ST Engineering Sustainability

TCFD Report

A Whole of ST Engineering Effort

ST Engineering recognises the impact of climate change to the Group and our stakeholders. Hence, we support the efforts to address it both globally and locally where we operate. This includes reporting in alignment with the Taskforce for Climate-Related Disclosures (TCFD)'s cross-sector recommendations, and adopting a two-pronged approach of doing our part and enabling our customers. In our journey towards net zero, we do our part to reduce GHG emissions and adopt environmentally friendly practices in our business, as well as encourage our employees to inculcate similar habits in their daily lives. We develop products and solutions that will help our customers reduce their carbon footprint in their journey towards net zero.

Our TCFD Journey

2021	2022	2023	2024	Moving Forward
• Started TCFD journey • Ensured inclusion of climate change in our business areas' strategies • Conducted preliminary physical climate risk assessment on significant operating sites globally • Set target to reduce Scope 1 and Scope 2 absolute emissions by 50% by 2030 compared to 2010 base year	• Assessed key areas in existing practices against TCFD disclosure requirements and implications on our business • Conducted climate scenario analysis for material portion of our business • Incorporated findings into strategy, decision making and emerging risk management (ERM) approach	• Continuously assessed and monitored risks and opportunities • Acted upon selected mitigation plans and opportunities • Implemented an internal shadow carbon price on major capital expenditure • Established roadmaps for development of product carbon footprint of our major products and services • Completed a stocktake of emissions reduction target and discussed approach towards net zero	• Refreshed target to reduce Scope 1 and Scope 2 absolute emissions by 50% by 2030 compared to 2015 base year, instead of 2010, in line with industry best practices	• Will continue to actively assess and respond to the physical and transition risks and opportunities for the rest of our global portfolio, which includes developing mitigation plans, and defining strategic opportunities.

Our Governance: Leadership from the Top

Strategies and actions to address climate change are directed at the highest levels in ST Engineering. Our sustainability governance structure includes the Board and its relevant committees, the Group Executive Committee (EXCO), Group Senior Business Council (GSBC), Group Sustainability Working Committee (SWC), and various working groups across our businesses and geographies. This ensures that climate-related risks and opportunities are effectively managed.

Board

Provides oversight on all sustainability matters, including climate-related risks and opportunities. Briefings and discussions on climate-related topics are conducted regularly at Board meetings, including those supported by external subject matter experts

Management

Audit Committee / Risk and Sustainability Committee (RSC) / Strategy and Finance Committee (SFC):

Exercises oversight on the Group's sustainability strategy, material ESG issues, workplans, performance targets, sustainability reporting and initiatives. RSC also has oversight of climate-related risks, opportunities as well as initiatives that drive climate mitigation and adaptation strategies. Climate-related plans and progress are regularly reviewed by RSC.

EXCO:

Reviews and approves the Group's climate strategy and ESG decisions for the Group's Global operations. Accountable to the board for implementation of climate-related strategy and direction.

Group Chief Strategy and Sustainability Officer:

Assists EXCO in ensuring that the impact of climate change is considered in all business strategies and operational plans.

Group Sustainability Working Committee (SWC):

Previously known as Group Climate Change Working Committee. Key platform for integrating and executing sustainability related efforts. SWC comprises of operations leaders across all our business areas. It is chaired by the Group Chief Sustainability Officer and sponsored by the Group Chief Financial Officer.

Business Area Technology and Innovation Communities / Business Area Sustainability Focus Teams:

Business leaders, regional heads and function heads are responsible for addressing the risks and opportunities in their respective areas of responsibility.

Plans and actions needed are discussed at various management fora and incorporated into the strategic planning and annual budgeting processes.

Our Strategy: Minimising Risks and Maximising Opportunities

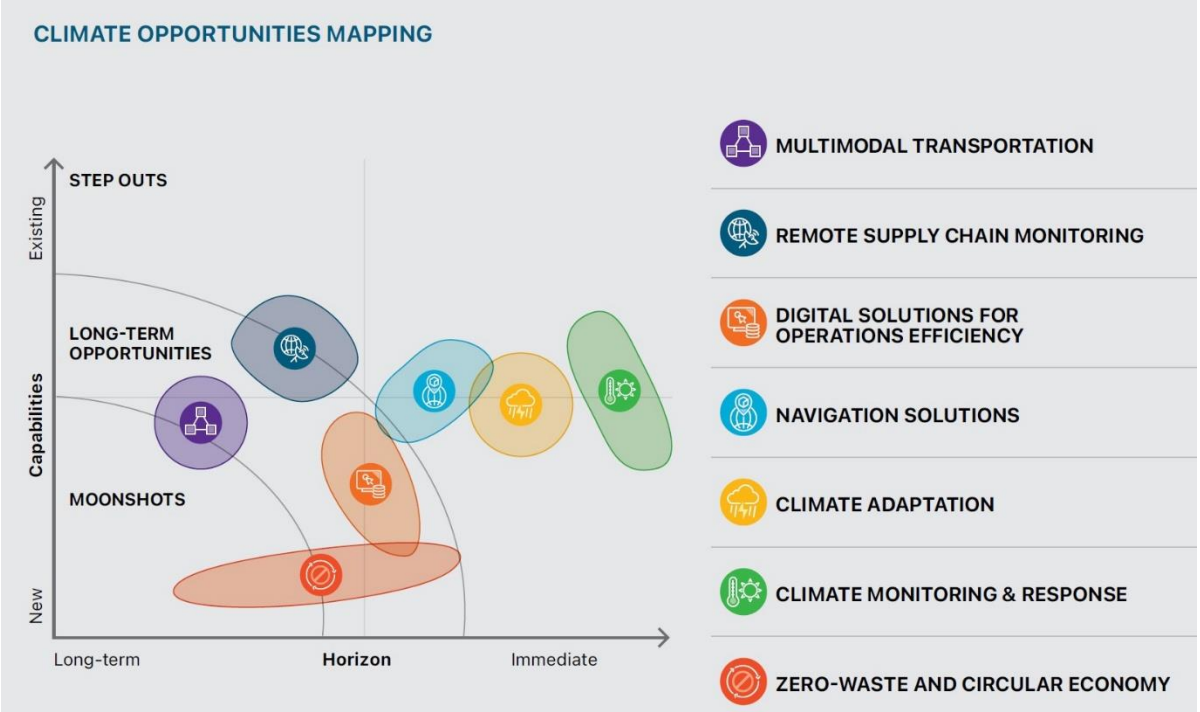
ST Engineering recognises the risks and opportunities presented by climate change to our business. We are committed to communicating our approach and strategies for climate mitigation, adaptation and resilience to our stakeholders. In assessing the impact of climate change on our business over the short, medium, and long-term, it is clear that the world's focus on leveraging technology and innovation to address climate change presents opportunities for the Group.

Maximising Opportunities

Overview: Climate Opportunities & their Impact on the Group

The Group reviewed our climate change opportunities in both our existing business areas as well as emerging ones in 2022. This exercise enabled us to identify opportunities in energy management and efficiency, recycling and reuse, and explore technology-enabled carbon verification solutions.

These findings have been shared with the relevant stakeholders and have enabled the Group to better understand the implications of these climate opportunities on our business expansion strategy, resource allocation and overall financial planning.



Identified Focal Areas to Maximise Climate-Related Opportunities

The world's focus on leveraging technology and innovation to address climate change presents opportunities for the Group. This is aligned with our target to increase our sustainability-linked revenue to more than $3b by 2026. The three focus areas of our sustainability linked businesses include:

• Reducing GHG emissions –

Our products and solutions reduce emissions by saving fuel, reducing waste, minimising road congestion and boosting energy efficiency.

• Solving urban and city challenges –

Our Smart City deployments and Internet-of-Things (IoT)-based connected solutions optimise operational efficiency and improve energy savings. We also develop and deploy sustainable hybrid and electric transportation solutions.

• The circular economy –

We design, build, operate and maintain sustainable waste management and waste-to-energy facilities that support eco-friendly waste disposal, management and wastewater recycling. Additionally, our aircraft and ship conversions provide a new lease of life through repurposing and reuse, thus saving significant resources.

Identified Focal Business Area: Commercial Aerospace

The risk of the rising cost of carbon, the opportunities in resource and operational efficiency, as well as the shift towards greater adoption of Sustainable Aviation Fuel (SAF) are strong drivers for the commercial aerospace industry to decarbonise. For that reason, we began our TCFD journey with a focus on our Commercial Aerospace Business Area.

The opportunities identified build on existing capabilities in our commercial aerospace business. We continue to refine our suite of solutions to meet our customers' decarbonisation goals and rising demands to transition to a low-carbon economy. This includes growing the scope of circular economy-friendly businesses such as our Passenger-to-Freighter (P2F) conversions, as well as advancing opportunities for materials recycling and reuse. This enables us to continue to partner with our customers for their decarbonisation journeys.

Identified Focal Function: Group Technology Office (GTO)

One of the key functions which identifies and coordinates climate-related opportunities is our Group Technology Office (GTO). Its roles include technology scanning and trend identification, Research and Development (R&D) data gathering and analysis, and the formulation of group-wide initiatives. This leads to the development of new products, technologies and solutions for our global markets. GTO works in close partnership with GEC, business area leaders, the Group Strategy and Sustainability Office (GSSO) and ST Engineering Ventures. Externally, the GTO is plugged into the R&D ecosystem, particularly in the geographies we operate in.

Minimising Risks

Overview: Climate Risks & their Impact on the Group

We recognise that climate change poses different types of risks to our business. These include physical risks, such as flooding, extreme weather events and increasing temperatures, which can disrupt or negatively impact our employees, assets and supply chains. We also acknowledge the potential financial impacts that can result from transition risks, which include regulatory, market and reputational risks.

Identified Physical Risks

• In the short and medium term, the physical risk to our productive assets and our people is low. We have put in place a process to regularly review facilities against extreme climate and weather events.

Identified Transition Risks

• We expect minimal impact on our business in the transition to a low carbon economy in the short and medium term.

• We will continue to monitor emerging topics including the evolving regulatory and carbon tax environment, cognisant of the following watchpoints:

1) Carbon tax and costs are likely to be passed to the Group through suppliers, for goods and services with embodied carbon. Accordingly, the carbon price and sector specific regulations is a crucial space to monitor.

2) Shifts in demand and innovation calls within our industries will need increased attention and action. These include tracking sectoral structural shifts, such as competitors' efforts to launch greener products, and investing into climate-related business and technology opportunities.

3) The impact on our supply chain from climate change needs to be examined in more detail. This is an addition to the challenges caused by other macro trends, such as China-U.S. trade relations, the Russian-Ukraine conflict and the rising inflation and energy costs. We have started the process of looking at our key suppliers and remain committed to strengthening our supply chain resilience.

Our Strategy: Resilience based on Scenario Analysis

To assess the resilience of the Group's strategy, we accounted for different climate-related scenarios relevant to our business, including a 2°C or lower scenario. These scenarios help us to quantify the potential direct damages and operational risks to the Group's assets and key suppliers, with a specific focus on our Commercial Aerospace Business Area.

- We modelled the climate impact on assets utilising the Representative Concentration Pathway 8.5 scenario taken from the Intergovernmental Panel on Climate Change (IPCC) with a timeline of up to 2100.

- We also referred to Nationally Determined Contributions (NDC) scenarios and utilised sector specific decarbonisation scenarios including International Air Transport Fly Net Zero for Aviation for transition risks up to 2050.

- For our other businesses, we conducted an initial high-level analysis based on general decarbonisation scenarios, such as the International Energy Agency (IEA) Net Zero Emissions by 2050 scenario and the IEA Sustainable Development Scenario.

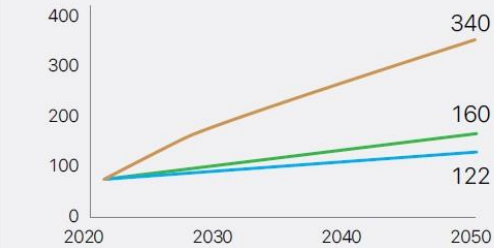
OVERVIEW OF SCENARIOS

Scenario	Description
"Status Quo" 2°C rise by 2050, 2.6°C by 2100	**Status Quo:** • Emissions continue to grow at business-as-usual rates • Carbon price increases by committed rates • SAF adoption remains at today's rate
"Nationally Determined Contributions" 1.8°C rise by 2050, 2.1°C by 2100	**Nationally Determined Contributions Aligned:** • Some decarbonisation actions taken • Based on published climate action plans
"Net Zero" 1.5°C rise by 2050, 1.4°C by 2100	**Net-zero Aligned:** • Emissions, carbon price, sustainable aviation fuel adoption changes in line with International Air Transport Association Fly Net Zero scenario

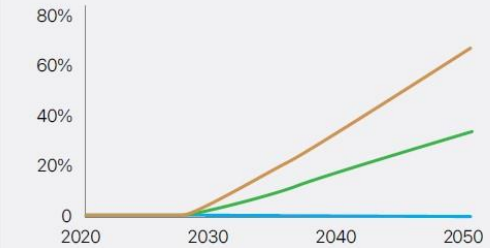
Note: Temperature rise compared to pre-industrial levels; International Air Transport Association, International Energy Agency, consultant analysis

RANGE OF KEY ASSUMPTIONS
– "Status Quo" – "Nationally Determined Contributions" – "Net Zero"

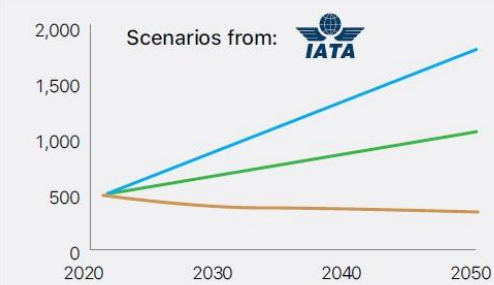
Carbon price across scenarios: SGD / ton



SAF adoption across scenarios: %

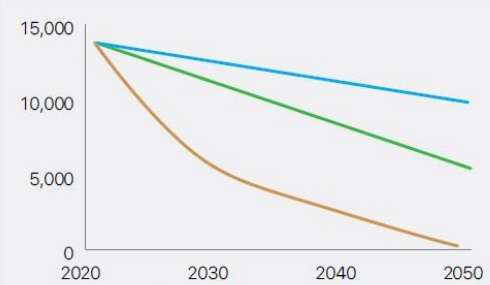


General emissions across scenarios: MN tons



Assumptions: 3-6% efficiency improvements by 2050, hydrogen/ electric adoption

Power emissions across scenarios: MN tons



Used for adjusting scope 2 emissions projections

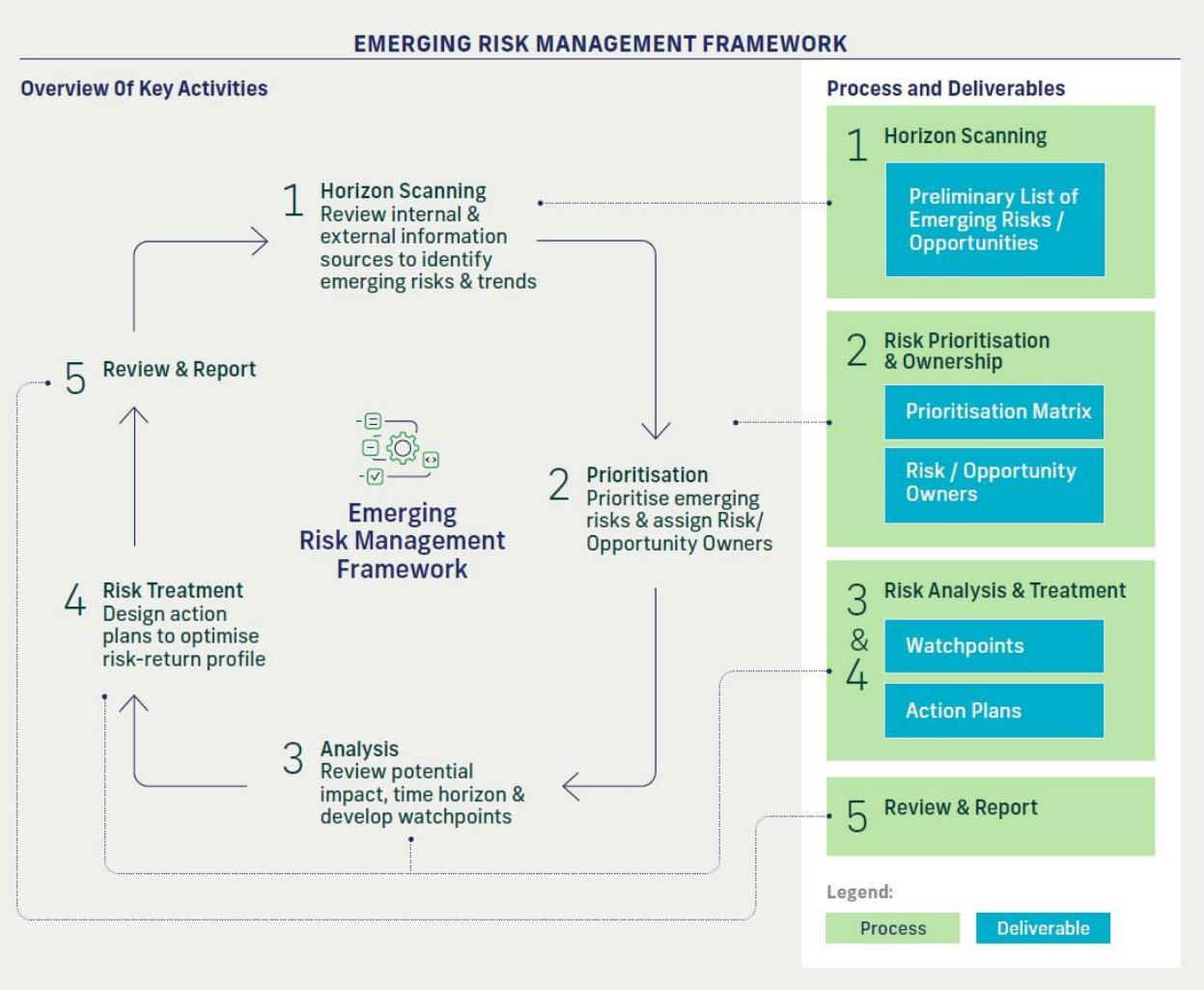
Sources: International Air Transport Association, International Energy Agency, external consultant's analysis

Our Strategy: Risk Management

Context: Our Overall ERM Framework

The R&A function provides leadership in the implementation of a group-wide ERM framework that allows risks to be identified, assessed, monitored and managed by the business leaders.

The Group deploys an ERM Framework to identify the key risks that may impede the achievement of its business goals in the short, medium and long-term. It sets out a consistent definition of risk and risk tolerance limits to ensure that business units have a common understanding when identifying and assessing risks. Besides business risks, this framework also analyses the financial and non-financial impact of risks arising from sustainability areas, including environmental, social and governance.



How We Integrate Processes for Identifying, Assessing and Managing Climate-Related Risks into Our Overall Risk Management

In Our R&A Function:

In 2022, the Group's R&A function reviewed the existing risk universe in the Group ERM manual and incorporated climate-related physical and transition risk events. This resulted in the addition of a new Climate Change risk category.

Each business unit utilises the risk likelihood and impact parameters to identify their key risk exposures over a five-year horizon (short to medium term), while assessing and managing risks within their own risk register through detailed action plans, annual business budgeting and planning processes.

Moving forward, R&A will be enhancing the Group's ERM framework to encompass risk assessment on a longer-term horizon, coupling it with the monitoring of emerging risks to address the long-term impact of climate change.

In Our Strategic Plan Reviews:

The Group's annual five-year strategic plan review includes the identification of sustainability-related risks and opportunities. Our 2022 review was discussed and endorsed by the Board's SFC and formed the foundation for initiatives relating to climate change in subsequent years.

Moving forward, we will deepen our climate risk and opportunities study to cover relevant operations not reviewed in the initial phase. We are also in the process of reviewing climate risks in our broader supply chain and will address these risks through various sustainability initiatives.

Our Metrics and Targets: Tracking Progress

Climate-related Opportunities

Metric:

The Group set a target for our sustainability-linked revenue in SGD$ to drive our businesses to pursue products and solutions that would enable our customers' sustainability journeys, including reducing the impact of their operations to climate change.

Target:

We aim to increase our sustainability-linked revenue to more than $3b by 2026 and announced this target at our 2021 Investor Day.

Performance:

We will share our performance against this target progressively in our upcoming sustainability and annual reports.

Carbon Emission Scopes 1, 2 and 3 and Related Risks

Metric:

In the identification, evaluation and management of the Group's exposure to both physical and transition risks, we monitor global GHG emissions in $MtCO_2e$/year and how we as an international community are faring against a 1.5°C compatible pathway.

To identify, evaluate and manage the Group's contribution to these risks, we measure and analyse both our GHG emissions intensity and absolute emissions in $MtCO_2e$/year.

Targets & Performance:

The Group has been making steady strides in our decarbonisation journey, since we started disclosing our GHG emissions since 2014.

- In 2019, we achieved our 36% intensity reduction target by 2030 set in 2018.

--> We will continue to track overall emissions intensity as a measure of revenue for the Group to evaluate the efficiency of our business.

- In 2021, we committed to halve our Scope 1 and 2 emissions by 50% by 2030, with 2010 as a baseline.

--> This is aligned with the aspiration of our major shareholder for the decarbonisation pathway of their portfolio.

- In 2022, we reduced our absolute GHG emissions by 37% compared to our 2010 baseline.

- From 2023 onwards, our absolute GHG emissions metrics can be found in our respective sustainability reports.

- In 2024, our baseline year to halve our Scope 1 and Scope 2 emissions changed to 2015, in line with the Science Based Targets initiative (SBTi) and industry best practices.

Other Climate-Related Risks

For more information on our metrics, targets and performance for energy usage, water usage, waste management and supply chain, please refer to the section for each relevant environmental ESG factor in our latest Sustainability Report.

Monitoring and reporting these metrics across the different geographical areas we operate in help us identify areas with the highest climate-related risks and track progress towards our goals.

Our Conclusion

Overall, our current TCFD-aligned analysis is as follows:

- **Low physical risk to our productive assets and people -** We established process to regularly review impacts due to extreme climate and weather events.
- **Minimal impact to business in transition to low carbon economy** - We continue to monitor emerging regulatory and tax issues.
- **Climate change presents opportunities for the Group -** We target to increase sustainability linked revenue to over S$3b by 2026.

We have updated our Group ERM framework to incorporate climate-related considerations. We have also launched the Emerging Risks Framework to identify, analyse and recommend actions on emerging risks on the longer-term horizon. Moving forward, we will continue to drive and coordinate efforts across our businesses to leverage the unique opportunities presented.