

# **Sustainability Review**

## **FY2022/23**



# SUPPORTING THE SINGAPORE GREEN PLAN

At SP Group [SP], we support the Singapore Green Plan to build a resilient future by developing a green economy and promote sustainable living. SP provides a full suite of sustainable energy solutions including district cooling, electric vehicle charging, renewables, and energy as a service to bring the Singapore Green Plan to fruition. Our solutions and capabilities are as follows:

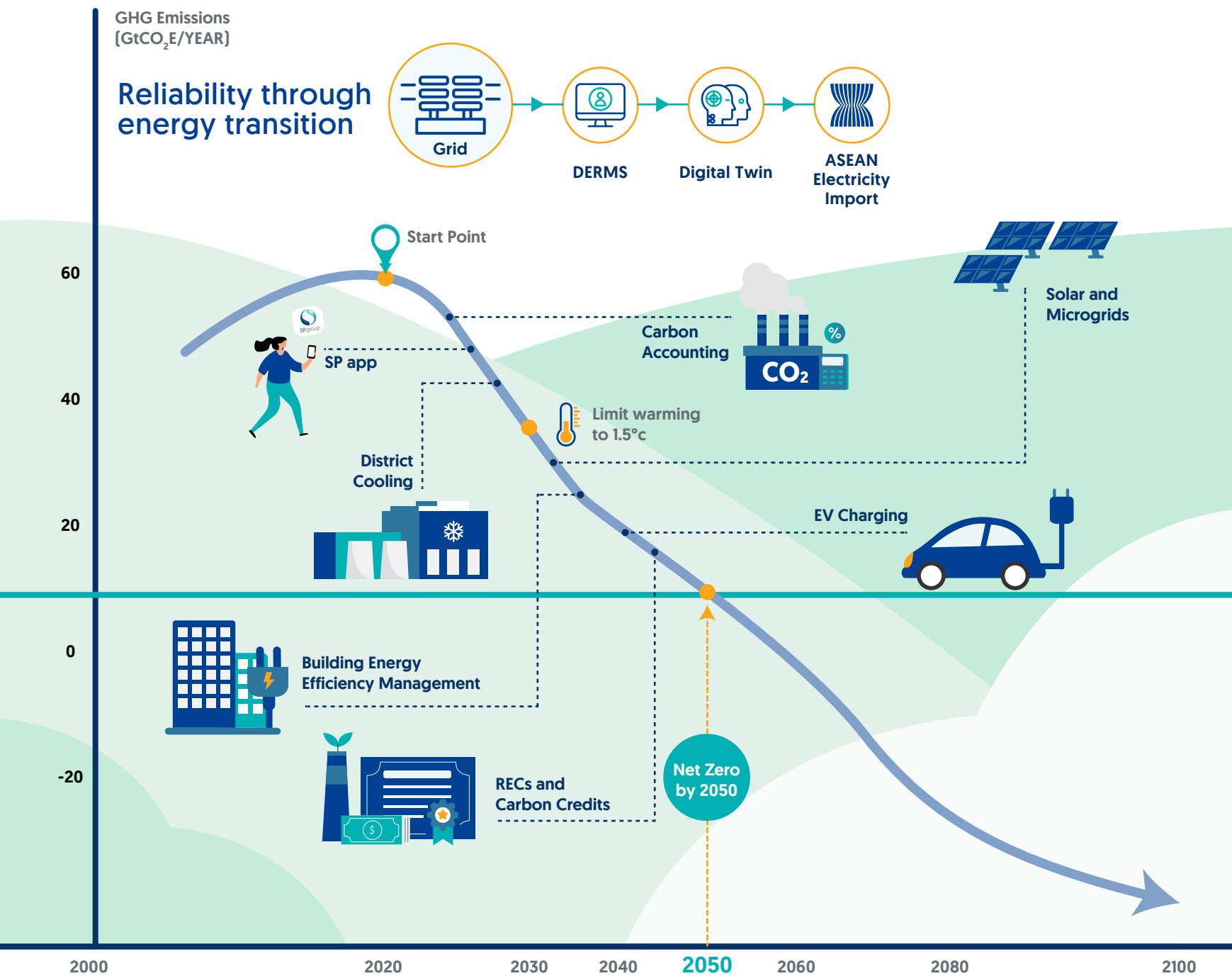


## Solutions to enable Decarbonisation

The IPCC 6th assessment report calls for urgent action to decarbonise to keep temperature rise to 1.5 degrees Celsius. SP's sustainable energy solutions enable green buildings and sustainable infrastructure, enhance efficiency, and empower customer choices. District cooling for business districts and residential townships enhances energy efficiency. Electric vehicle charging and renewable energy enables decarbonisation of the transportation and power sectors, while digital energy management tools empower customer choices for a greener future.



# DECARBONISE WITH OUR SUSTAINABLE ENERGY ECOSYSTEM



**Enhance Grid reliability** and enable renewable energy integration



**Decarbonise transport** with electric vehicle charging



**Green Building and districts** with district cooling systems, building efficiency solutions and renewable energy



**Empower customers** with data and carbon solutions

# OUR IMPACT

## Overall

**0.176** min and **0.1335** min SAIDI achieved for **Electricity and Gas Grid** respectively



**202,000** RT of district cooling operating and secured regionally



More than **650** EV charging points installed in Singapore



**930** MWp solar capacity operating and secured across Asia



**>600K** monthly users on SP app



**160** -fold increase in RECs volume from 2021



## Environmental

Scope 1 emissions of **76,721** tonnesCO<sub>2</sub>e



Scope 2 [market-based] emissions of **347,291** tonnesCO<sub>2</sub>e



Scope 3 emissions of **757,536** tonnesCO<sub>2</sub>e



Emissions avoided - more than **778,575** tonnesCO<sub>2</sub>e, equivalent to planting more than **38** million rain trees or taking more than **707,796** cars off the road for a year



## People and Community

**155,000** hours of training and development provided



**Zero** fatalities, Lost time injury frequency rate of **0.37** per million working hours



More than **S\$20** million in donations, sponsorships and volunteer manpower since 2005



<sup>1</sup> One mature rain tree absorbs 0.0201 tonnes CO<sub>2</sub> a year - data from My Carbon Footprint 1 study by South Pole

<sup>2</sup> Annual carbon emissions from 1 internal combustion engine (ICE) car of 1.1tCO<sub>2</sub>e/year. Data from SP Group and Temasek (August 2021): Taking The Heat Off Cooling: A Greener Way to Cool.



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# ABOUT THIS REPORT

This is SP's fourth sustainability review and incorporates the reporting recommendations of the Taskforce on Climate related Financial Disclosures (TCFD) and showcases the initiatives and highlights the performance of our operations across our key business areas for the financial year from 1 April 2022 to 31 March 2023 (FY22/23), unless otherwise stated. The scope of this review covers SP's operations in Singapore, China, Vietnam and Thailand.

The report is to be read in conjunction with the Chairman's message and other sustainability-related information on our website, [SP Energy Hub](#). We have included historical data since FY19/20 for comparison where available.



## About SP Group

SP Group [SP or the Group] is a leading utilities group in Asia Pacific, empowering the future of energy with low-carbon, smart energy solutions for our customers. We own and operate electricity and gas transmission and distribution businesses in Singapore and Australia, and sustainable energy solutions in Singapore, China, Vietnam and Thailand.

In 2021, SP Group updated its tagline to “Empowering the Future of Energy” to reflect our 2030 ambition to create a low carbon, smart energy Singapore and be a regional leader in sustainable energy solutions.

As Singapore’s national grid operator, about 1.6 million industrial, commercial, and residential customers benefit from our world-class transmission, distribution, and market support services. These networks are amongst the most reliable and cost-effective in the world.

# MATERIALITY AND STRATEGY

Sustainability has become central to achieving our mission and business objectives in a responsible and committed manner as we execute our Strategy 2030 towards a low carbon smart energy Singapore.

To embed sustainability considerations across our key roles as a grid operator, market services and sustainable energy solutions provider, we have defined three material topics and our approach for our business:



## Alignment to global goals

Our 2030 strategy supports the SDG 7 and 9 to provide clean and smart energy as well as sustainable and reliable infrastructure.

Additional details of our contribution to these SDGs can be found in the Disclosures: [Our contribution to the SDGs](#).

## Financing sustainable energy solutions

We established a [Green Financing Framework](#) in 2020. The Framework is benchmarked against relevant international principles and guidelines. Under the Framework, the Group, and its subsidiaries are able to issue green financing instruments to finance and/or refinance eligible green projects in four categories, namely: 1) clean transportation, 2) energy efficiency projects, 3) renewable energy and 4) green buildings.



# SUSTAINABILITY GOVERNANCE

## Board's role

The Board of Directors (Board) has overall responsibility for sustainability and reviews long-term business and organisational goals while also providing strategic direction for the organisation's sustainability practices.

The Board undertakes key investment and funding decisions, ensures that SP's management maintains a robust system of internal controls to protect the company's assets and reviews its financial and non-financial performance. The Board meets at least four times a year to review SP's business performance, of which sustainability and climate-related issues are incorporated into the discussions at two of these meetings.

On 1 January 2023, the Board welcomed a new Chairman, Ms Leong Wai Leng to replace the outgoing Chairman Tan Sri Hassan Marican, who is retiring from the SP Board after being on the Board as a director

since February 2011 and the Chairman since June 2012. On 1 April 2023, the Board also welcomed Mr Antonio Volpin as a new member of the SP Board.

The Board Risk Management Committee (BRMC), established by the Board, assists in providing oversight of the business risks faced by the Group. They also ensure risks and opportunities, especially climate-related ones, are appropriately considered and adequately managed.

The Board Executive Committee (ExCo) assists the Board in overseeing the performance of the Company, its subsidiaries, and its associated companies. The ExCo provides direct advisory supervision on SP's sustainability strategy, material environmental, social and governance (ESG) issues, work plans and performance targets.



# Management's role and internal controls

Reporting to the ExCo is the Executive Leadership Team (ELT) which has the strategic responsibility to assess and manage sustainability issues for SP. The team oversees key sustainability initiatives on climate risks and opportunities, greenhouse gas (GHG) accounting, and disclosures. Heading the ELT is the Group Chief Executive Officer, who has executive-level responsibility for ESG matters.

The Group Risk Management's (GRM) role is to help establish and manage our ERM Framework and to carry out its independent identification and analysis of the climate-related risks faced by SP. The GRM reports to the BRMC every quarter on all business risks. Essentially, the GRM acts as a critical central node of communication through which risk issues are surfaced and directives are passed down to cover the end-to-end risk management process.

The Head of Strategy and Sustainability regularly reports to and seeks guidance from the ELT on the sustainability roadmap and initiatives. The Strategy and Sustainability team monitors climate change issues and updates the ELT on emerging risks and opportunities. It also leads GHG reporting, corporate sustainability reporting and TCFD implementation, social and governance (ESG) issues, work plans and performance targets.



# Group risk management

SP's Enterprise Risk Management (ERM) framework aims to identify, prioritise, document, and manage key risks, opportunities and resources.

For risk management practices to be effective, three pillars are emphasised:

- Board and Senior Management oversight
- Sound risk management policies and processes
- Risk ownership and culture



## Risk management

SP implements a 'Top-Down' and 'Bottom-Up' approach to facilitate communication and participation by both management and employees. For effective risk management, all aspects of the business must be considered so that the Board and Management can identify risks and assess those risks properly and quickly. The 'Top-Down' approach facilitates oversight and guidance on material risks from both the BRMC and Management. An in-depth analysis is done to avoid strategic risks, and if not, contained through mitigation measures. The 'Bottom-Up' approach allows employees to identify and escalate risks in their day-to-day operations to Management. This enables Management to be informed of major risks in all operations and approve actions to be taken. This approach allows every employee in the Group to proactively participate in highlighting the risks they face in the course of their work.

# Climate Resilience

In 2021, we commissioned a study to assess our climate change resilience and to identify the climate-related risks and opportunities material to our business. Two scenarios were identified to understand the extent of the risks and opportunities – “Net Zero” as the best-case scenario and “Business-as-usual” as the worst case. In defining the physical risks for these scenarios, we selected two of the climatic projections developed by the IPCC on a global scale, characterised by the Representative Concentration Pathway which is the concentration pathway extending up to 2100. For transition risks, the parameters were selected from Network for Greening the Financial System (NGFS) to understand how climate change would affect transition risks such as policy and technology trends in the future. In 2022, we conducted a localised study for Singapore on the flooding risk on the electrical transmission and distribution assets and the findings are largely in line with our original assessment in 2021.




## Insights from climate risk assessment

### Physical risks

Parameter 	Impact 	SP's strategic response 
<b>Riverine Flooding</b> <b>Coastal Flooding</b> <b>Heavy Precipitation</b>	Flooding may lead to erosion of our aboveground infrastructure and underground cables may become susceptible to deterioration if there is moisture ingress.	Our aboveground infrastructures are located above the nationally mandated Minimum Platform Level (MPL). Maximum flood levels are below the MPL. We will monitor updates for future Singapore flood maps.
<b>Air Surface Temperature Change</b>	An increase in air surface temperature will reduce the efficiency of the T&D network and accelerate the rate of insulation degradation of equipment.  Air surface temperature rise can result in a larger DC cooling load and result in efficiency losses.  Increased temperatures cause a decrease in the conversion efficiency of solar PV cells, affecting the maximum possible power output.	Currently, maximum air surface temperatures are within the equipment specifications.

As climate risk is an evolving topic, we will be monitoring the changes to climate projections to accurately evaluate the scale of impact to identify the mitigation actions accordingly.

## Transition risks

Material risk parameter 	Impact 	SP's strategic response 
<b>Policy and Legal</b>	Increased expectations from regulatory bodies for organisations to track and publicly report on GHG emissions or climate risks. Under both scenarios, there may be penalties associated with non-disclosure.	Since FY21/22, climate risk disclosure has been included in the annual Sustainability Review.
<b>Market</b>	A shift in investor preference and emergence of responsible investment mandates. In the Net Zero scenario, failure to incorporate climate risks into the company's strategy may diminish investor confidence and reduce access to capital.	Climate risks discussions will become part of the Board agenda and will be incorporated into the company's strategy.
<b>Technology</b>	<p>Changing the energy mix due to the adoption of distributed renewable energy resources may impact overall grid stability and flexibility. Especially so since capacity additions in solar and storage capacity are expected to increase in both scenarios.</p> <p>Investments in energy-efficient technologies will be required to meet national energy efficiency targets.</p>	SP will actively invest in the upgrading of our grid network infrastructure and adopt new technologies to make our grid network "smarter". For more details, please refer to the Future of Grid section.

## Transition opportunities

With the right initiatives, selected transition risks can be transformed into opportunities, by way of increasing access to new markets, and developing innovative products and services.

One of the most significant opportunities identified is the increased adoption of sustainable and low carbon solutions by corporations that are looking to reduce their emissions and overall environmental footprint.

As a sustainable energy solutions provider, we have started leveraging these opportunities to enable our customers to achieve their climate ambitions. The initiatives are further elaborated in the respective sections for each business area under Future of Grid, Sustainable energy solutions, as well as Energy as a Service.


## Metrics and targets

To manage our climate-related risks and opportunities, and ensure we are enabling a low carbon and smart energy future, we have established metrics to track our performance and drive improvement. A primary focus is the reduction of GHG emissions from our direct business activities, which contributes to Singapore's net zero emissions ambitions. Since 2019, we undertake an annual data collection exercise to calculate the GHG emissions from our business activities following the principles in the *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (revised edition)* and GHG Protocol Scope 2 Guidance.

Emissions, tonnesCO <sub>2</sub> e		FY19/20	FY20/21	FY21/22	FY22/23
Scope 1		78,546	90,088	78,173	76,721
Scope 2		<b>Location-based</b>			
		375,102	384,578	423,225	350,507
		<b>Market-based</b>			
		375,102	382,972	419,959	347,291
Intensity [Scope 1+2], CO <sub>2</sub> e/MWh		9.44	10.07	10.06	8.34

GHG emissions from our activities can be mainly traced back to the indirect carbon dioxide (CO<sub>2</sub>) emissions from electricity use/losses, the fugitive emissions along the length of the gas pipelines and to a lesser extent, the sulphur hexafluoride (SF<sub>6</sub>) leakages across our transmission and distribution network. The bulk of SP's Scope 2 GHG emissions resulted from the dissipated energy emissions from technical losses from the transmission system and distribution network in Singapore. SP is actively investing in the digitalisation and automation of the electricity grid to reduce these losses and increase reliability. In FY20/21, the increase in Scope 1 emission resulted from an increased use of SF<sub>6</sub>. Usage has since decreased and remained stable. In FY22/23, Scope 2 emissions decreased as a result of lower losses in the transmission and distribution network. While the emissions are relatively stable and inherent in the operations of the network, SP is committed to identifying opportunities to reduce emissions from other key business activities.

In FY22/23, we have made our inaugural reporting of scope 3 emissions. One of the largest contributors of these emissions are from the goods and services category. We have conducted a survey amongst a sample of our tier 1 suppliers to understand where they are, in terms of their sustainability journey. For contacted suppliers that have not started, we have conducted a basic ESG training to assist them in their journey to contribute to sustainability and decarbonisation.

Emissions/ Absolute, tonnesCO <sub>2</sub> e		FY22/23
Scope 3		757,536

We followed the GHG Protocol Corporate Standard accounting principles of Relevance, Completeness, Consistency, Transparency and Accuracy to determine the categories that are applicable to us. We follow the same reporting period for determining the activity data for our scope 3 calculation, especially for category 1 on purchased goods and services and category 2 on capital goods.

To reduce the impact of our direct operations through the support of renewable energy, we have pledged to cover 100 per cent of the electricity consumption at our Singapore headquarters with Renewable Energy Certificates [RECs] from October 2020 onwards. In FY22/23, SP has started utilising renewable energy certificates as green energy proofs of electricity purchased in our China and Vietnam offices.

SP's low carbon initiatives such as district cooling, solar and electromobility have enabled customers to avoid more than 778,575 tonnesCO<sub>2</sub>e in FY22/23. This is equivalent to planting more than 38 million rain trees or taking more than 707,796 cars off the road for a year. Measuring this progress against the target of helping customers reduce their carbon footprint, these initiatives have achieved more than a 30-fold increase in the CO<sub>2</sub> avoided since 2018. The significant increase in the avoided CO<sub>2</sub> for our customers demonstrated an increased demand for sustainable energy solutions and highlighted our role in enabling our customers to reduce their carbon footprint.

# FOCUS AREAS

## Future of Grid – Grid 2030

We are investing and upgrading capabilities to be ready for a grid that is becoming increasingly complex. A greater role for distributed energy that is low in carbon but intermittent in nature will require a grid that is reliable, safe, and updated. Concurrently, SP is also greening our operations to enable a low carbon smart energy Singapore.

SP has been working on various green initiatives to leverage electricity substations for sustainable outcomes. In August 2022, the Energy Market Authority (EMA) and SP jointly announced a pilot to test the viability of installing a thermal energy storage system at the George Street substation. The pilot also includes the installation of additional chillers to support future expansion of the Marina Bay district cooling network, bringing sustainable cooling to more buildings. This is the first time an ice thermal storage facility is located outside a district cooling plant.



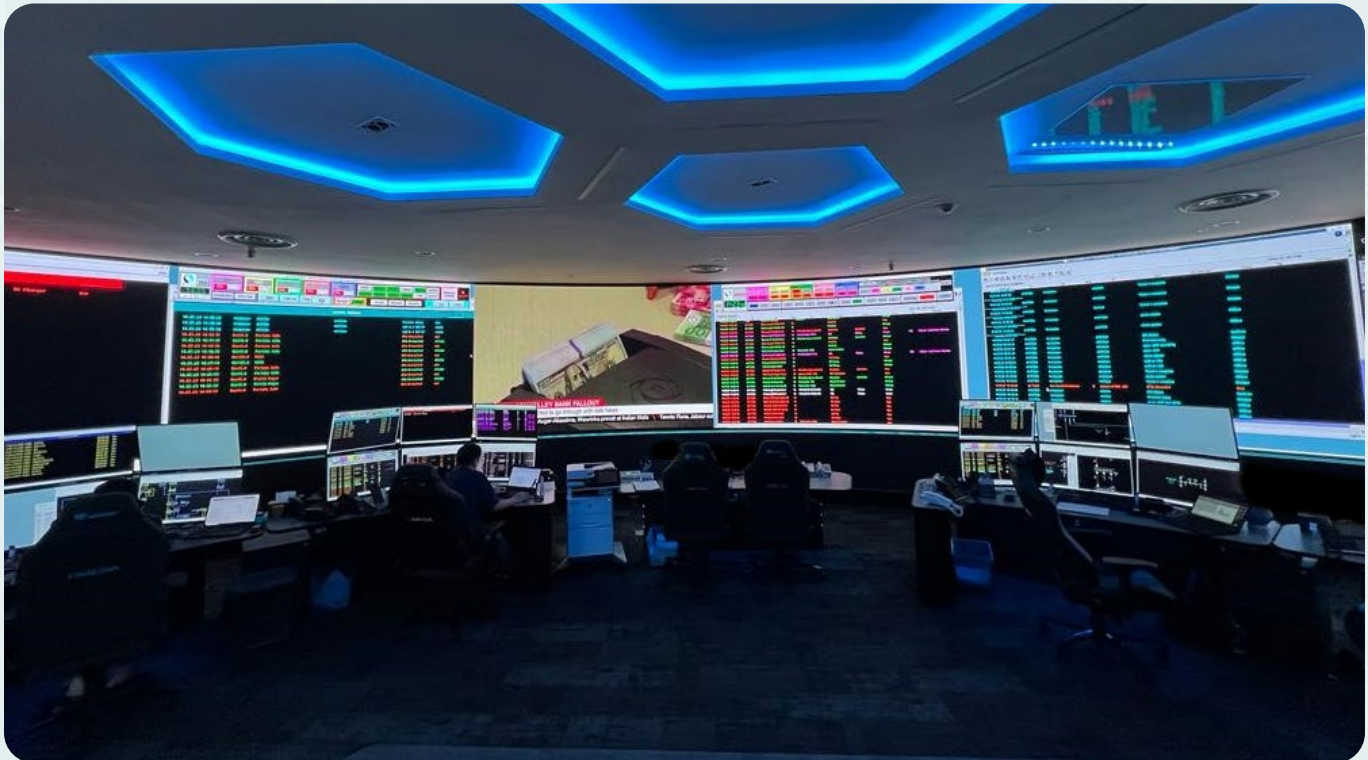
## Future Proofing our Control Centre through Cognitive Testbed

SP's journey through digitalisation for the Future of Grid has been further enhanced by the completion of the "Cognitive Testbed" project. The testbed provides the additional capability to the existing SPPG Distribution Control Centre, by transforming into a platform where components of future grid initiatives can be integrated into the Electricity Control System environment.

With increasing complexity in grid operations, sensemaking is a crucial cognitive skill for grid operators. The Cognitive Testbed is designed to be the platform to trial and develop effective strategies to support future grid operations, where interpreting and making sense of complex data and inputs from various sources will become a challenge in the future.

The Cognitive Testbed also brings together digital technology developed by SPPG and SP Digital. This is done by integrating various initiatives into a seamless workflow at the venue, to test and demonstrate the overall future grid concepts as development progresses.

To support the nation's sustainability drive, SP will keep abreast by testing and develop capabilities to transform grid operations in preparation for the future.





## Lowering Environmental Impact with Ester Fluid

Traditionally, mineral oil has been predominantly used as the insulating medium in oil-filled transformers. As part of ongoing sustainability efforts, greener alternatives to mineral oil have been explored with ester fluid being considered as a good alternative.

Ester fluid offers numerous advantages over mineral oil, including better fire safety due to its higher fire point and having less adverse impact to the environment. It is more readily biodegradable, non-toxic and does not pollute water.

Since 2015, the network has deployed 2 units of 1.5MVA ester-filled transformer at distribution level with satisfactory performance, which instilled confidence in expanding their usage at both the distribution and transmission levels. There is a roadmap to progressively increase the percentage of ester-filled transformers in distribution tenders. Similarly at transmission level, a plan has been put in place to expand the use of ester-filled transformers to assess the equipment performance, starting with one unit in 2024 and two units in 2026. The transition to ester-filled transformers will only take place after a comprehensive assessment of their performance has been conducted. The long term plan includes purchasing 100 per cent ester-filled transformers for all ratings up to 66kV starting from 2030.

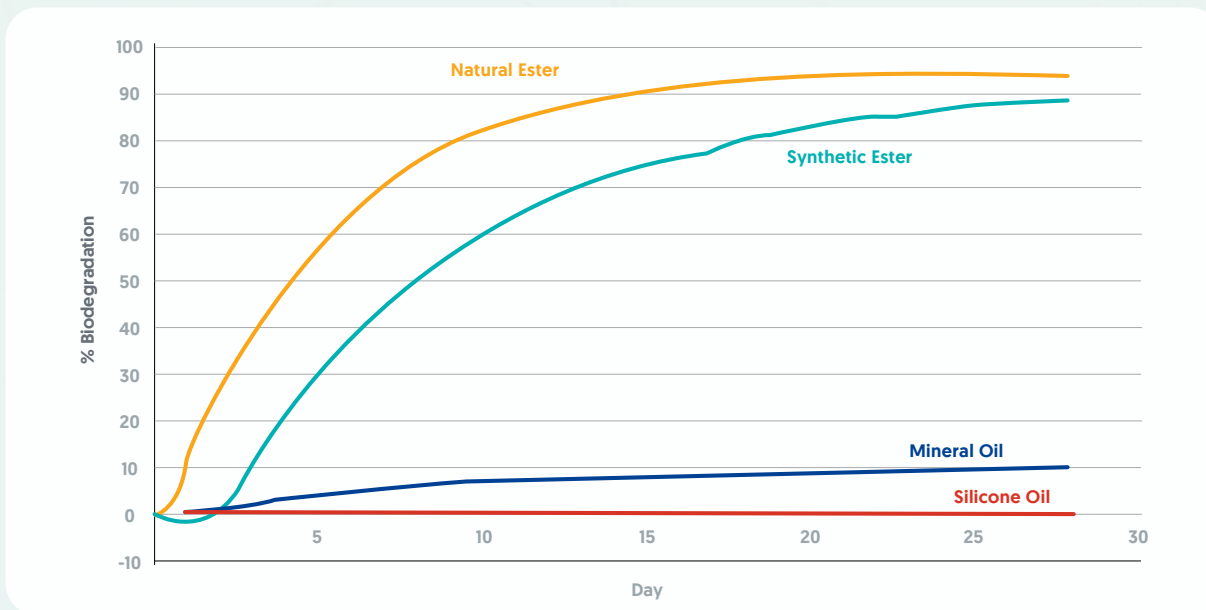


Figure 1: Biodegradability of Ester Fluid versus conventional Mineral Oil

## Greening Substations

### A) Solar Rooftop

SP announced that it will be installing rooftop solar panels at 37 electricity substations by 2025, with a total installed capacity of 15.7 megawatt-peak [MWp]. This is the latest green initiative by SP to optimise substations with low-carbon capabilities and achieve our national sustainability targets. When completed, the combined solar power capacity of 15.7 MWp will deliver up to 21,000 megawatt-hour [MWh] of renewable electricity into Singapore's electricity network annually – enough to power more than 4,500 four-room Housing Development Board (HDB) flats for a year. The substations were selected for their suitability to install solar panels and generate solar energy. The rooftop solar installation will be done across three phases. The first phase of six substations with a combined solar power capacity of 7.1 MWp will be completed by end 2023 – with the very first substation at West Jurong Island to have its rooftop solar system operational by July 2023. This will be followed by the second batch of 12 substations with a combined capacity of 6 MWp by mid-2024 and the final batch of 19 substations with a combined capacity of 2.6 MWp to be completed by end-2025. Each substation will have an installed capacity not exceeding 1 MWac [Megawatt of AC Power]. The initiative is part of the Singapore's plans to incorporate more renewable energy in its energy mix and will contribute towards EMA's target of installing at least 2 gigawatt-peak of solar capacity by 2030.



The West Jurong Island substation will be the first to have rooftop solar panels installed.



### B) Ice Thermal Storage

The EMA and SP will pilot an ice thermal Energy Storage System [ESS] at the George Street substation. This will be the first ice thermal storage facility located on its own, outside a district cooling plant. Such ice thermal storage facilities are traditionally located within a district cooling plant. The pilot will optimise space usage within the substation and be completed in the third quarter of 2026 as part of the substation's renewal works. This ESS will add up to 1,500 refrigerant tonne hour [RTH] of ice thermal energy to the Marina Bay district cooling network operated by SP. This will enable the curtailment of up to 2 megawatts [MW] of electrical load – the equivalent to powering 170 4-room HDB flats for a day. This will also contribute towards EMA's target to deploy at least 200 MW of ESS beyond 2025. ESS can help to address the issue of supply intermittency, as renewable energy such as solar power fluctuates due to weather conditions. The stored thermal energy can also be discharged to power the district cooling plant and shave peak load demand. This will help to balance the electricity load, thereby reducing intermittency and enabling the grid to be more resilient.



Energy storage systems [ESS] help to address solar intermittency and can enhance the resilience of our power grid. EMA is pleased to partner SP Group on a thermal ESS at the George Street power substation. If successful, more thermal ESS can be installed island-wide, which will support Singapore's target of having at least 200 MW of ESS beyond 2025.

**- Mr Ngiam Shih Chun**  
Chief Executive, EMA



## Electricity network

Singapore has one of the most reliable electricity and gas network systems in the world. However, supply interruption is inevitable and may occur due to various reasons including network failure, damage caused by third parties, faulty equipment at customer sites or issues with the source of the supply.

To minimise the possibility of supply interruption, SP follows a systematic regime of maintenance, timely replacement of ageing equipment and close monitoring of equipment performance.

If a power failure occurs, we take four remediation actions to minimise the impact and downtime:

<b>Remote switching</b>	When a power fault is detected, this first course of action disconnects the affected equipment from the network and reconnects it to an alternative supply source. Since 2019, we have implemented remote switching capabilities for all 6.6 kV distribution networks substations, allowing for quicker restoration should a supply interruption occur.
<b>Manual switching</b>	This is conducted when remote switching is unable to restore the power supply. Power faults in low-voltage networks, such as damage to over ground boxes that are used to transmit electricity to customers, are usually resolved through manual switching.
<b>Mobile generators</b>	These generators are immediately deployed when power faults are reported and are used to provide temporary electricity supply while the network issues are being resolved.
<b>Cable jointing</b>	This is conducted when switching is unable to resolve the power fault and the mobile generators cannot access the substation where the fault has occurred.

## Gas network

SP has adopted an asset life cycle approach to our asset management so that we can manage risks and ensure that our gas network is consistently developed, maintained and operated in a safe and reliable manner. The gas transmission network is monitored round the clock in a system control centre.

Regular inspections and maintenance are also conducted on our network assets to maintain reliability. An asset renewal programme tracks asset performance and replaces deteriorating assets efficiently. Patrol and leak surveys of the pipelines are conducted to detect illegal third-party activities and gas leaks respectively.

We monitor network pressure closely by deploying pressure sensors across the entire transmission network. Our gas network operations team monitors the pressure readings to ensure that network pressure at different nodes is maintained within an optimal range.



To enhance our remote monitoring capability and productivity, we have developed a prototype machine learning solution that learns from pressure data to detect deviations from expected pressure levels and alert the operations team of an anomaly in the gas network.

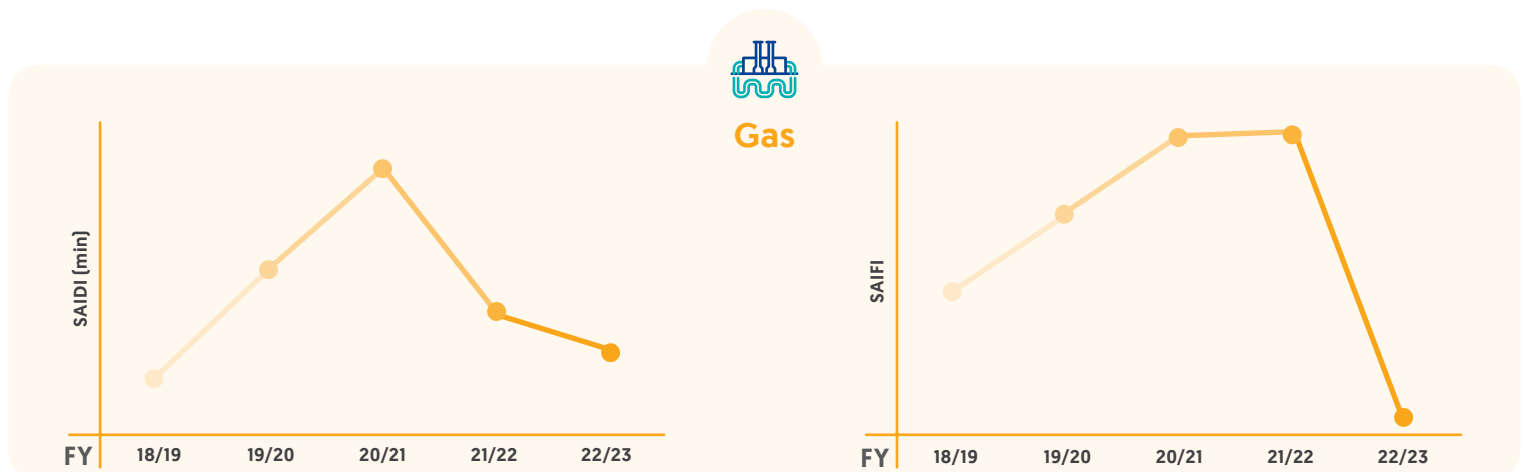
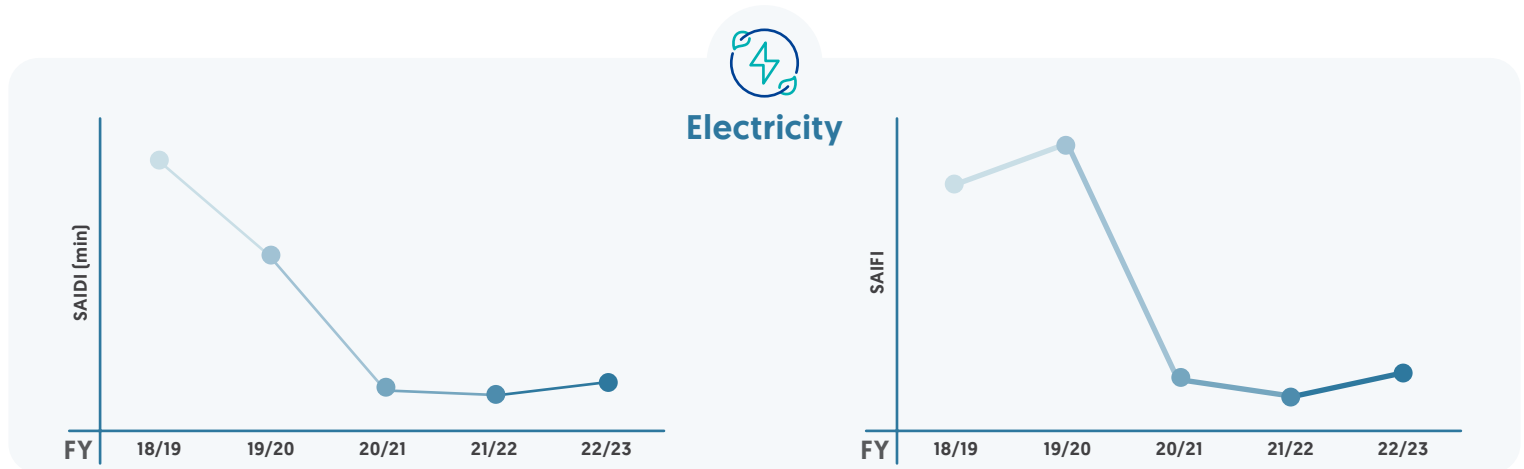
A supervisory control and data acquisition system is deployed on the transmission system to avail remote monitoring and operations capability, which enables us to respond immediately to incidents. When incidents occur, the response is centrally managed to ensure that performance recovery is quick and directed, thus minimising disruption to customers.

## Our Performance

Two key indicators that our industry measure to assess network reliability performance are SAIDI, a system index of average duration of interruption in the power supply indicated in minutes per customer, and the System Average Interruption Frequency Index (SAIFI), a system index of average frequency of interruptions in the power supply.

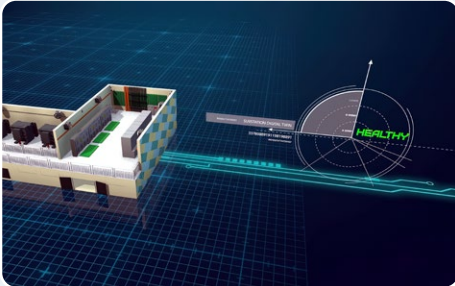
In FY22/23, our SAIDI remained low for the 3<sup>rd</sup> consecutive year.

	FY18/19	FY19/20	FY20/21	FY21/22	FY22/23
 <b>Electricity</b>	<b>SAIDI (min)</b>				
	0.87	0.56	0.15	0.11	0.176
	<b>SAIFI</b>				
	0.0307	0.0366	0.0073	0.0043	0.0082
 <b>Gas</b>	<b>SAIDI (min)</b>				
	0.0932	0.2637	0.4223	0.1979	0.1335
	<b>SAIFI</b>				
	0.0014	0.0019	0.0024	0.0024	0.0006



To further improve network reliability and enable the transition to a green economy, we invest in numerous solutions and innovative technology.

## Ongoing Activities



### Asset Health Digital Twin

Virtual replica of the physical network and assets that equip field technicians and engineers with critical data prior to on-site inspection. The prototype of the digital twin was developed in 2021 and trials were conducted to develop the system further.



### Distributed Energy Resources Management System (DERMS)

Piloted a Distributed Energy Resources Management System (DERMS) to manage the influx of solar photovoltaic, energy storage systems, and electric vehicles that would be connected to the network in the future. Through real-time monitoring and smart control capabilities, the integration of these distributed energy resources can be optimised while ensuring the reliability of our electricity network.



### Vehicle-to-Grid (V2G)

Trial of V2G technology – the first of its kind in Southeast Asia. The trial studies the tapping of electric vehicles (EVs) as energy storage facilities via a bi-directional energy transfer between the EV and the grid to support load and frequency management. This innovation can be used to balance and stabilise the grid, acting as a cost-effective solution to overcome intermittency from renewable energy sources.



### Green Energy import

Actively support the upgrading of infrastructure to tap into regional power grids for cleaner energy resources and further diversify Singapore's energy supply.



### SP Group NTU Joint Lab

Research and education initiatives with Nanyang Technological University (NTU) in Singapore, to enhance the resilience of Singapore's electricity network and nurture experts in the energy sector.

# Sustainable Energy Solutions – Elevating Singapore’s Green Hub status

To facilitate the transition to a low carbon future, we develop sustainable solutions for individuals and organisations, powered by our in-house energy technology and digital capabilities.

## District Cooling: Keeping Cities Cool

District cooling and heating solutions are sustainable, energy-efficient, and low-carbon solutions that enable cities, districts and companies to achieve their decarbonisation targets. In Singapore, SP is the largest district cooling operator with 166,000 RT secured and operating capacity, providing cooling across all segments. As of 2022, SP is executing six district cooling projects across Singapore to bring this efficient cooling solution to the commercial, industrial and residential segments.

Our portfolio of district cooling projects provides significant carbon abatement opportunities. When fully operational, it is estimated to reduce 165,000 tonnes of CO<sub>2</sub> annually, equivalent to carbon sequestered by 8.2 million trees and removing 150,000 cars off the road.

Some of our notable projects include:



### Marina Bay

- Operational since 2006, the district cooling plant serves 28 buildings
- Reduce carbon emissions by 20,000 tonnes CO<sub>2</sub>/year



### Tampines Eco town

- District cooling in brownfield project segment
- Reduce carbon emissions by 1,359 tonnes CO<sub>2</sub>/year
- Life-cycle economic benefits of up to S\$50.8 million over 30 years
- Tap on up to 42 per cent of unutilised cooling capacity for commercial and lifestyle spaces



### Tengah residential town

- First large-scale public residential cooling for Tengah’s residents
- Expected to save at least 30 GWh of electricity per year
- Equivalent to powering 6,300 four-room flats, removing 800,000m<sup>3</sup> of carbon from the air or taking about 400,000 cars off the road annually



### STMicroelectronics (STM)

- Largest industrial district cooling project
- Assist STM to achieve 20 per cent savings in cooling-related electricity consumption annually and reduce carbon emissions of up to 120,000 tonnes per year
- 2,000-tonne HFO Chiller will be deployed for this project. HFO or Hydrofluoro-Olefins is the new generation of synthetic refrigerants with zero ozone depletion effect

## Stabilising Power System with Demand Response

SP has been an active participant in the Interruptible Load (IL) and Demand Response (DR) programmes since 2016, with the capability to facilitate electricity load curtailment for partners like PUB when required.

PUB signed a Memorandum of Understanding (MOU) with SP on 5 April 2023. Under the MOU, SP will act as the DR aggregator and onboard PUB’s identified electricity load operations onto its system and participate in both the DR/IL programmes on its behalf. An electricity load curtailment is required to balance the national grid when energy demand is at its peak or when electricity supply dips. When that happens, SP will combine loads from its Marina Bay district cooling ice thermal energy storage systems and its partners and make them available for demand response reduction or interruption, thus acting as an intermediary for partners including PUB.

It will provide PUB with greater flexibility in managing energy demand, and allow us to achieve cost savings. At the same time, our participation will support the national effort for energy resilience, and bring system-level benefits to all users.

## Bringing our expertise to the region

### First brownfield District Cooling Project - Wuhou, Chengdu

Powered by our district cooling and heating system with a cooling capacity of 1,950 RT, smart metering and integrated energy management solutions, the International Urban Design Centre (IUDC) in Chengdu, China has set a new benchmark for sustainable redevelopment and is now operational and ready to welcome its new tenants.

Previously home to offices for the city’s district government, public security, and the court house, the four buildings are now retrofitted for commercial and retail purposes that is part of the area’s rejuvenation plans.

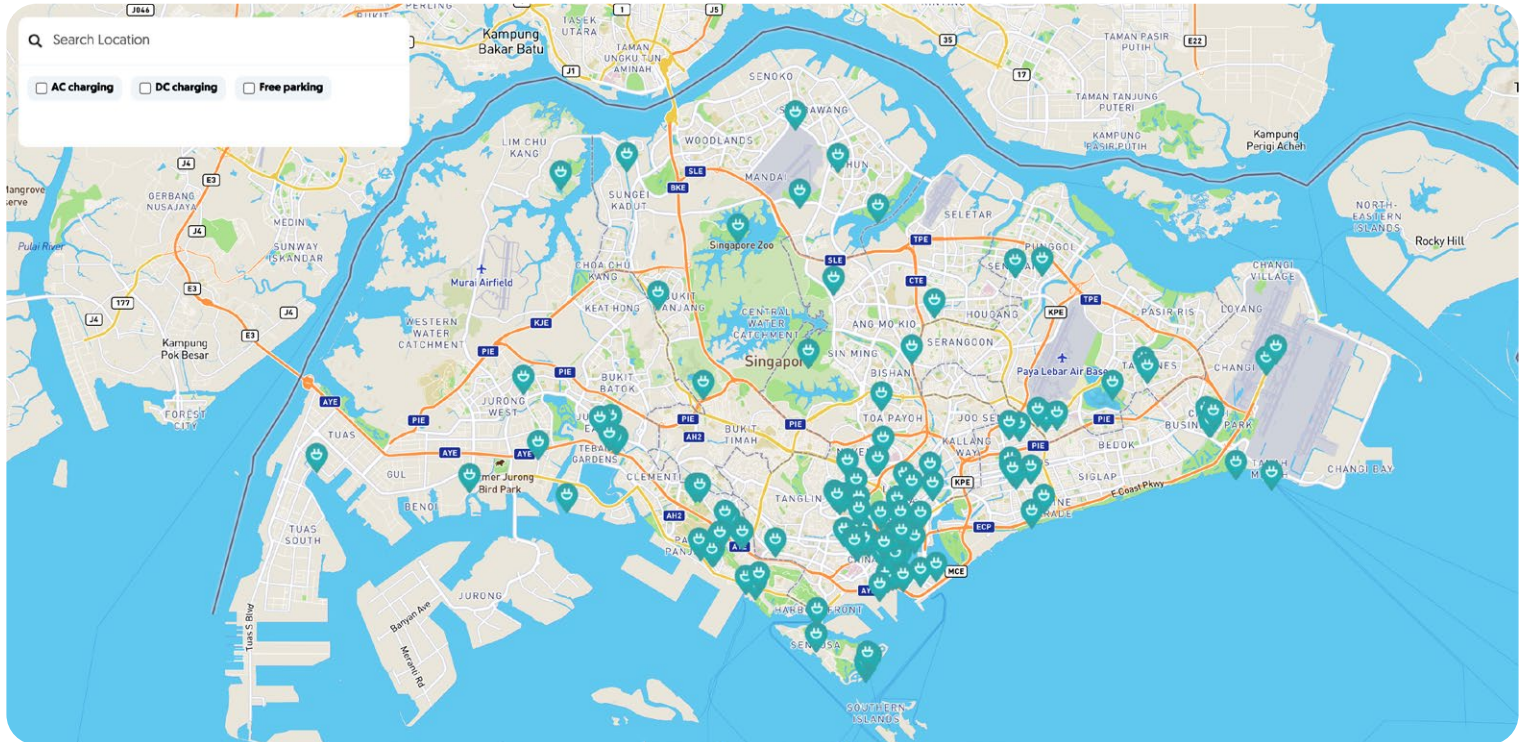
“Our innovative design will interconnect three chiller plants in IUDC to form a district cooling and heating network that offers a single-view management by our proprietary smart control system and its instrumentation,” explains Jimmy Wan, Director of SP International and head of design. “With a total capacity of 1,950 RT, the project will also feature large delta-T design, magnetic bearing chillers and heat recovery towers that condenses the outdoor air during winter to heat up water for the heat pump. The solution is expected to achieve up to 35 per cent energy savings in cooling, and over 50 per cent energy savings in heating compared to conventional air-cooled cooling and boiler systems.”

Tenants and visitors will now experience a greener and smarter building that will enhance efficiency and reduce energy costs for the building, and lower carbon emissions for the city.



Wuhou district cooling project

## Electric vehicle charging: Decarbonising transportation



As of March 2023, we are operating more than 650 charging points, of which about 25 per cent are DC fast chargers, making us the largest public fast charging network operator in Singapore.

Our chargers are also located in the most diverse location types, spanning across petrol stations, residential, commercial, public attractions, recreational clubs and industrial areas allowing drivers greater accessibility to a charging point island-wide.

As the population of EV owners continues to grow, we are committed to provide ease of access to EV charging points by expanding our charging to places where the owners live, work and play.

### Singapore’s First Electric Car-Sharing Programme in Tengah

Borneo Motors Singapore, Toyota’s authorised car distributor and leading automotive specialist in Singapore, and SP announced a long-term partnership to jointly develop and promote cost-effective and flexible electric vehicle sharing vehicle sharing and leasing programmes for Tengah - Singapore’s first integrated smart energy town. Both companies will also explore other sustainable mobility solutions to support the adoption of electrified vehicles in Tengah.





## Land Transport Authority (LTA) Tender

SP is expanding our electric vehicle [EV] charging network to residential towns, with up to 4,800 charging points at Housing and Development Board [HDB] carparks in the North-east and East regions of Singapore.

This successful tender was announced by LTA as part of plans to make every HDB town EV-ready by 2025.



## SPC EV Charging Partnership

SP and Singapore Petroleum Company Ltd [SPC] announced in November 2022, a partnership to install fast electric vehicle [EV] charging points at an initial five SPC stations. The SPC service station at Bukit Batok was the first to be installed with a 150kW direct current [DC] fast charger with two 75kW charging points. Installed in April 2023, this 150kW charger is the fastest publicly available charger in Singapore, allowing EV drivers to charge their vehicle in as little as 15 minutes. The charging points at another four locations – 1351 Ang Mo Kio Ave 1; Bukit Merah; Sumang Link; and Tampines Ave 4 are expected to go live by the end of 2023. Ensuring the availability of fast chargers will provide greater convenience to electric vehicle motorists for their charging needs and help lower the barriers to EV adoption in Singapore.



Signing the Partnership Agreement were Mr S Harsha, Managing Director, Sustainable Energy Solutions (Singapore), SP Group, and Mr Wang Baochang, Executive Vice President, SPC. Mr Stanley Huang, Group CEO, SP Group (standing, left) and Mr Li Shaolin, Managing Director, SPC, witnessed the signing.

At SP, we have gradually converted our fleet of service vehicles from diesel engines to electric. As of March 2023, we have converted around 38 per cent of them to EVs, avoiding an estimated total of more than 47 tonnesCO<sub>2</sub>e since we started the conversion.

## Renewables

In 2022, we expanded our solar portfolio into the commercial and industrial segment to install 10.8 MWp for AIMS APAC REIT Management.

SP will install rooftop solar PV system across six of AA REIT’s industrial, logistics and warehouse properties in Singapore by December 2023. The six properties are 20 Gul Way, 27 Penjuru Lane, 30 Tuas West Road, 103 Defu Lane, 8 & 10 Pandan Crescent and 8 Tuas Avenue 20. The 10.8 MWp combined solar PV system will be one of the largest rooftop solar installations by any Singapore-listed real estate investment trust. The 20,157 rooftop solar panels will span across 5.2 hectares and can collectively produce 14,500 MWh of energy per year which is equivalent to powering 4,400 three-room HDB flats each year. This will help avoid over 5,900 tonnes of carbon emissions a year and is equivalent to taking almost 6,500 cars off the road.

For our customers, a total of 8.5 MWp of solar panels were installed as of March 2023. Based on an average estimated generation yield in Singapore, the panels have helped the customers avoid close to 4,000 tonnesCO<sub>2</sub>e, equivalent to planting more than 195,154 rain trees or taking more than 3,500 vehicles off the road.

Across our premises, we have installed close to 800 kWp of solar panels to access renewable energy. Collectively, they have helped us to avoid close to 321 tonnesCO<sub>2</sub>e in FY22/23.

## Growing renewable energy in the region

SP continued to expand our regional renewable energy portfolio. In Vietnam and China, we have grown our renewable energy portfolio to about 930 MWp in operating and secured capacity. In addition, we opened an office in Thailand to expand our regional capabilities and decarbonise power generation, securing about 10MWp of solar projects.

In China, we have continued to grow our renewable portfolio in the solar rooftop space, commissioning SP first solar project in Changhong, Pingyin and Jining. In addition, we have acquired an additional 110MWp of solar rooftop assets from Unisun Group.

### First operational solar projects- Changhong, Pingyin, Jining

Changhong, Pingyin and Jining are SP’s first DBOO (Design, Build, Own and Operate) solar projects located within the provinces of Sichuan and Shandong in China.

#### Jining 11MW

SP’s largest distributed rooftop solar project in China delivers up to 13 million kWh of electricity to Jining, Shandong every year. The integration of green energy into the local grid will help the city avoid 13,000 tonnes of carbon emissions annually.



*Jining distributed (rooftop) solar project*

#### Changhong 5MW

SP has partnered Chang Hong Group to enhance electricity resilience and empower the clean energy transition for Mianyang, Sichuan. An initial 5MWp has been installed for Sichuan Ai-Chance Technology Co., Ltd. [Ai-Chance], a subsidiary of the Chang Hong Group.

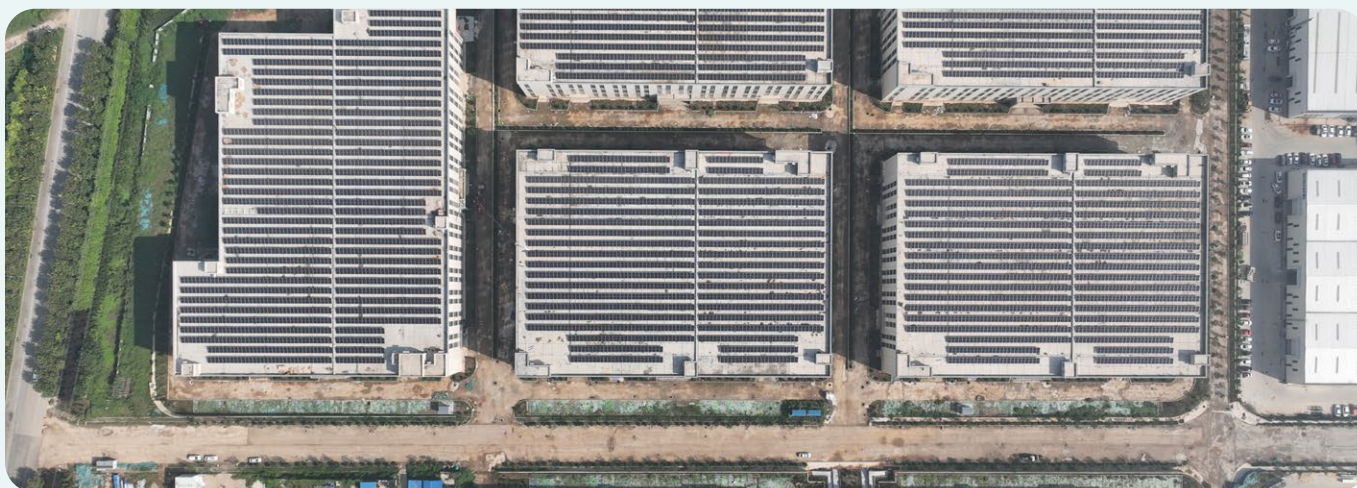
The construction across the five buildings under Ai-Chance was completed in September 2022 and is expected to provide green energy to power 50 per cent of the plant’s electricity needs, helping the customer achieve annual standard coal savings of up to 1,212 tonnes. This in turn reduces the emission of harmful substances such as carbon dioxide, sulphur dioxide, nitric oxide, and waste water.



*Changhong distributed (rooftop) solar project*

## Pingyin 5.5MW

Pingyin, SP’s first industrial park rooftop solar project in China, was completed in October 2022. This project spans 55,000 sqm across seven rooftops with an installed capacity of 5.5MWp. Generated electricity from this installation is wholly sold to the grid, enabling the local grid to avoid 3,800 tonnes of carbon dioxide emissions annually.



*Pingyin distributed (rooftop) solar project*

## First solar acquisition: Unisun distributed solar portfolio

As of 31 March 2023, SP Group has completed the acquisition of the first 110 MWp of distributed solar projects from Shanghai Unisun New Energy Co. Ltd. These rooftop solar assets are installed at over 50 industrial sites, located across the coastal provinces of Fujian, Jiangsu, Zhejiang, and Guangdong, covering food and beverage, automobile, and textiles industries.



*(Clockwise from top left) Portfolio of rooftop solar across Anhui, Fujian, Jiangsu and Jiangxi provinces*

The 110 MWp of rooftop solar assets will provide more than 111 GWh of clean electricity in China annually, equivalent to powering approximately 25,860 four-room HDB households in Singapore. The rooftop solar assets will also help China to avoid more than 64,000 tonnes of carbon dioxide annually. The acquisition is in line with SP’s strategy to enable the sustainable development and decarbonisation of the industrial sector, helping energy-intensive manufacturing facilities reduce their energy consumption and carbon footprint.

## First 100MW farm acquisition in Vietnam

SP secured its first investment in solar farm assets in Vietnam by acquiring two solar farms with a combined capacity of 100 MWp – the Europlast Phu Yen Solar Power Plant (50 MWp) and the Thanh Long Phu Yen Solar Power Plant (50 MWp) in Phu Yen Province.

Located in the south-central coast of Vietnam, the Europlast Phu Yen Solar Power Plant has been in operation since June 2019 and generates 60 Gigawatt-hours (GWh) of clean electricity per year. The Thanh Long Phu Yen solar farm was established in December 2020 and has been generating 70 GWh of clean electricity annually. The two solar farms will provide a total of 130 GWh of clean electricity to the Vietnam Electricity (EVN) power grid and is equivalent to powering approximately 28,800 four-room HDB households in Singapore for a year. Combined, both solar farms will help Vietnam to reduce its carbon emissions by up to 105,000 tonnes each year.



Thanh Long Phu Yen solar power plant

## Energy as a Service – Digital and Climate Services

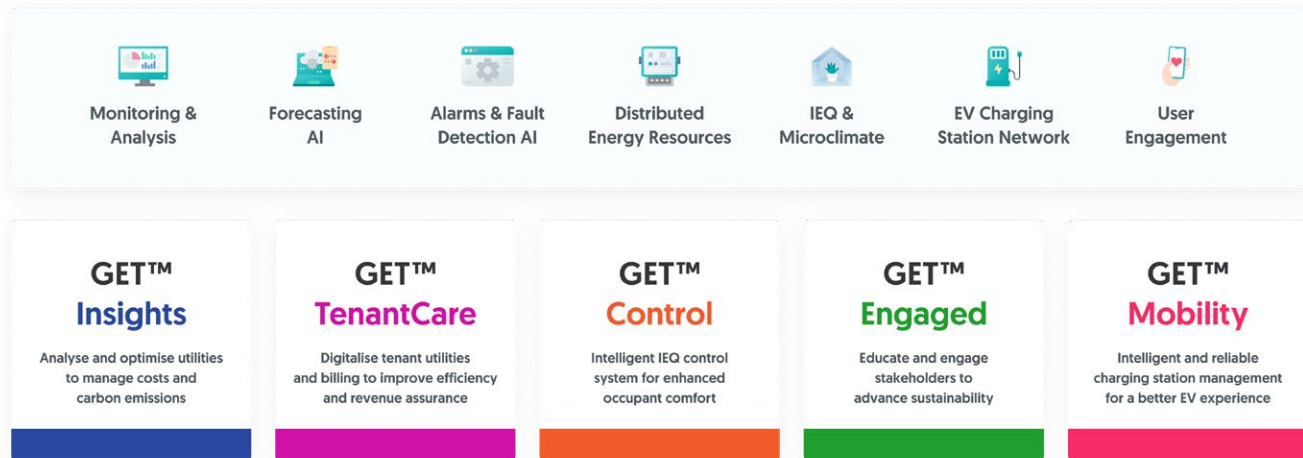
Energy efficiency plays a central role in tackling climate change and is one of the key ways the world can meet energy service demand with lower energy usage. As energy efficiency offers some of the fastest and most cost-effective actions to reduce GHG emissions, SP recognises the importance of educating our customers and supporting their adoption of energy-efficient practices.

SP deploys a host of digital solutions for business districts, commercial buildings, and households to equip them with the knowledge and tools to make greener choices and enjoy cost savings.

Our journey started with the digitisation of our services through the SP app. Through the app, users can monitor their electricity and water consumption and take steps to be more energy efficient by reducing wastage.



SMART INSIGHTS . ENERGY EFFICIENCY . OCCUPANT EXPERIENCE . SUSTAINABILITY



The app then evolved to become an integrated tool for promoting sustainability amongst Singaporeans through gamification to promote sustainable behaviour, measuring their carbon footprint, 'greening' their energy usage by purchasing Renewable Energy Certificates (RECs), providing a platform to charge their EVs, and so much more.

Beyond residential, SP expanded its sphere of influence to commercial and industrial complexes and districts. In 2020, we developed Green Energy Tech (GET™) – a suite of digital solutions that integrates different building systems and diverse data sources to create a seamless, sustainable energy management experience for customers. Powered by EnergyTech, the Internet of Things (IoT) and Artificial Intelligence (AI), GET enables building owners to make smarter decisions to help improve the overall building performance, sustainability and occupant well-being.

Building managers and developers can also purchase RECs through SP to achieve their decarbonisation goals.

We believe that smart cities are the next stage of our evolution and the future of a sustainable and green economy. We are committed to continuing the development of our energy services at scale, promoting convenience and sustainability to our customers, and empowering them with tools to build a greener and more sustainable world.

## Smart meters and the SP app

To empower our customers to be energy efficient, SP has started deploying smart electricity meters at all households. We have installed over 788,000 smart meters nationwide as of March 2023. Through the SP app, residents can monitor their electricity usage every half-hourly. Electricity, gas and water consumption can be tracked through a time chart, giving users a better picture of their energy usage trends. This enables residents to quickly implement energy-saving measures to reduce costs and achieve their green goals.

With 1.8 million downloads, SP app is Singapore's greenest energy app for consumers to manage their utilities account and take part in activities to lead a greener lifestyle. The app provides convenient bill payments, EV charging and purchase of renewable energy certificates. Users can enjoy rewards, cash and carbon offset rebates from banking partners. The GreenUP programme encourages the adoption of sustainable daily practices while earning retail rewards. Since 2019, over 21 million GreenUP activities have been completed by users who shared their completion of GreenUP activities such as recycling, energy saving and reducing plastic or food waste.



**Consumption Insights**



**Bill Payment**



**GreenUP**



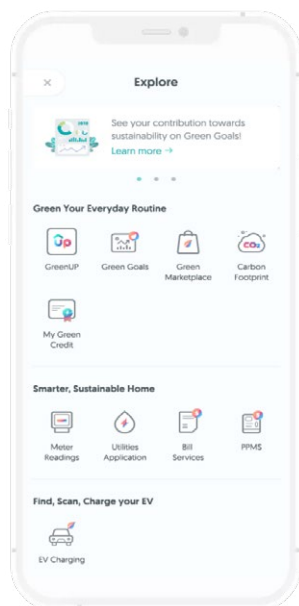
**My Green Credits**



**My Carbon Footprint**



**EV Charging**



In 2023, we launched the Green Marketplace that offers customers a selection of Green Loans and Insurance for their home and automobiles. The SP app provides green alternatives that gives better savings and benefits to consumers.

As the leading EV charging operator, the SP app makes it easy for EV owners to find the nearest charging location, scan the QR code on the charging points, and make payment. Households can also learn more about their carbon footprint by using the Carbon Footprint Calculator and purchasing My Green Credits to green their energy usage.

Beyond electricity, SP rolled out Singapore's first large-scale smart water metering project to supply, install and manage around 300,000 smart meters for households and businesses across seven locations islandwide from early 2022. We will leverage our wireless communications network and develop supporting IT infrastructure for the retrieval and management of water meter data. This data is crucial to helping homes and businesses better understand their consumption patterns and aims to support the sustainable use of our water resources for decades to come.

## Climate Services

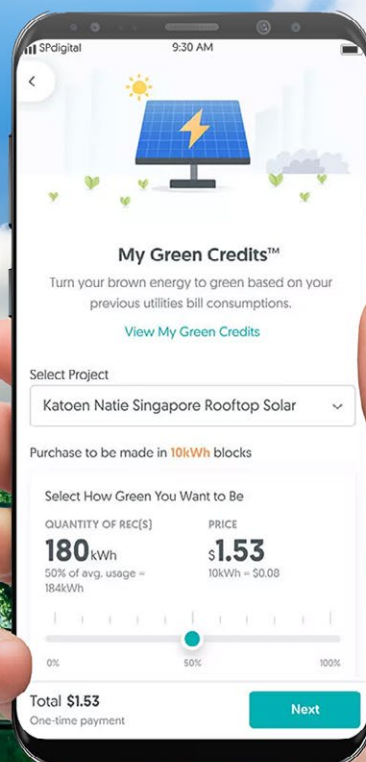
In FY22/23, SP has expanded our suite of services to include Renewable Energy Certificates (RECs), carbon credits and carbon accounting.

Customers can utilise RECs and high quality carbon credits to make clean energy usage claims for sustainability scope 2 reporting as well as offset their scope 1 and 3 emissions respectively. In addition, SP has formed a partnership with Turnkey, a local climate tech company that provides a ESG platform to digitalise data collection for climate reporting.

## My Green Credits™

A feature on the SP app that was launched in October 2020 to provide easy access to green electricity consumption. My Green Credits promotes accessibility to RECs as they are sold in multiples of kilowatt-hour (kWh). This allows residential consumers and individuals to “green” any percentage of their monthly electricity consumption. The purchase of these certificates drives awareness of renewable energy and allow customers to achieve their green goals and to play their part to help Singapore and the region transition to a low carbon economy.

SP has an exclusive partnership with UOB to allow UOB EVOL cardholders to offset 100 per cent or more of their household electricity carbon footprint for free when they charge SP's utilities bills to their credit card.



## Supporting the OneMillionTrees movement

At SP, we believe in creating a positive forward momentum by investing in nature. To mark Earth Day 2023, we partnered NParks to green the newly opened Rail Corridor (North) by planting tree saplings. These native forest saplings will enhance the biodiversity along this nature trail, and provide cool respite for visitors in the future.

The team learnt the finer points of tree planting from our knowledgeable colleagues from NParks, and took the opportunity to understand the common species of trees suitable for rewilding our environment. And in the true spirit of sustainability, this was a carbon neutral event as we encouraged everyone to take public transport, and offset all transport emissions associated with carbon credits.

The trees planted will contribute to NParks' OneMillionTrees movement, which aims to plant a million trees across the country by 2030. To green Singapore and encourage households to green their electricity consumption, SP is pledging to donate 15 per cent of proceeds from every purchase of My Green Credits™ under the OneMillionTree category to support the OneMillionTrees movement.



SP team doing their part to green the Rail Corridor (North) in Singapore.



# People and the Community

We are committed to safe operations and we work diligently to protect the health and safety of employees, customers, visitors and contractors at all of our operations. We achieve this by providing thoughtful, targeted training to our team so that they have the skills and knowledge needed to help us become Asia Pacific's leading sustainable energy solutions player.

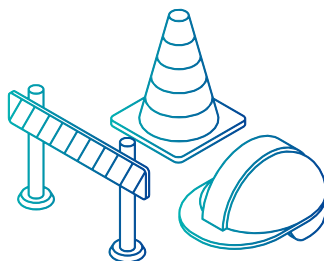
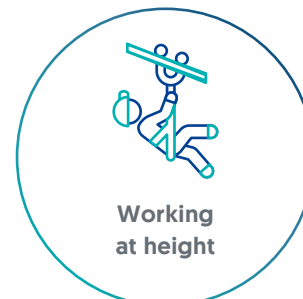
## Health and safety

### Safety Performance:

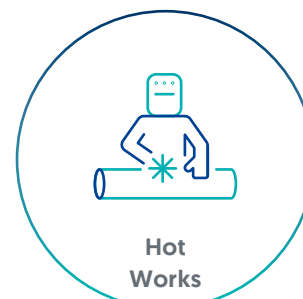
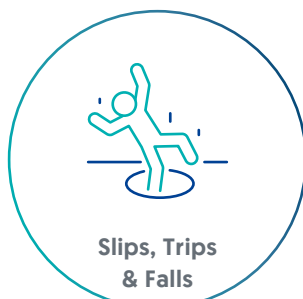
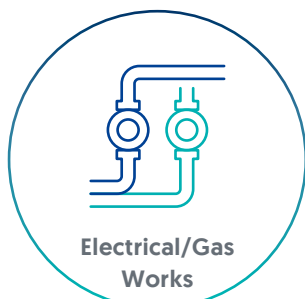


At SP, safety is our highest priority and we strive for zero accidents. The commitment to safety stems from our top management. They play an instrumental role in developing and committing to a safe working culture. Over 350 management staff conduct site safety inspections to bring the message of safety to all staff and contractors. In FY22/23, we recorded almost 27,000 inspections (physical and remote monitoring) conducted at our work sites.

We achieved this using SP's Occupational Health and Safety Management System which was developed based on the ISO 45001 framework and covers all of SP's Singapore operations. This system is subject to regular annual reviews including an internal and external audit by ISO 45001 auditors as well as a safety & health management review by our Management Safety Committee (MSC). Should any areas for improvement be identified during these reviews, they are followed through to completion.



**Eight key risks** consistently associated with the nature of our work



<sup>3</sup> Lost Time Injury Frequency Rate per million manhours. Includes staff and contractors' injuries with more than 1 day lost time.

Any incidents, including near misses, that occur within SP's premises or as a result of work activities performed by the Group and/or its contractors are reported to the MSC and thoroughly investigated. The person involved in or is witness to the incident shall notify the reporting officer as soon as reasonably practicable. The reporting officer then notifies management and the MSC of the incident within one hour.

The location of any incident is immediately secured ensuring that only authorised persons can enter the incident location. No equipment, material or other evidence of the incident is removed unless deemed necessary to prevent further injury or damage or upon instruction by management. Photographs at the scene of any incident are taken and attached to an incident report. An investigation team is formed to investigate incidents and establish accountability and make recommendations to prevent a recurrence.

Progress is regularly reported to the MSC on addressing these risks via established risk control activities, namely safety inspections by the Management team, Group Safety and Health (GS&H), CCTV and independent WSH inspectors, project safety reviews for all SP projects, and thrice-yearly risk assessment workshops conducted by sections with the departments, supported by GS&H officers.

Overall health and safety management is governed by the MSC which is chaired by the Chief Risk Officer and comprises senior management representatives of each business unit. The respective business units have their own Workplace Safety & Health (WSH) committees chaired by senior management to provide health and safety leadership in those units. Units that have formed WSH Committees, comprising senior management, middle management, and ground staff from the various operational entities.

To ensure relevant information on occupational health and safety is readily available to our staff, we utilise a Safety Information Management System that is available to all staff to access information on health and safety via our intranet. Documentation relating to ISO45001 is available to staff via the portal. We also host regular communication sessions and on-site training, such as monthly section communication sessions to share up to date health and safety information to ground staff, 'Safety Pauses' for contractors to communicate key issues with contractors and share best practices, and on-site safety inspection training for new management inspectors. Additional health and safety information is regularly communicated to staff and contractors via various platforms, such as mass email, yammer, safety alerts, circulars, town halls and briefings.

We have also developed a comprehensive workplace health programme which is based on the WHO model for healthy workplaces. The programme has been developed with the objective of occupational disease prevention and personal health promotion and is backed by the Union of Power and Gas Employees (UPAGE) and supported by the joint efforts of the MSC, the Workplace Health Programme (WHP) committee, and the ReCharge committee.



## Beyond our Occupational Health and Safety Management System, we host numerous voluntary health promotion services and programmes for our staff. Highlights from the reporting period include:



An annual health screening, which is available to all staff at no charge. This provides staff with an assessment of their current health status such as cholesterol levels, BMI, and diabetes risk so that they are aware and able to take timely action where required. The data collected is also taken into consideration when developing their work plan for the following year.



A lifestyle survey is conducted with staff as part of our health promotion initiative. The outcome of the survey guides the development of programmes, targeted at everyone's interest areas, such as physical or mental health workshops or smoking cessation programmes.



We have a network of Care Ambassador volunteers who are formally trained to aid staff who are suffering from mental health issues.



Turning-23 (Weight Management) Programme was launched for all staff to assist in managing their BMI. S\$100 vouchers are given to staff who achieve a 10 per cent weight reduction. An additional S\$20 vouchers are given to staff who attend all associated group exercises and workshops.



Mental Health Week, organised in October 2022, in conjunction with World Mental Health Week aimed to create awareness of mental health issues and to reach out to staff who may need assistance in managing their mental health.



Launching a one-stop Online Health Portal – With the increasing isolation and lack of physical activities due to the work-from-home arrangement, it became even more important to bring our health resources online expeditiously. GS&H and HR set up a one-stop e-depositories on health matters and a line-up of activities (LIVE WELL and ReCharge) and publicity of programmes over the company intranet, digital screens in common office areas and on screensavers of individual laptops.

To ensure all our staff and contractors are aware of and maintain the Group's standards for health and safety, training is provided through a variety of means. All new staff are required to attend a safety induction e-training course when joining the company. Annually, a safety e-learning refresher course is rolled out to all staff to provide more in-depth learning about safety in various work environments and mitigation measures to address key safety risks. There is an assessment at the end of each module to reinforce key concepts and learnings. In addition, Site Safety Inspection Training is delivered to SP Project Officers and Management Staff to enhance their skills in identifying safety hazards and understanding safety regulatory requirements relating to actions undertaken by each operation. These skills are required when conducting a safety inspection at SP worksites.

For contractors, a mandatory safety course conducted in the native language of foreign workers called Safety@SPPG has been provided since 2014. The objective is to raise safety awareness and to equip them with the necessary skillsets and knowledge to carry out works safely at sites. All workers are required to undergo Safety@SPPG before deployment onto SP worksites. The course now includes practical stations, covering high-risk work activities, to enhance the learning experience of the participants.

The Project Safety Management Course, launched in 2022, is targeted at all Contractor Project Managers, Workplace Safety and Health Officers, Project Coordinators and Supervisors. This course is designed to build their capabilities and enhance site safety management skills. The training also helps them to better understand SP's safety requirements and the importance of work safety.

## Safety Circle of Excellence

The Safety Circle of Excellence (SCOE) was commissioned in 2022 by SP's Group CEO, co-chaired by our Chief Risk Officer and SP PowerGrid's Chief Executive Officer, supported by Head of Group Safety & Health and senior management staff from Projects, Operations and Procurement. The committee aims to actively engage business partners with meaningful conversations to make workplace safer for all staff and contractors.

The committee meets on a quarterly basis and involves the senior representatives from key contractor partners. Through this committee, SP's contractors identified and facilitated implementation of best safety practices, strengthened safety mindset, and created an open platform for feedback on safety improvements.

The exchange of ideas allows collaboration with contractors to conduct trials on technological solutions to improve site safety, resolve site safety issues and drive for better performance at SP's worksites.



*SP Group Safety Circle of Excellence meeting with representatives from key business partners*

## Workplace Wellness Programmes

SP continues to encourage employees to take care of their wellbeing through voluntary participation in activities organised by the Workplace Health Programme and ReCharge committees. A comprehensive approach is adopted in the planning and execution of activities by prioritising efforts targeting at these four dimensions illustrated below:



## Key highlights for FY22/23

1

As part of **Preventive Healthcare**, besides providing free annual health screening, SP facilitated seasonal influenza vaccinations held within SP's premises for the first time to both employees and their family members in the last quarter of 2022. The competitive rate negotiated was extended till end of January 2023 so that more employees who missed the onsite event could receive their vaccinations at the clinics.



Turning-23, a weight management programme continued into Season 4 this year providing staff with **Interventive Healthcare support**. This year the programme included greater intensity where the physical workouts were conducted twice weekly both online and in-person. Of the regular participants, 30 per cent had achieved their desired weight loss goals.

2

3

In collaboration with ReCharge with focus on **General Healthcare**, various health and financial talks were held virtually throughout the year to ensure staff are equipped with relevant knowledge to support their general wellbeing. The talks covered a range of topics including, planning for retirement, financial planning, managing stress and building healthy habits.



The well-being of SP's employees remains as one of the main priorities addressed under **Mental Healthcare**. With the easing of safe management measures, in-person group events are held to enhance engagement and interaction for the employees. The SP Mental Health Week was a three-day event comprising an educational mental health talk, an outdoor mass workout and a mindfulness practice session conducted by a professional trainer. After an almost 3-year COVID-19 hiatus, the activities were well-received by all participants.

4

5

SP collaborated with Singapore Counselling Centre and Singapore Emergency Responder Academy to roll out a customised psychological first-aid course, comprising an e-learning module and a webinar to support all our Care Ambassadors while they play a critical role in peer support.



SP achieved 100 per cent Compliance with the Statutory Medical Examinations mandated by the Workplace Health and Safety Act. This includes an annual audiometric examination, mercury exposure examination, annual spirometry for SCBA [Self-contained Breathing Apparatus] users and more to ensure the safety and wellbeing of the staff.

6

7

SP Group has been certified as a Global Healthy Workplace by the Global Centre for Healthy Workplace [GCHW]. The certification recognises SP as an employer of choice while demonstrating sound ethical business principles, performance, and value to stakeholders.



## Training and development



**3,584**

**Number of employees**  
[as of end March 2023]



**155,000**

**Total Training Hours**



**43**

**Average training hours per employee per year**



**6.1**

**Average training days per employee per year**



**100%**

**Staff received a regular performance and career development review<sup>4</sup>**

To prepare our company for present and future growth, we have trained our employees in “Core” and “Future-Ready” programs in the following key areas. Examples of the programs are shown in the snapshot below:



### Network Reliability

- Introduction to Digital Twin
- Importing electricity from regional power grid



### Electric Vehicle Charging

- Introduction to Electric Vehicle [EV] and EV charging system
- Electric Vehicle Charging System



### Energy Efficiency

- Foundational Workshop on Energy Efficiency
- Singapore Certified Energy Manager [SCEM] Training Programme



### Cybersecurity

- Threat Vulnerability & Risk Assessment
- Cybersecurity Code of Practice



### Data and Artificial Intelligence

- Data Analysis and Analytics - Practical Application
- Introduction to Artificial Intelligence [AI] and Machine Learning

For employees going into retirement, reporting officers engage them about six months prior to re-employment to discuss possible re-employment arrangements, and the training needed should they be redeployed to a different job. There is also flexibility on working arrangements subject to operational needs extended to returning retirees, for example moving into shorter work week as a transition to the eventual retirement.

<sup>4</sup> Including all men, women, executives and non-executives

## Community engagement

### Empowering lives, for life

We are committed to sustained giving and meeting the evolving needs of the community with meaningful and lasting impact. We fund and set up programmes to benefit vulnerable groups in society across the age spectrum, from seniors, to youth and young children. In the past year, we have contributed about S\$5 million in donations and staff volunteering towards various community causes and industry initiatives.

SP Kids at Heart is a key pillar of our corporate giving, targeted at supporting children from lower-income families. We reaffirmed our support for KidSTART Singapore through a S\$1.1 million donation in June 2022 – an extension to the S\$1 million donation the year before. The contribution went towards the launch of two new initiatives to foster parent-child bonding and early childhood literacy during their formative years. More than 3,000 KidSTART children and their families benefitted from KidSTART Sea Adventures, an interactive marine play that gave children their first theatrical experience, and KidSTART Stories, where families received a mini library to help nurture reading habits from young. In the past year, we funded new children programmes – digital tablets to support after-school learning for children under AMKFSC Community Services and more than 60,000 meals for children at Care Corner's student care centres.

We expanded our outreach in supporting at-risk youth in Singapore, through a S\$750,000 donation to Youth Guidance Outreach Services (YGOS), a social service agency that strives to inspire youth in pursuing a fulfilling education and to give back to the community. This funding covered the purchase of an electric vehicle for a new mobile outreach support team and the refurbishment of two youth centres, enabling YGOS to bring its programmes to more youths.



Supported by SP, YGOS launched its Mobile Outreach Support Team, powered by an electric van.

We maintained support for programmes that benefit vulnerable seniors, enabling them to lead fulfilling and meaningful lives in their silver years. Close to S\$1 million was raised for programmes for seniors under the SP Heartware Fund last year, and this totals more than S\$20 million raised since the Fund was established in 2005 in partnership with Community Chest. These programmes support services for 25,000 vulnerable seniors. At Toa Payoh West – Thomson, we provided 7,000 meals for seniors and engaged them in activities and outings to promote active aging and prevent social isolation.



SP also maintained our scaled-up annual SP Power Packs charity drive, providing 10,000 lower-income families with bags of daily necessities.



*SP Heart Workers made door-to-door delivery of Power Packs.*

The engine behind our community outreach is our pool of staff volunteers, known as SP Heart Workers, through their contribution of time, skills and efforts throughout the year. These include the packing and delivery of Power Packs and SP Kids at Heart learning packs, as well as organising outings, grocery shopping and befriending sessions for seniors.

We are grateful to all our staff volunteers, business associates, customers and the public for their contributions, their hard work and heart work. We are also honoured to be recognised for these efforts through the Community Chest Platinum, Volunteer Partner and Enabler Awards, as well as the Champions of Good by the National Volunteerism and Philanthropy Centre, and the Ministry of Social and Family Development's Community Cares Award. In addition, SP also received the President's Certificate of Commendation for sustained support and contributions to the community through donations and volunteerism during the pandemic, and the COVID-19 Resilience Certificate for supporting the Ministry of Health's pandemic relief efforts.

# DISCLOSURES

## Contribution to SDGs

SDG	Initiatives to support the targets
 <p><b>7 AFFORDABLE AND CLEAN ENERGY</b></p>	<p><b>Clean and Smart Energy - Leveraging on the climate opportunities in the provision of low carbon solutions, aligning with the SDG 7 targets:</b></p>
<p><b>7.1 Energy access</b></p> <p>Ensure universal access to affordable, reliable and modern energy services</p>	<ul style="list-style-type: none"> <li>• Increasing electric vehicle charging stations</li> <li>• Enabling access to the Open Electricity Market by empowering customers with options for electricity packages and to enjoy savings</li> </ul>
<p><b>7.2 Renewable energy</b></p> <p>Increase substantially the share of renewable energy in the global energy mix</p>	<ul style="list-style-type: none"> <li>• Renewable energy imports from the region</li> <li>• Deploying solar PV projects</li> <li>• Encourage use of Renewable Energy Certificates for clean energy claims</li> <li>• Launch of My Green Credits™ on the SP app to enable households to match their electricity consumption with an equivalent amount of green energy produced</li> </ul>
<p><b>7.3 Energy efficiency</b></p> <p>Double the global rate of improvement in energy efficiency</p>	<ul style="list-style-type: none"> <li>• GET™ TenantCare</li> <li>• Utilities Monitoring and Insights</li> <li>• Deploying smart technology and SP app to access half-hourly electricity usage</li> <li>• Spreading environmental awareness through GET™ Insights, GreenUP and My Carbon Footprint</li> <li>• Deploying smart technologies for Tengah smart energy town</li> </ul>
 <p><b>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</b></p>	<p><b>Reliable and Sustainable Infrastructure – Ensuring resiliency in the infrastructure through addressing the climate risks to uphold reliability of our services in alignment with relevant SDG 9 targets:</b></p>
<p><b>9.1 Reliable infrastructure</b></p> <p>Develop quality, reliable, sustainable, and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p>	<ul style="list-style-type: none"> <li>• Investing in network infrastructure upgrades</li> <li>• Deploying smart grid technologies</li> <li>• Asset Health Digital Twin to monitor equipment health – prototype in place</li> <li>• Constructing the first large-scale underground substation in Southeast Asia to optimise space in land-scarce Singapore</li> <li>• Deploying district cooling and energy-saving solutions</li> <li>• Developing urban micro-grid</li> </ul>
<p><b>9.4 Sustainable infrastructure</b></p> <p>Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities</p>	<ul style="list-style-type: none"> <li>• Capacity upgrades for the Interconnector between Singapore and Peninsular Malaysia to support a regional grid energy import pilot</li> <li>• Developing DERMS to enable the effective integration of renewables</li> </ul>

# Task Force on Climate-related Financial Disclosures (TCFD)

TCFD's Core Element	TCFD recommendations	SP Group's Approach	Addressed in Sustainability Review
Governance	Describe the board's oversight of climate-related risks and opportunities.	<p>The Board is committed to integrating sustainability into SP Group's strategic directions and plans.</p> <p>The Board Risk Committee was established by the Board and is responsible for the oversight of the climate risks faced by the Group.</p> <p>The Board Executive Committee [ExCo] assists the Board and provides advisory supervision on SP Group's sustainable strategy, material ESG topics and targets.</p>	Board's role, pg <a href="#">[9]</a>
	Describe management's role in assessing and managing climate-related risks and opportunities.	<p>The Executive Leadership Team [ELT] reports to the ExCo and is headed by the Group Chief Executive Officer [GCEO]. The ELT's role is to oversee and manage material sustainability initiatives.</p> <p>The Group Risk Management identifies and analyses the climate-related risks faced by SP Group and reports to the Committee every quarter.</p> <p>The Strategy and Sustainability team monitors climate change issues and gives regular updates to the ELT.</p>	Management's role and internal controls, pg <a href="#">[10]</a>
Risk Management	Describe the organisation's processes for identifying and assessing climate-related risks.	The Strategy and Sustainability team and Risk Management team had jointly conducted a climate risk assessment to identify material climate risks under different climate scenarios. The risks identified were then integrated into the Enterprise Risk Management [ERM] Framework.	Group Risk Management, pg <a href="#">[11]</a>
	Describe the organisation's processes for managing climate-related risks.	<p>The Board Risk Management Committee is supported by the Group Risk Management [GRM] and provides oversight of the business risks that the Group faces.</p> <p>The implementation and management of the ERM Framework are undertaken by the GRM and ERM workshops on material risks are held across business units. "Top-Down" and "Bottom-Up" approaches are adopted across the entire Group so management and employees communicate and participate in effective risk management.</p> <p>The Group Risk Management then reports to the Board Risk Management Committee and provides updates on the risk management activities of the Group's operations.</p>	Group Risk Management, pg <a href="#">[11]</a>
	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	All risks that are considered material to operations and are considered as strategic business risks and managed under the Enterprise Risk Management [ERM] Framework, including risks that arise from climate change. Physical and transitional risks are closely monitored by the related business units and escalated to the Risk Management Committee when necessary.	Climate risk assessment and scenario planning, pg <a href="#">[12-13]</a>

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TCFD's Core Element	TCFD recommendations	SP Group's Approach	Addressed in Sustainability Review
Strategy	Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	<p>The adoption of two United Nations Sustainable Development Goals (SDG) shows the Group's support of the global call to action that all would enjoy peace and prosperity by 2030.</p> <p>SP Group had conducted our first climate risk assessment in FY 21/22 based on a net-zero and business-as-usual scenario, where short to long term horizons were considered.</p> <p>The adoption of TCFD's reporting framework was done in FY21/22, focusing on the physical and transition risks and opportunities that occur with climate change.</p>	<p>Sustainability Strategy, pg <a href="#">[8]</a></p> <p>Climate Risk Assessment &amp; scenario planning, pg <a href="#">[12-13]</a></p>
	Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.	<p>Strategy 2030 aims to create a low carbon, smart energy Singapore and be a regional leader in sustainable energy solutions. SP provide a full suite of solutions to customers and businesses to assist them in their sustainability journey.</p>	<p>Our Impacts, pg <a href="#">[4]</a></p>
	Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	<p>To strengthen the sustainability resiliency of our strategies, SP Group has done a detailed study on two climate change scenarios. Of which, one scenario is considered a net-zero scenario, where warming temperatures are kept below 2°C.</p> <p>To demonstrate our commitment to sustainability, SP Group is committed to reducing our own emissions and also helping our customers achieve their green goals through digital solutions, energy-efficient technologies and accelerating the transition to renewable energy.</p>	<p>Climate Risk Assessment &amp; scenario planning, pg <a href="#">[12-13]</a></p> <p>Sustainable Energy Solutions, pg <a href="#">[22-28]</a></p> <p>Energy as a Service, pg <a href="#">[29-32]</a></p>
Matrices and Targets	Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	<p>The TCFD reporting framework was adopted in FY21/22 to address the increasing demand for clear, comprehensive and high-quality information on climate-related risks and opportunities.</p> <p>To track the progress of our goals, metrics have been provided since the base year of FY19/20.</p>	<p>Metrics and targets, pg <a href="#">[14]</a></p>
	Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	<p>SP Group has been reporting our Scope 1 and 2 GHG emissions since FY19/20, in accordance with the GHG Protocol Corporate Accounting and Reporting Standard.</p> <p>In FY22/23, we have also started reporting our Scope 3 GHG emissions.</p>	<p>Metrics and targets, pg <a href="#">[14]</a></p>
	Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	<p>Strategy 2030 aims to create a low carbon, smart energy Singapore and be a leading player in Sustainable Energy Solutions by 2030.</p>	<p>Sustainability Strategy, pg <a href="#">[8]</a></p>



**SPgroup**

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