   b. adopt digital and sustainable technologies to improve efficiency; and

   c. drive business transformation by fostering a sustainability-driven culture.

   Sembcorp Solar will also provide mentorship for 42 proof-of-concept projects for companies to pilot innovative solar solutions that can improve productivity, cost savings and environmental impact.

3. **UOB**

   As part of the SFQB initiative, UOB champions sustainability and innovation in the financial services sector. Through the UOB Sustainability Innovation Programme, UOB empowers SMEs to build green capabilities, adopt sustainable practices, and future-proof their businesses in line with the Singapore Green Plan 2030.

Key Contributions:

a. Catalysing Green Skills Development: UOB provides SkillsFuture Singapore (SSG) funded training programme and advisory support to SMEs, equipping them with the knowledge and skills to integrate sustainability into their operations. This includes areas such as carbon accounting, sustainable financing, and ESG reporting.

b. Through the Sustainability Innovation Programme, UOB connects SMEs with technology partners, solution providers, and industry experts to co-create innovative solutions that reduce environmental impact and enhance business resilience.

c. UOB offers tailored guidance to help SMEs build sustainability capabilities and adopt sustainable business models, ensuring they remain competitive in a low-carbon economy.

UOB fosters collaboration across industries, sharing best practices and mentoring SMEs to accelerate their sustainability journey.

4. **Grab**

Grab organises workshops for SMEs in the Food Services sector on waste reduction, sustainable sourcing, and compliance with eco-friendly regulations. The company has partnered institutions such as Asian Culinary Institute Singapore, to provide relevant workshops and SSG-funded courses on sustainability and food innovation for changing consumer preferences.

SME Success Story 3:
[S.M.E. Electrical Co Pte Ltd] Innovative Solutions for Enhanced Business Operations

S.M.E Electrical Co. (Pte.) Ltd services include solar photovoltaic (PV) installation and maintenance services, and the design, installation and retrofitting of high, low tension and extra low voltage electrical systems. Through the SFQB programme with Sembcorp Solar, the company co-developed the SolarCar, an innovative robotic solution which transforms solar PV inspections by navigating beneath low-mounted PV arrays, which was originally a physically demanding task done by workers.

SolarCar has reduced inspection time by 33% and generated operational cost savings whilst mitigating ergonomic risks in tight, heat-exposed spaces. This enables faster detection of anomalies such as panel interconnection issues without requiring physical panel removal.

To sustain these productivity gains, the partnership also prioritised workforce skills development for effective technology adoption. Ten workers from S.M.E. Electrical Co. attended SFQB courses on "Adopting Safe Work Practices for PV Installation" and "Conducting Quality Assurance & Quality Control for Solar PV Systems". These equipped the workers with enhanced safety competencies and quality assurance know-how, enabling them to transition from manual inspection tasks to higher-value, technology-enabled inspection and maintenance roles.

Michael Too, General Manager, said: "The SFQB programme has not only helped us bring innovative ideas to life, but also enhanced our workers' skills to thrive in Singapore's evolving solar industry. We will continue supporting upskilling initiatives which help us achieve this."

Building Up the Supply of Skilled Professionals

WSG's Career Conversion Programme for Sustainability Professionals

WSG, in collaboration with the Singapore Business Federation (SBF) and Singapore National Employers Federation (SNEF), offers the Career Conversion Programme for Sustainability Professionals (CCP-S) to develop talent for sustainability-related roles. The programme supports mid-career transitions and caters to both new hires and existing employees:

Place-and-Train for New Hires	**Job Redesign (JR) Reskilling for Existing Employees**
Six months of structured on-the-job training (OJT).	Three months of structured OJT to reskill existing employees for redesigned or new sustainability-related roles.

To complement the CCP-S training, participating companies are also required to attend career planning workshops, to support them in designing Career Development Plans for their trainees. This ensures that upskilling efforts translate into meaningful, long-term career outcomes aligned to organisational needs.

WSG also provides salary support to participating companies under the CCP-S. The level of salary support will depend on the trainee's profile.

Standard Rate For Singapore Citizens/Permanent Residents aged below 40	**Enhanced Rate** For Singapore Citizens/Permanent Residents aged 40 and above, or the Long-term Unemployed[8].
Up to 70% of monthly salary for CCP-S duration (capped at $5,000/month)	Up to 90% of monthly salary for CCP-S duration (capped at $7,500/month)

[8] Long term unemployment is defined as being unemployed and actively seeking employment for six months or more.

WSG's Career Conversion Programme for Future Energy and Chemicals Sector

In partnership with the Singapore Chemical Industry Council (SCIC), WSG has launched a CCP to support companies in the E&C sector. This programme will help companies in the E&C sector retain, retrain, and recruit talent as they navigate the industry's low-carbon transition.

In line with Singapore's national decarbonisation strategy, E&C companies will shift towards higher-value, low-carbon chemicals, and sustainable product development. Through this programme, employees will undergo upskilling to equip themselves with the necessary skill sets. Like CCP-S, the programme is structured to support various workforce segment needs through the following two modalities:

Place-and-Train for Mid-Career New Hires	JR Reskilling for Existing Employees
1. Professionals, Managers, Executives, and Technicians (PMETs): Six months OJT 2. Rank-and-File (RnF): Three months OJT	Both PMETs and RnF: Three months OJT will be provided to existing employees who require reskilling to take on redesigned or new roles.

Advancing Green Skills through CET Initiatives

SSG's CET Support Plan outlines its strategy for building green capabilities across the workforce. The plan comprises both broad-based and sector-specific interventions to equip individuals for emerging green roles.

SME Success Story 4:
[Vac-Tech Engineering Pte Ltd] Building Sustainability Capabilities through CCP-S

Vac-Tech Engineering Pte Ltd is a leader in industrial maintenance and hazardous waste treatment and transportation services. Through participation in CCP-S, the company has reskilled key personnel and built internal expertise in carbon management, sustainability strategy, compliance, and reporting. This has enabled the company to meet evolving industry standards and support clients' sustainability requirements more effectively.

Ms Phun Li Xiu, Rachel, Head of Sustainable Projects and Innovation, transitioned into this role from her previous role as a Senior Control Planning and Control Engineer. Through OJT, she gained expertise in sustainable project leadership, green technology integration, and Key Performance Indicator (KPI) framework development. Today, she leads the integration of sustainability into project planning, manages audit readiness for International Organisation for Standardisation (ISO) certifications, and analyses sustainability data. She reflects, "The CCP-S journey has empowered me to lead Vac-Tech's sustainability transformation with confidence. From carbon tracking to stakeholder engagement, the skills I have gained are now central to our operations."

At the programme level, SSG collaborates with training partners to deliver placement programmes for individuals transitioning into green job roles, alongside modular courses for in-service workers who are looking to deepen their green skills. To build a robust talent pipeline for sustainability roles, SSG has introduced 18 placement programmes, comprising six Work-Study Programmes (WSPs) and 12 SkillsFuture Career Transition Programmes (SCTPs), to facilitate the transition of graduates and mid-career individuals into sustainability-related positions such as carbon accounting, green supply chain management and sustainable finance. To-date, over 13,000 individuals have enrolled in more than 640 sustainability-related CET courses.

SSG has also worked with the relevant sector agencies, such as ACRA and IBF, to develop new sustainability programmes. These programmes will be progressively expanded to include additional green skills aligned with industry needs.

Developing Companies' In-House Capabilities

EnterpriseSG's multi-pronged approach to supporting green skills development

EnterpriseSG supports the development of green skills through existing resources and capability-building initiatives. These include:

Type of Support	Initiative	Description
Build knowledge and understanding on key sustainability concepts	SME Sustainability Hub (SSH)	Provides guidance on key sustainability topics, including sustainability reporting and carbon management, as well as access to sustainability support and resources.
	Singapore Emission Factors Registry (SEFR)	Provides access to local emission factors to support accurate accounting of GHG emissions.
Strengthen capabilities through partner programmes	DBS ESG Ready Programme	Supports companies in building capabilities in carbon accounting, decarbonisation, resource efficiency, and standards adoption. Companies receive advisory support, tools, and access to green financing upon achieving key programme milestones.
	OCBC SME Start-ESG Programme	Helps SMEs build capabilities to improve ESG performance ratings and reduce carbon emissions. Companies receive advisory support on the implementation of sustainability practices and can unlock sustainability-linked loans upon achieving programme milestones.
	UOB Sustainability-Linked Advisory, Grants and Enablers (SAGE) Programme	Supports companies in developing capabilities to reduce carbon emissions, certify management systems, and improve ESG performance ratings. Companies gain access to advisory support and can unlock preferential rates for sustainability-linked loans upon achieving programme targets.

Type of Support	Initiative	Description
Strengthen capabilities through partner programmes	GCNS LowCarbonSG Programme	Supports companies in monitoring and reducing their carbon emissions. Participants gain access to the Carbon and Emissions Recording Tool (CERT), carbon management workshops, as well as recognition via the LowCarbonSG Participant Logo upon achieving emissions tracking milestones.
	Singtel SPEED Programme	Offers training on sustainability fundamentals and green technology, as well as IoT solutions to track energy and emission performance.
	SBF Cost and Carbon Reduction Programme	Supports companies in the Food, Manufacturing, and Transport and Logistics sectors to calculate Scope 1 and 2 emissions and develop decarbonisation roadmaps, with support from the AI-powered DecarboniSME tool.
Access financial support for sustainability projects	Enterprise Development Grant – Sustainability (EDG-S)	Supports companies in embarking on sustainability projects, such as sustainability strategy development, resource optimisation, sustainability standards adoption, and sustainable product and service development.
	Productivity Solutions Grant (PSG) for Carbon Management	Supports SMEs in building carbon accounting capabilities by providing essential tools to calculate emissions, starting with Scope 1 and Scope 2 emissions.
	Sustainability Reporting Grant	Supports listed and large non-listed companies to prepare their first sustainability reports incorporating ISSB-based climate-related disclosures ahead of compliance timelines for climate-related disclosures.

Conclusion

The collaboration between government, industry, workers and academia in GSC demonstrates the value of an integrated public-private approach for skills development, especially in nascent areas such as sustainability. This model brings two key benefits. First, by bridging demand and supply, it ensures targeted identification of where talent is needed most and accelerates rollout of training programmes. Second, strong industry involvement in developing new training interventions builds confidence in the quality and relevance of these programmes. For workers, this provides greater certainty that investing time and resources in upskilling will improve their employability. For businesses, this provides access to a talent pipeline for sustainability-related roles.

Even as the GSC concludes its work, green skills development will continue. Rapid technological advancements and evolving climate risks and regulatory requirements in ESG mean that green skills must be continually refreshed to meet business needs.

The GSC's collaborative model provides a framework to integrate the roles and responsibilities of key stakeholders in the green skills and workforce development ecosystem:

Government Agencies

Coordinate national efforts to drive the low-carbon transition, including aligning sectoral green growth plans with skills development and manpower planning.

Industry

Provide insights on emerging demand and define green jobs-skills needs. Partner with government and training providers to keep training relevant and provide OJT opportunities.

IHLs, Training Providers

Translate skills demand into quality curricula and professional development pathways, to ensure that students and the workforce are equipped to take on sustainability-focused job roles.

TACs, Professional Bodies

Represent the business community to aggregate industry feedback, facilitate knowledge sharing, and support the development of best practices among businesses and professionals.

Trade Unions

Advocate for and support workers' upskilling, provide insights on potential job displacement and emerging career pathways, and facilitate job matching in the low-carbon economy – ensuring a Just Transition where workers are supported and empowered, as we shift towards a more sustainable and inclusive economy.

The GSC has curated and implemented a set of initiatives and resources to support our businesses and workers in our transition to a low-carbon economy. The government will continue to collaborate with industry, the trade unions and TACs, and training providers to build a future-ready workforce, and a resilient and competitive low-carbon future for Singapore.

List of GSC Members and Contributors

List of GSC Members and Contributors

	Name	Designation
GSC Co-Chairs	Dr Beh Swan Gin	Permanent Secretary, Ministry of Trade and Industry/GSC Co-Chair
	Wong Kim Yin	Group CEO, Sembcorp Industries/GSC Co-Chair
Private Sector	Lee Hui Li	Managing Director Singapore, Microsoft
	Helge Muenkel	Chief Sustainability Officer, DBS
	Kelvin Lim	Group CEO, Durapower Group
	Nelson Quek	Regional CEO SEA, PSA International
	Chandran Nair	CEO, Universal Vapor Jet Corporation
	Arthur Chua	CEO, Goldbell Group
	Marcus Lam	Executive Chairman, PricewaterhouseCoopers
	Jeanne Ng	Director, The Fullerton Heritage
Institutes of Higher Learning	Prof Timothy Clark (till Mar 2025)	Provost, Singapore Management University
	Peter Lam	Principal and CEO, Temasek Polytechnic
	Dr Goh Mong Song	Deputy CEO, Institute of Technical Education
Professional Bodies	Dalson Chung	President, The Institution of Engineers, Singapore (May 2022 – May 2024) Immediate Past President, The Institution of Engineers, Singapore (May 2024 – May 2026)

	Name	Designation
Professional Bodies	Carolyn Neo	CEO, Institute of Banking and Finance
Trade Union	Caryn Lim	CEO, Employment and Employability Institute (e2i)
Trade Associations and Chambers	Kok Ping Soon	CEO, Singapore Business Federation
Government	Tan Kok Yam	Chief Executive, SkillsFuture Singapore
	Dilys Boey	Chief Executive, Workforce Singapore
	Chong Yiun Lin	Deputy Secretary (Higher Education and Skills), Ministry of Education
Sustainability Reporting & Assurance (SRA) Sub-Workgroup Co-Chair	Esther An	Chief Sustainability Officer, City Developments Limited
Energy Sub-Workgroup Co-Chair	Robert Chong	Chief Corporate and HR Officer, Sembcorp Industries Ltd

Contributing Agencies

We would also like to extend our appreciation to the following agencies, which had contributed to the work of the GSC.

- SkillsFuture Singapore
- Workforce Singapore
- National Environment Agency
- Land Transport Authority
- Building and Construction Authority
- Singapore Tourism Board
- Ministry of Law
- Ministry of Transport
- Maritime Port Authority of Singapore
- Civil Aviation Authority of Singapore
- Economic Development Board
- Enterprise Singapore
- Accounting and Corporate Regulatory Authority
- Energy Market Authority

Annexes

Annexes

Annex A

A1. Description of new job roles in the Sustainability Reporting and Assurance (SRA) sector

Job Role	Job Roles Description
Chief Sustainability Officer, Sustainability Head/Lead/ Director	The Chief Sustainability Officer, Sustainability Head/Lead/Director: 1. Oversees the development and execution of the organisation's sustainability strategy by aligning it with business goals, industry trends, and stakeholder expectations. 2. Drives the implementation of sustainability initiatives across the organisation's operations, supply chain, and portfolio. 3. Leads efforts to improve ESG performance, defining sustainability targets, policies and governance structures, and tracking progress against goals.
Sustainability/ ESG Analyst	The Sustainability/ESG Analyst: 1. Supports the assessment and evaluation of the organisation's ESG performance and practices against established goals and targets. 2. Utilises analytical skills to collect and analyse data related to the organisation's ESG performance. 3. Conducts research to identify solutions, technologies or strategies that can enhance sustainability performance. 4. Prepares sustainability reports and disclosures to support communication to key stakeholders and will monitor compliance to relevant regulations and industry standards.
Sustainability/ ESG Specialist	The Sustainability/ESG Specialist: 1. Focuses on the development and implementation of sustainability strategies and initiatives, aligned to the organisation's goals and industry best practices. 2. Oversees ESG reporting and disclosure efforts and conducts ESG risk assessments and impact evaluations across operations, supply chains and investment portfolios. 3. Monitors and evaluates ESG performance metrics to identify areas for improvement and innovation.

A2. Description of new skills in the SRA sector

Skill	Skills Description
Climate Reporting	1. Perform data collection and analysis for the preparation of climate-related disclosures and reports on both the impact of an organisation's operations on climate change and the environment, and the impact of climate change on an organisation. 2. Prepare disclosures and reports based on relevant reporting frameworks and standards, providing accurate and transparent climate-related information, as well as guidelines for climate risk mitigation.
Environment Impact Assessment	1. Evaluate and analyse the potential environmental and social consequences of proposed projects, policies, or developments, incorporating regulatory standards, environmental and social science approaches, and stakeholder insights. 2. Inform decision-making by providing information on potential risks, as well as recommendations for minimising ecological and social impacts and promoting sustainable development.
Greenhouse Gas (GHG) Accounting	1. Assess, quantify, and verify GHG emissions produced by an organisation or organisational activities, to support the monitoring and management of an organisation's carbon footprint. 2. Ensure compliance with environmental standards and regulations, and develop strategies for the reduction of emissions and the mitigation of climate change impacts.
Sustainability Assurance	1. Evaluate and verify the accuracy, relevance, and completeness of an organisation's sustainability reporting and information disclosure, ensuring alignment with established regulatory standards, environmental goals, social responsibilities, and economic outcomes. 2. Enhance the transparency, credibility, and trust in an organisation's sustainability reporting, ensuring that informed decisions can be made.

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Annex B

B1. Description of new job roles in the Clean Energy sector

Job Role	Job Role Description
BESS BMS R&D Engineer	The Battery Energy Storage Systems (BESS) Battery Management Systems (BMS) Research and Development (R&D) Engineer: 1. Focuses on the R&D of innovative solutions that improve the performance of BESS BMS and its components. 2. Defines research objectives and parameters, and designs and executes experiments. 3. Analyses data to identify ways to improve the performance of BESS, while developing innovative technologies in energy management and integration. 4. Processes a technical understanding of BESS and cross-functional expertise to successfully manage end-to-end work areas in BMS projects.

Job Role	Job Role Description
BESS Electrochemistry R&D Engineer	The BESS Electrochemistry R&D Engineer: 1. Focuses on the R&D of innovative solutions that improve the performance of BESS and its components. 2. Defines research objectives and parameters, designs and executes experiments, and analyses data to identify ways to improve the performance of battery in BESS, while developing innovative technologies in energy management and integration. 3. Processes a technical understanding of BESS and cross-functional expertise to works across the various areas of BMS to successfully manage BESS R&D projects from end-to-end.
BESS Engineer	The BESS Engineer: 1. Designs, develops, and implements BESS for renewable energy integration and grid stabilisation. 2. Designs and sizes battery systems, develops technical specifications, and ensures effective integration with renewable energy and microgrids. 3. Oversees the installation, commissioning, and troubleshooting of systems, to ensure compliance with regulatory standards.
BESS Mechanical and Material R&D Engineer	The BESS Mechanical and Material R&D Engineer: 1. Focuses on the R&D of innovative solutions that improve the performance of BESS and its components. 2. Defines research objectives and parameters, designs and executes experiments, and analyses data to identify ways to improve the performance of BESS, while developing innovative technologies in energy management and integration. 3. Processes a technical understanding of BESS and cross-functional expertise to work across the specific areas in mechanical and materials, and manages end-to-end projects.
BESS Quality Assurance and Certification Engineer	The BESS Quality Assurance and Certification Engineer: 1. Develops and implements quality assurance processes for BESS, ensuring they comply with regulatory and industry standards. 2. Conducts compliance testing, manages certification processes, performs inspections for safety and reliability. 3. Collaborates with cross-functional teams to address quality issues and drives continuous improvement. 4. Oversees documentation and creates regular reports to ensure full compliance with relevant standards and certifications.
BESS Test and Commissioning Engineer	The BESS Test and Commissioning Engineer: 1. Conducts system testing, oversees commissioning activities, and ensures operational readiness of BESS, and compatibility with grid and related systems. 2. Performs equipment testing, troubleshooting, manages site and factory acceptance testing, monitors power quality, and ensures adherence to technical specifications.

Job Role	Job Role Description
Edge Connectivity and Solution Engineer	The Edge Connectivity and Solution Engineer: 1. Designs, implements, and maintains end-to-end edge connectivity solutions for clean energy systems. 2. Collects, integrates, and transforms industrial data for cloud use, while ensuring its accuracy and reliability. 3. Optimises data flow through secure pipelines, enhances grid performance with edge computing solutions, and ensures system security and compliance with industry standards. 4. Addresses site-specific connectivity issues and implements edge computing architecture to improve system responsiveness, intelligence, and overall efficiency.
HVDC Building Specialist	The High Voltage Direct Current (HVDC) Building Specialist: 1. Oversees the design, construction, and commissioning of HVDC converter stations. 2. Ensures that buildings meet performance, safety, and regulatory standards, while integrating advanced technologies for efficient power transmission. 3. Develops HVDC building designs, conducts site evaluations, manages construction activities, performs inspections for structural integrity, and creates mitigation strategies to address potential risks.
HVDC Infrastructure Specialist	The HVDC Infrastructure Specialist: 1. Manages the design, installation, maintenance, and optimisation of HVDC equipment and cable systems, which are essential for long-distance, high-capacity power transmission. 2. Conducts feasibility studies and site analyses, aligns designs with technical and regulatory standards, and manages performance to ensure reliability and stability.
HVDC Operations and Maintenance Specialist	The HVDC Operations and Maintenance Specialist: 1. Ensures the reliability, safety, and efficiency of HVDC systems. 2. Monitors, troubleshoots, and maintains HVDC systems and equipment through regular visual inspections, testing and calibration. 3. Tracks critical performance metrics, develops predictive maintenance schedules to anticipate faults, and implements ways to optimise HVDC systems.
HVDC System Integration Engineer	The HVDC System Integration Engineer: 1. Designs, plans and implements the seamless integration of HVDC systems within existing and new power grids. 2. Evaluates and optimises HVDC components and interconnectivities with the grid to ensure compatibility, efficiency and stability in power transmission. 3. Manages system requirements, regulatory compliance, and execution for HVDC system integration projects.

Job Role	Job Role Description
Lead Engineer	The Lead Engineer: 1. Manages the end-to-end life-cycle of cross-border electricity import projects. 2. Plans and executes projects, oversees multidisciplinary teams, and ensures compliance with technical, safety, and regulatory standards. 3. Develops and validates HVDC system designs, integrating advanced technologies while managing procurement, installation, and quality control. 4. Leads commissioning efforts and implements performance optimisation and maintenance strategies to ensure efficient and reliable energy transmission systems.
Technical Feasibility Engineer	The Technical Feasibility Engineer: 1. Oversees electricity import projects by conducting technical and infrastructure feasibility assessments to ensure the viability and compatibility of electricity imports. 2. Conducts risk assessments to identify operational, environmental and technical risks, and stays abreast of regulatory standards and requirements to ensure compliance. 3. Provides recommendations on upgrades or adjustments to infrastructure, systems, and operation protocols, and is responsible for preparing documentation and reports for project stakeholders and decision-makers.
Solar PV Asset Performance Engineer	The Solar Photovoltaic (PV) Asset Performance Engineer: 1. Ensures the long-term reliability and efficiency of solar PV assets by managing life-cycle and performance optimisation. 2. Monitors system performance, analyses data to identify improvements, collaborates with operations and maintenance teams to resolve faults, and implements strategies to enhance energy production and system efficiency. 3. Oversees system upgrades and troubleshooting to maintain sustained performance improvement, while ensuring compliance with regulatory and safety standards.
Optimisation Engineer	The Optimisation Engineer: 1. Supports cross-functional clean energy areas and is responsible for maximising the efficiency, reliability, and performance of smart grid systems and BESS technologies. 2. Analyses system data to identify inefficiencies, design and implement optimisation strategies to enhance system performance. 3. Leads innovative initiatives to improve energy storage systems and the smart grid performance, works with R&D teams to develop and implement new technologies or software.
Power System Engineer	The Power System Engineer: 1. Supports cross-functional clean energy areas and designs and optimises power systems, integrating BESS, solar energy technologies, and smart grid solutions into existing and future electricity networks. 2. Develops system architecture, simulates performance, and optimises control strategies for the generation, transmission and distribution of clean energy sources. 3. Implements and manages energy flow, and monitors system performance to ensure the reliable and efficient operations of power systems that incorporate renewable energies.

B2. Description of new skills in the Clean Energy sector

Skill	Skill Description
BESS Testing and Diagnostics	1. Test, analyse, and evaluate BESS performance, leveraging on diagnostic methodologies to uncover and troubleshoot issues, and identify opportunities to enhance BESS performance and efficiency. 2. Integrate emerging technologies into testing and diagnostic approaches across various battery and material types, ensuring compliance with industry standards and regulations.
Distributed Generation System Performance Monitoring Management	1. Manage the performance of distributed generation plants and equipment to enhance operational efficiency.
HVDC System Engineering and Design	1. Design and develop efficient HVDC systems by utilising innovative design approaches and emerging technologies, and optimising layouts and compliant components to meet technical and regulatory standards. 2. Ensure grid compliance, operational safety, and reliability through rigorous testing and commissioning methodologies.
HVDC System Operations and Maintenance	1. Maintain HVDC system reliability and efficiency through routine inspections, system performance monitoring and system fluctuations management by applying diagnostics tools to troubleshoot faults and implement preventative maintenance activities. 2. Integrate innovative approaches to anticipate system behaviours under diverse operating conditions and develop strategies to mitigate risks, in compliance with regulations and industry practices across jurisdictions.
Sub-sea Electricity Transmission Engineering Management	1. Plan, design, and oversee sub-sea engineering projects for electricity imports via sub-sea cables. 2. Manage the installation and maintenance of sub-sea infrastructures to ensure optimal system performance, resilience, and sustainability. 3. Address challenges with infrastructure maintenance, performance, and finances to enhance systems lifespan.

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