moving energy

NAVIGATING A SUSTAINABLE FUTURE TOGETHER

Climate-related Financial Disclosures Report 2023

NAVIGATING A SUSTAINABLE FUTURE TOGETHER

THEME RATIONALE

Navigating a Sustainable Future Together, reflects our belief that building a better world is not just a goal but a journey we embark on collectively with stakeholders, employees and the communities we operate in. It harmoniously intertwines our 55-year legacy as a global maritime conglomerate with a visionary roadmap to foster a just energy transition and shape a sustainable world for the next generation.

In the next chapter of our journey, we aim to embrace and lead transformative changes that will propel us toward a more sustainable and responsible future. To us, success is not merely measured by cargo tonnage but by the profound impact on people, the environment and society at large.

Climate-related Financial Disclosures 2023
or via https://www.miscgroup.com/

WHAT'S INSIDE

Climate-related Financial Disclosures 2023

As a leading global provider of international energy-related maritime solutions and services, MISC Berhad (MISC) is pleased to present our latest Climate-related Financial Disclosures. This marks our third report since voluntarily adopting the framework in 2021, underscoring our commitment to proactively addressing climate-related challenges and contributing to a sustainable future.

We have set ambitious targets for Net-Zero greenhouse gas (GHG) emissions by 2050 and a 50% reduction in GHG intensity from our shipping operations by 2030. Our climate risk and Net-Zero initiatives are interconnected, with the former focusing on identifying, measuring and managing climate-related risks, while the latter centres on mitigating our impact on the climate and achieving Net-Zero emissions targets, thereby reducing risk.

This report explains how climate change scenarios may impact our operations, outlining our strategy to mitigate potential impacts and ensure resilience. It covers our governance structures, strategy and risk management, assessment of resilience and metrics and targets. In this report, we have refined the climate scenarios adopted to identify our risks and opportunities, embedding Key Risk Indicators (KRIs) to help us quantify and monitor specific risks.

Our disclosure reflects our dedication to understanding and integrating climate risk into our risk management governance, processes and strategies. It serves to help us realise our Net-Zero goals, positioning us at the forefront of sustainable practices within the maritime industry.

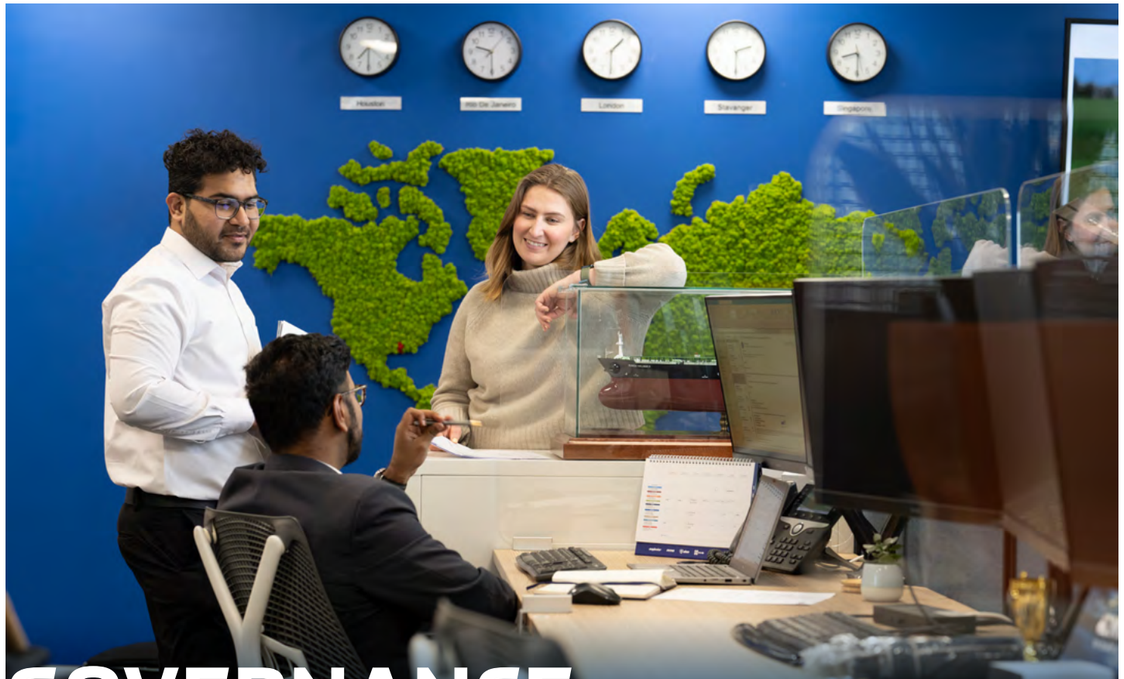
MISC Climate Framework

Governance
- Board
- Board Sustainability & Risk Committee
- Risk Management Committee
- HSSES Council

Strategy
- Identification of Climate Risks and Opportunities
- Scenario Analysis
- Strategic Risk and Planning

Risk Management
- Enterprise Risk Management
- Project Risk Assessment

Metrics & Targets
- Carbon Intensity Reduction
- Total GHG monitoring
- Climate Remuneration
- Financial Risk Indicators
- Internal Carbon Pricing



GOVERNANCE

MISC has established an effective governance structure to ensure that the oversight, evaluation and management of climate-related matters, along with our associated risks and opportunities, receive appropriate attention from both the Board and Management.

Board

MISC Board makes strategic decisions that incorporate climate risks and opportunities whilst contributing to a Net-Zero economy

Board Sustainability & Risk Committee

Reviews the adequacy and effectiveness of MISC's Risk Management Framework and ongoing activities in identifying, monitoring and mitigating risks (including climate-related risks) and the determination of MISC's sustainability strategy and governance structure in alignment with MISC's business strategy

Risk Management Committee	HSSES Council[1]
Responsible for driving the implementation of the risk management framework	Discuss GHG performance and compliance status with current and emerging regulations

[1] *Chaired by the President/Group CEO (PGCEO). The members comprise Vice Presidents from each division and the Managing Directors/CEOs of MISC Group of Companies.*

Board Level Governance

Climate-related matters are categorised under the sustainability umbrella, where the Board assumes a pivotal role in setting the overall sustainability strategy, endorsing decisions related to sustainability, including ultimate oversight over the organisation's approach to assessing, evaluating and integrating climate-related risks and opportunities. Our Net-Zero target and transition plan fall under the purview of the Board, demonstrating MISC's commitment to steering MISC towards sustainability goals.

The Board entrusts specific governance duties to Board Committees which aid the Board in fulfilling its obligations and responsibilities. These Board Committees function under well-defined Terms of Reference.

Effective 1 January 2023, the Board Governance & Risk Committee (BGRC) has been renamed as the Board Sustainability & Risk Committee (BSRC) to reflect MISC's commitment to the sustainability agenda at the Board level, with greater emphasis on sustainability as a core component embedded in MISC's activities and operations.

The BSRC has been tasked by the Board to meticulously review the Group's sustainability risk profile, sustainability strategy and governance structure, policies, processes and practices, encompassing climate-related risks and opportunities, further enhancing MISC's Risk Management Framework and Enterprise Risk Management (ERM).

The Board and BSRC will take climate-related matters into account during the evaluation and direction of strategy, significant action plans, enterprise risk management, annual budgets and business plans. They also establish performance objectives and supervise implementation and performance, including providing oversight on major capital expenditures (CAPEX), acquisitions and divestitures. Every quarter, the Board, facilitated by the BSRC, reviews and supervises GHG performance and the progress of strategic initiatives related to climate against established goals and targets.

Management Level Governance

The role of assessing and managing climate-related risks and opportunities is a shared responsibility across the Group, mainly by two management-led committees.

The Health, Safety, Security, Environment and Sustainability (HSSES) Council is a key governing body that provides strategic leadership, guidance and makes recommendations within its delegated authority on climate-related issues and other pertinent environment, social and governance (ESG) matters. It is chaired by MISC's President and Group CEO (PGCEO) and comprises Senior Management.

Meeting monthly, the HSSES Council is responsible for offering oversight and direction on all HSSE and sustainability-related matters, including environmental, climate and social sustainability concerns. The Council's accountability extends to the Group's policies, strategic initiatives, management systems, targets, performance, management review, data governance and progress made in achieving our Net-Zero target. Functioning as a vital advisory body, the HSSES Council aids the Board and the BSRC in making informed and science-based decisions.

The Risk Management Committee (RMC) conducts quarterly meetings to assess and review key business risks, ensuring adequate and effective mitigation plans to manage identified risks. Following this, climate-related risks and their corresponding mitigation strategies are further assessed and integrated into the Group's risk register. The outcomes of these assessments are deliberated by the BSRC and subsequently reported to the Board quarterly, based on materiality and impact towards the Group.

Additionally, climate-related risks associated with investment opportunities undergo evaluation within Project Risk Assessments, seeking approval from the Project Risk Assessments Sub-Committee (PRASC), the BSRC and ultimately MISC's Board.

STRATEGY

Sustainable business development is a core aspect of our sustainability agenda, covering financial and ESG considerations. The global energy transition away from fossil fuels has significant implications for the maritime sector, primarily due to the challenges associated with the availability and affordability of technology and alternative fuels for the shipping and maritime sectors. These factors serve as major barriers in the rapid transition away from traditional fossil fuels.

We have aligned with the International Maritime Organisation's (IMO) decarbonisation goals by embedding sustainability principles into our business model and strategies. Our target is to reduce GHG intensity by 50% by 2030 and achieve Net-Zero GHG emissions by 2050 and this commitment also extends to our value chain.

Despite the global turmoil of 2023, we remain steadfast in our commitment to our long-term strategic vision of creating value through sustainable growth. To address short-term challenges while staying focused on our overarching objectives, MISC has adopted a dual growth strategy.

Our approach involves driving short-to-medium-term growth through our business plans, prioritising immediate business demands in traditional markets while actively tackling climate change risks and opportunities through a comprehensive strategy that combines the implementation of solutions with ongoing innovation. This allows us to secure recurring cash flows through long-term contracts with premium clients, ensuring financial sustainability, returns to shareholders and the necessary capital for the transition of our business.

Our Net-Zero commitment is intricately linked to our dual growth strategy, which involves the decarbonisation of our existing operations, converting our fleet progressively and ensuring all newbuilds from 2030 or sooner are low-, ultra-low or zero-emission vessels. Simultaneously, we are exploring new income streams aligned with our 2050 target.

Time Horizons

MISC Group has established short-, medium- and long-term time horizons to assess climate risks and opportunities and subsequent strategies. The chosen timeframes are aligned with MISC's regular business planning cycles, where these cycles are reviewed, adjusted and evaluated as part of our transformation plans. This approach considers the lifespan of our assets and evaluates the business impact of climate-related issues over extended durations.

These short planning cycles are designed to mirror the rapid pace and intricate changes in our industry, enabling us to adapt promptly to evolving business, customer and external stakeholder needs. While we acknowledge that climate-related issues often unfold over the medium to longer terms and though we can identify potential risk types, the precise impact and timing of these risks remain uncertain. Despite this, climate-related risks and opportunities increasingly influence MISC's strategic and financial planning processes.

Time Horizons	Rationale on Material Financial Impact
Short-Term (within the next 2-3 years)	Any climate-related risks and opportunities that have or are expected to have material financial impacts in the next two to three years from current and emerging climate legislation and market transition to low-carbon assets.
Medium-Term (current year up to 2030)	Any climate-related risks and opportunities that have or are expected to have material financial impacts in meeting the following expectations: • Achieving IMO targets, which are reducing emissions by at least 20%, striving for 30% by 2030 and by at least 70% striving for 80% by 2040 • Acknowledging the typical lifespan of a vessel to be around 20-25 years, the shipping industry must develop economically sustainable deep-sea vessels with ultra-low or zero carbon emissions by 2030 to fulfill IMO 2050 Net-Zero goals and achieve MISC's Net-Zero emissions target by 2050
Long-Term (2031-2050)	Any climate-related risks and opportunities that have or are expected to have material financial impacts in addressing the energy transition and global movement towards Net-Zero GHG emissions by 2050.

Climate Scenarios

In 2023, we further refined the process used to identify the impact of several pathways and assumptions on our business using three climate scenarios – a low, medium and high CO_2 concentration in 2100 from pre-industrial levels, while considering the trajectory in 2050:

MISC's Scenario Analysis

Low future emissions (< 2°c)	SSP1-2.6	CO_2 emissions remain constant until early this century, then decline, becoming negative by the end of the century. This scenario assumes a sharp decline in the use of fossil fuels, increased use of cropland for biofuel production and reduction of methane emissions by 40%.
Moderate future emissions (2 - 3°c)	SSP2-4.5	An intermediate scenario where CO_2 emissions remain at current levels until the middle of the century and only decline after. Moderate mitigation efforts are taken to gradually shift away from the use of fossil fuels towards renewables.
High future emissions (3 - 4°c)	SSP3-7.0	Business-as-usual where at the end of the century, CO_2 emission will be roughly double from present levels. Countries are focused on protecting their own interests and security with limited international collaborations.

These scenarios were sourced from:

- Intergovernmental Panel on Climate Change (IPCC)
- Shared Socioeconomic Pathways (SSP)
- International Energy Agency (IEA)
- The International Renewable Energy Agency (IRENA)

SHARED SOCIOECONOMIC PATHWAY SCENARIO PROJECTION

MISC Scenario Analysis (°C)	Scenario	Projection of temperature rise from 2081 to 2100 (°C)	
		Mean	Range
< 2 (Low emissions)	SSP1-2.6	1.8	1.3 ~ 2.4
2 – 3 (Moderate emissions)	SSP2-4.5	2.7	2.1 ~ 3.5
3 – 4 (High emissions)	SSP3-7.0	3.6	2.8 ~ 4.6

To understand and connect the political, business and social responses to climate change and associated global carbon budgets, shared socioeconomic pathways (SSP) and the expected physical and transitional climate-related impacts, the climate analysis and scenarios were derived based on the following driving forces:

Driving Forces	Low Emissions Scenario (< 2°C)	Moderate Emissions Scenario (2 – 3°C)	High Emissions Scenario (3 – 4°C)
Environmental	• Sea level rise and higher sea surface temperatures are affecting coastal communities • Increase in wind speed and wave power in the Southern Hemisphere	• Climate-related risks are significantly affecting lower latitudes infrastructure and communities • Larger winter ocean waves and increase in wave heights	• Extreme sea level rise and intense impacts on ports and coastal infrastructure • Warmer sea surface with extreme heatwaves and intense tropical cyclones
Political & Legal	• Extensive international collaboration • Clear policies to support Net-Zero transition • Well-established carbon pricing • Industry environmental standards	• Growing international collaboration • Clear policies to support Net-Zero transition • Well-defined industry environmental standards • Moderate implementation of carbon pricing	• Large differences across regions and countries on environmental standards and policies • Continuing government incentives for the oil and gas sector in some countries • Carbon pricing is not widely adopted
Technological	• Collaborations between different industries and financial backing encourage the adoption of CCUS • Extensive investment in CCUS technology to bridge the transition towards a Net-Zero carbon economy • Utilisation of e-fuels in international shipping decarbonisation • Significant investor interest in the hydrogen economy	• Rapid technological development and extensive adoption of carbon-neutral fuels • Governments across the globe invest in CCUS • Leverage natural sources to offset remaining emissions • Supply of renewable energy is growing faster than electricity demand	• Focus is on process efficiency and a slower transition towards technological advancement • Lack of funding and incentives to deploy CCUS on a large scale • Limited CO_2 storage availability raises energy transition costs • Lower transition to renewables

Climate Scenarios

Driving Forces	Low Emissions Scenario (< 2°C)	Moderate Emissions Scenario (2 – 3°C)	High Emissions Scenario (3 – 4°C)
Economic	• Decrease in total energy supply is predicted due to strong implementation of policies and efficiency measures • Rapid transformation towards electrification and renewables as a large part of global energy systems • Significant global annual investment into the renewable energy sector	• Slight increase in total energy supply is predicted • Increased electrification with a moderate shift towards renewables with a focus on transitionary fuels • Utilisation of bioenergy as a potential alternative to replace traditional biomass • Strengthen policy commitments to limit fossil fuel usage to balance Net-Zero ambitions	• Decrease in total energy supply for advanced economies, while this increases for emerging and developing economies • Slower transformation towards renewables with a preference for traditional sources of energy such as coal, oil and gas in emerging and developing economies • Continued investment into upstream oil and gas
Reputation & Social	• Significant stakeholder pressure to reduce emissions across the value chain • Increased regulatory requirements for reporting and disclosing performance and targets • Creation of a new green economy and employment opportunities	• Widespread social awareness about climate change which influences purchasing and consumption decisions • Shortage of skills in climate change adaptation with many displaced workers	• Some pressure and urgency placed on companies for climate action • Inequal spread of job gains and losses between sectors and countries

Identifying Climate-related Risks and Opportunities

Climate change is a global challenge that will affect every community, industry and company, including MISC. Therefore, when we assess the various risks associated with climate change and their potential impacts on our business and operations, we also consider our value chain, which includes suppliers and customers.

As MISC transitions towards a low-emissions economy, we have identified nine significant climate-related physical and transitional risks and opportunities based on driving forces that may impact our business over short-, medium-and long-term time horizons. The risks are categorised into two groups, namely:

- **Physical risks created by a changing climate;**
- **Transitional risks created by the world's transition to a low-carbon economy**

These risks have the potential to materially affect our business, resulting in financial impact based on the way the transition unfolds. The anticipated timeframe in which the climate issue will likely be of global concern.

- **The likelihood of the climate issue impacting MISC's business objectives**
- **The severity/financial impact of climate risks on MISC's business objectives**

OVERVIEW OF MISC GROUP CLIMATE-RELATED RISKS AND OPPORTUNITIES

PHYSICAL
- Increase in extreme wind and precipitation (acute)
- Sea level rise (chronic)

REGULATORY
- Increasing environment/carbon policies and legislation

TECHNOLOGICAL
- Development of new technologies for low-carbon solutions
- Training for the right expertise and skills required to manage new assets

MARKET
- Market interest shift towards low-carbon economy
- Changing capital providers trends
- Shift in customer expectations

REPUTATION AND SOCIAL
- Talent retention and attraction
- Being perceived as advanced or laggard in climate change action/failure to comply with regulation

Identifying Climate-Related Risks And Opportunities

<2°C SCENARIO (LOW EMISSIONS)

In this scenario, the goal is to limit global warming to well below 2° Celsius above pre-industrial levels by the end of the 21st century. Ambitious targets and stringent climate policies are applied at the global level which includes limiting GHG emissions, promoting renewable energy, enhancing energy efficiency and addressing deforestation. Countries are extensively collaborating on a global scale to share technologies, finance and expertise to meet the stringent emission reduction targets. Governments are establishing and enforcing regulations, incentives and penalties to push businesses and industries toward a low-carbon economy.

The energy sector is undergoing a rapid transition towards renewables with the deployment of advanced technologies for energy storage and grid management, where the limit on the use of fossil fuels is leading to a decline in traditional energy sectors. Companies are adopting sustainable and circular business practices, reducing emissions and incorporating renewable energy use into their operations. The clean energy sector, including renewable energy, energy efficiency and carbon capture technologies, is experiencing significant growth and opportunities. There are significant advancements in clean technologies, including carbon capture and storage, advanced energy storage and sustainable agriculture practices.

Risk Category	Driving Forces	Risk	Time Horizon	Impact to Business	Potential Opportunities
Physical	Acute	Extreme weather	Medium - long term	• Elevated maintenance costs and expenses due to operational delays or disruptions caused by extreme weather events • Rise in personal injury and asset damage cases resulting from extreme weather, leading to higher insurance premiums • Potential damage to structures and equipment exposed to external weather and elevated costs for upgrading building sites and yard infrastructures • Increased compliance costs as extreme weather can lead to increased risk of spills or leaks	• Explore digitalisation to minimise dependency on physical assets, optimise operations and minimise maintenance costs • Increase in demand for marine and heavy engineering maintenance and repair services due to extreme weather conditions • Seize opportunities to provide specialised asset design services that can withstand extreme weather conditions • Expand exploration of alternative shipping routes and logistics strategies to circumvent regions most affected by weather changes to ensure supply chain resilience
	Chronic	Sea level rise	Medium - long term	• Experience coastal erosion at shipping ports and hubs, potentially disrupting operations • Increase in frequency in regular or extensive maintenance at jetty and shipyard structures to ensure safety and operational continuity	• Enhance port infrastructure and implementation of advanced forecasting systems to reduce operational risk • Reduce in cost of business from less maintenance dredging at shipyard structures

Identifying Climate-Related Risks And Opportunities

Risk Category	Driving Forces	Risk	Time Horizon	Impact to Business	Potential Opportunities
Transitional	Regulatory	Increasing environmental/ carbon regulations	Short - medium term	• Higher capital and operating costs incurred due to compliance with IMO's Energy Efficiency Existing Ship Index (EEXI), Carbon Intensity Indicator (CII) regulations and enforcement of carbon tax • Encounter potential premature asset write-downs of ship asset renewals or refurbishments, to meet specified emissions standards • Reduced competitive advantage for less efficient assets due to regulations or customer requirements	• Increase in demand for cleaner sources of energy such as LNG, driven by government policies • Capitalise on opportunities to provide low-cost and low-emission services to meet customer needs • Acquire new revenue streams from low-and zero-emissions solutions across the Group • Generation of carbon credits from investments into zero-emission assets and solutions
	Technological	Development of new technologies for low-carbon solutions	Short - medium term	• Invest in research for new technologies to meet low-carbon economy requirements • Require adaptation and innovation, including operational and logistical changes to handle new fuel types • Incur reskilling costs for the workforce to manage new low-and zero-carbon technologies • Face technology adoption risks where the solutions deployed may not meet business demands and regulations	• Achieve cost savings from retrofitting existing vessels with green technologies to increase energy efficiency measures and avoid penalties • Expansion into clean energy segments and services such as transporting bioenergy and bio-based products and other zero-emission fuels • Early detection of safety hazards and optimisation of operational processes through the use of advanced monitoring systems, remote sensing technologies and real-time data analytics • Increased revenue streams from the adoption of cleaner liquefaction and regasification technologies, integration of renewable energy sources and exploration of energy storage applications
		Training for the right expertise and skills to manage new assets	Short - medium term	• Incur cost of upskilling the workforce in sustainability practices and managing new technology • Increased requirements for digital literacy and necessary skills for using advanced technologies, data analytics and automation	• Provide maritime education programmes and specialised training modules to develop skills required to manage new technology, data analytics, understand zero-emission fuels, environmental compliance and best practices

Identifying Climate-Related Risks And Opportunities

Risk Category	Driving Forces	Risk	Time Horizon	Impact to Business	Potential Opportunities
Transitional	Market	Shift in customer and market expectations toward a low-carbon economy	Medium - long term	• Long-term decline in the use of oil and gas products and increased use of renewable energy, substantially impacting transported volumes, revenues and overall business model. • Increased customer preference for carbon-neutral transportation options • Higher volume of renewable energy equipment and storage facilities for zero-emission fuels at ports, necessitating an overhaul in handling and storage capabilities	• Expansion and diversification of fleet offerings to meet customer demand in parallel value chains such as waste-to-energy, carbon capture and storage (CCS) and alternative fuels • Provision of innovative and sustainable solutions in ship management, engineering, procurement and consultancy • Expansion of service offerings for integrated maritime services, especially for zero-emissions fuel handling and storage facilities at ports
		Changing capital providers' trends	Medium - long term	• Increased barriers to gain access to finance due to commitments to green financing • Adjustments in capital flows and a pivot by investors to align the energy sector with a favourable economic and environmental trajectory	• Introduce new funding opportunities for low-emissions assets and businesses by demonstrating collective commitment towards emissions reduction across the sector
	Reputational & Social	Being perceived as advanced/ laggard in climate change	Short - long term	• Pressure to ensure accurate and timely information about sustainability performance including emissions reduction initiatives, safety measures and environmental stewardship efforts to maintain stakeholder confidence and demonstrate progress	• Explore partnerships with counterparts in the energy and chemical sectors based on shared commitments to reduce emissions • Engage in close collaborations with suppliers and partners to ensure stringent adherence to environmental standards and initiatives to reduce emissions
		Talent retention and attraction	Short - long term	• Ensure the job security of employees who are directly dependent on the oil and gas sector • Experience loss of talent as professionals may seek out opportunities with companies that are “greener” in nature	• Increased commitment to community engagement, local employment support and sustainability initiatives • Demonstrate strong commitment to reducing value chain emissions and providing sustainable services

Identifying Climate-Related Risks And Opportunities

2-3°C SCENARIO (MEDIUM EMISSIONS)

In this scenario, global GHG emissions are projected to peak at around the year 2040 and then gradually decline and global average temperature is expected to be within the range of 2-3°C in 2100. Governments would likely implement moderate climate policies to achieve emission reduction targets that will involve a combination of regulatory measures, incentives and international agreements to encourage the adoption of cleaner technologies and sustainable practices. Given the potential for continued climate change impacts, the focus will also be on developing and implementing adaptation strategies to cope with changes in weather patterns and sea level rise.

The energy sector would experience a gradual transition to lower-carbon energy sources. While fossil fuels may still play a role, there could be increased investments in and deployment of renewable energy technologies. The world would see continued advancements in renewable energy, carbon capture and storage and sustainable agriculture practices. Businesses may witness growing demand for environmentally friendly products, leading to a shift in consumer behaviour and market preferences.

Risk Category	Driving Forces	Risk	Time Horizon	Impact to Business	Potential Opportunities
Physical	Acute	Extreme weather	Medium - long term	• Potential disruptions to gas and petroleum shipments due to rising sea levels that threaten port infrastructure • Heightened risk of intense storms in a warmer climate poses safety and operational challenges for maritime transportation. This may also result in increased insurance premiums • Altered weather patterns may require adjustments to shipping routes, potentially increasing transit times, fuel consumption and operational costs • Heightened scrutiny and stricter emission standards in the shipping industry could necessitate additional investments in cleaner technologies and alternative fuels, impacting operational costs for companies	• Explore opportunities to optimise operations and business processes, including collaborations across the supply chain, due to the changing environment • Explore digitalisation to minimise dependency on physical assets, optimise operations and minimise maintenance costs. It could change the market need for manpower and port management services

Identifying Climate-Related Risks And Opportunities

Risk Category	Driving Forces	Risk	Time Horizon	Impact to Business	Potential Opportunities
Physical	Chronic	Sea level rise	Medium - long term	• Severe risk of damage to shipping hubs and ports where critical infrastructure is affected, most being located only a few meters above sea level	• Collaborate with other stakeholders in the shipping industry, including port authorities, shipping associations and weather forecasting agencies to develop and implement effective mitigative strategies against changing wave patterns and sea level rise
Transitional	Regulatory	Increasing environmental/ carbon regulations	Short - medium term	• Uneven global adoption of legal obligations creates complexities for MISC's operations, impacting our efforts to align with and contribute to the global Net-Zero agenda • Higher CAPEX and operational expenditure (OPEX) due to the cost of implementing low-and zero-emissions solutions to adhere to stringent environmental and climate policies • Possible reduction in contract extensions due to the performance of ageing assets (high carbon emissions) and potential non-compliance with regulatory requirements, including the high cost of compliance for the customer	• Diversification of business portfolio into low-and zero-emission solutions by investing and adopting ammonia and hydrogen technologies aligning with global climate targets to enhance the company's profile • Achieve cost savings from strategic planning to navigate the impact of carbon pricing on operational costs • Capitalise on opportunities in the Maritime Education & Training segment to provide modules on climate change, sustainability and emerging technologies to align with regulatory shifts

Identifying Climate-Related Risks And Opportunities

Risk Category	Driving Forces	Risk	Time Horizon	Impact to Business	Potential Opportunities
Transitional	Technological	Development of new technologies for low-carbon solutions	Short - medium term	• Extensive collaborations and investments in technology are still required between different industries, necessitating significant capital deployment to bridge the transition towards a Net-Zero carbon economy • Potential increase in costs for energy transition initiatives due to the slower uptake of low-carbon solutions, as well as the lack of funding to deploy large-scale CCUS technologies • Higher investments in research and development to implement and deploy new technologies to cover broader environmental concerns	• Secure a market-leading position by actively adopting new low-carbon technologies within operations as policies favour low-emissions technology • Pursue collaborative opportunities in renewable energy projects due to the urgency of climate targets. Potential financial benefits from lower upfront costs for procuring and installing renewable energy systems • Introduce nature-based solutions and offsets from forestry or land, or through the use of bioenergy or direct air capture of CO_2 with CCUS
		Training for the right expertise and skills to manage new assets	Short - medium term	• Loss of innovation opportunities from failing to invest in training and adapting to new technologies	• Ensure employees are adequately trained to address the skill gaps in managing new technologies
	Market	Shift in customer and market expectations toward a low-carbon economy	Medium - long term	• Experience potential reputational impact as stakeholders, including customers, investors and the public, increasingly value environmentally responsible and technologically advanced practices • Experience temporary business interruption risks due to uncertainties in the market from transitioning and expanding low-carbon solutions technology to meet customer expectations • Face challenges in terms of the availability and cost of low-and zero-emission fuels with the transition in primary energy supply towards renewables	• Experience robust growth in natural gas demand as a transitionary fuel, driven mainly by non-OECD countries, leading to increased exploration and production activities • Explore strategic investments in low-and zero-emission solutions such as carbon capture technologies and cleaner fuel infrastructure, for long-term sustainability

Identifying Climate-Related Risks And Opportunities

Risk Category	Driving Forces	Risk	Time Horizon	Impact to Business	Potential Opportunities
Transitional		Changing capital providers' trends	Medium - long term	• Impact on company valuation and funding opportunities due to risk of uncertainties in conventional energy businesses associated with the transition to renewable energy • Increased cost of borrowing and reduced capital availability from financial institutions due to concerns about the long-term viability and environmental impact of such projects • Risk of stranded assets and decreased asset value due to unanticipated or premature asset write-downs and early retirement due to increasingly stringent policies	• Reduced costs of borrowings for low-and zero-emissions technology with increased chances of securing preferential rates through sustainability-linked loans or green financing, benefitting early movers in the low-carbon technology space.
	Reputational & Social	Being perceived as advanced/ laggard in climate change	Short - long term	• Failure to accommodate emerging efficiency and low emissions standards may lead to operational inefficiencies and increased costs, potential fines and a negative impact on reputation • Experience stakeholder pressure to reduce value chain emissions as social awareness is gradually increasing	• Implement proactive efforts to ensure decarbonisation initiatives align with investor expectations, leading to securing financing for initiatives and enhancing the company's long-term sustainability and reputation • Position the company as a leader in the transformation journey by adopting low-carbon technologies to meet sustainability goals and customer demands
		Talent retention and attraction	Short - long term	• Prolonged unemployment risk for employees may arise due to the phasing out of high-emission industries and insufficient replacement of jobs in low-carbon industries • Shortage of skills in climate adaptation technologies and measures among displaced workers hinders the effective implementation of mitigation measures and transition to growing employment sectors amid the decline of traditional energy industries	• Proactive planning for the energy transition minimises job losses, fosters economic stability and employee confidence

Identifying Climate-Related Risks And Opportunities

3-4°C SCENARIO (HIGH EMISSIONS)

Following this trajectory, emissions and temperatures experience a gradual increase, with CO_2 emissions approximately doubling from their current levels by the year 2100. In this scenario, nationalism, heightened worries about competitiveness and security, along with ongoing regional conflicts are prompting nations to prioritise domestic or regional matters. Over time, policy orientations increasingly pivot toward national and regional security issues. Countries are directing their efforts towards attaining energy and food security objectives within their respective regions, often at the cost of more comprehensive development strategies.

Investments in education and technological advancements experience a decline. Economic progress is stagnant, marked by material-intensive consumption and persistent or worsening inequalities. Population growth rates are low in industrialised nations but high in developing countries. A lack of international emphasis on addressing environmental concerns results in severe environmental degradation in certain regions.

Risk Category	Driving Forces	Risk	Time Horizon	Impact to Business	Potential Opportunities
Physical	Acute	Extreme weather	Medium - long term	• Elevated OPEX due to operational delays or disruptions caused by extreme weather events • Rise in personal injury and asset damage cases resulting from extreme weather, leading to higher insurance premiums • Potential reputational impact from failure to meet project deadlines due to disruptions in asset newbuilding yards, port operations and supply chain operations affected by extreme weather • Escalation in compliance costs due to increased spill or leak risks resulting from extreme weather, leading to damages and potential litigation	• Significantly increased demand for maintenance and repair services to withstand the increasing intensity of extreme weather, presenting a business opportunity and increased revenue for the Marine & Heavy Engineering segment • Increased revenue through extended port anchorage due to bad weather and increased remote inspection services

Identifying Climate-Related Risks And Opportunities

Risk Category	Driving Forces	Risk	Time Horizon	Impact to Business	Potential Opportunities
Physical	Chronic	Sea level rise	Medium - long term	• Impact on client's operations especially in terms of infrastructure and navigation due to the forecasted rise in sea level which results in higher waves • Higher risk of asset damages may disrupt the shipping and shore business (e.g. ports, yards, construction, etc.) as well as the entire supply chain (e.g. terminals may require relocation) • Significant investments in flood defences, elevated structures and more regular or extensive maintenance for port infrastructures to ensure safety and continuity of operations	• Reduced cost of business from less maintenance dredging (levelling of the seabed) services for our Marine & Heavy Engineering segment • Initiate new asset development at jetties and terminals • Explore new business prospects and collaborations for specialised maritime solutions, leveraging innovative technologies to adapt to these changing environmental conditions
Transitional	Regulatory	Increasing environmental/ carbon regulations	Short - medium term	• Intensified pressure faced by the shipping industry compared to other sectors due to disparate policies in addressing decarbonisation leading to slower and more investment-intensive decarbonisation efforts • Variations in policies, standards and legislation demand diverse approaches based on country-specific requirements, resulting in high uncertainty and inconsistency in technological adoption	• Proactively engage in forging collaborations and investing in low-carbon technologies to position MISC as a leader in emission reduction within the energy and maritime sector • Lesser impact on operating costs due to projected slower growth of carbon prices • Leveraged incentives for the oil and gas sector in some regions, ensuring continued demand and activity

Identifying Climate-Related Risks And Opportunities

Risk Category	Driving Forces	Risk	Time Horizon	Impact to Business	Potential Opportunities
Transitional	Technological	Development of new technologies for low-carbon solutions	Short - medium term	• Insufficient policies promoting CCUS development create challenges in securing funding and investments for large-scale CCUS deployment, resulting in increases in energy transition costs and complexity in decarbonising • Rising energy costs affect the entire sector, with challenges in the supply chain and higher prices for essential materials, resulting in oil and gas extraction becoming more expensive over time • Fewer opportunities for technology development and training requirements due to limited focus on technology development and transition to renewable energy	• Greater demand for climate resilience measures, requiring advanced engineering techniques through technological advancements for offshore infrastructure optimisation • Opportunity to lead in exploring low-carbon solutions, adapt to technological changes and address funding challenges for CCUS • Adapt training programmes to incorporate climate resilience, green technologies and emerging trends in the maritime industry • Less pressure to reduce GHG emissions in the offshore industry
		Training for the right expertise and skills to manage new assets	Short - medium term	• Delay in transitioning to Net-Zero and developing carbon capture storage creates a disconnect between the geographical spread and timing of job losses and gains	• Position MISC as a responsible and forward-looking employer, contingent on financial resources by showcasing our commitment to job protection and investment in innovative solutions such as CCUS and nature-based strategies
	Market	Shift in customer and market expectations toward a low-carbon economy	Medium - long term	• Decrease in global demand for fossil fuels, potentially affects exploration and production activities, impacting offshore business operations and revenues • Shift to low-emission fuels and adoption of new technology challenges results in oil remaining significant for shipping, accounting for approximately 15% of shipping fuel demand by 2050 • Consistent oil demand in shipping attributed to challenges in transitioning to alternative fuels, especially for large vessels, requiring substantial investment and coordination to retrofit ships for low-emission fuels	• Secure market-leading position and swiftly pivot business strategies toward low-carbon transformation to meet robust annual growth in renewable energy adoption and shipping fuel demand, especially for shorter to mid-range operations to tackle energy-related CO_2 emissions • Continuously expand business as emerging markets experience increased fossil fuel demand amid slower economic growth and policy efforts. Witness the continual rise in fossil fuel demand, including EU gas prices • Increased demand for LNG export capacity by 2050, driven by a rebound in gas-fired generation due to rising demand in emerging markets, offsetting reductions in advanced economies

Identifying Climate-Related Risks And Opportunities

Risk Category	Driving Forces	Risk	Time Horizon	Impact to Business	Potential Opportunities
Transitional	Market	Changing capital providers' trends	Medium - long term	• Expect higher capital cost for technologies due to lower level of technology acceptance, slower transition towards renewables, insufficient energy efficient technologies and infrastructure and fragmented policies and regulatory requirements • Increasing apprehension from investors about committing capital to carbon-intensive industries, leading to challenges in attracting the requisite capital for operations and growth	• Stable investment landscape with a gradual shift from fossil fuels to renewables • Focus on capturing growth opportunities in clean energy business and implementing adaptive management strategies • Demonstrate capability to provide low emission solutions to clients to align with the shift in capital provider's portfolio
	Reputational & Social	Being perceived as advanced/ laggard in climate change	Medium - long term	• Heightened climate concerns from stakeholders (investors, suppliers, regulators and clients) which may harm our reputation and lead to a loss in trust • Challenge in maintaining our reputation as a progressive, socially conscious and ethically responsible company	• Attain greater flexibility to adjust to reputational expectations and requirements towards low-carbon solutions under this disorganised scenario due to less concerns on compliance
	Talent retention and attraction	Short - long term	• Exposure to extreme weather conditions and other climate change may cause employees to be wary of the risks associated with working in an industry that is exposed to such challenges • Experience uncertainties and challenges in attracting talent due to a decrease in willingness to work in risky environments attributed to climate change, resulting in higher operating costs for retention and recruitment • Mass migration of the workforce from locations with increased physical risk to other locations with less physical risk, leading to scattered job demand and distribution	• Bolster talent attraction and retention strategies given the intensified climate risks • Demonstrate forward-looking business strategies by taking sufficient measures and investing in innovative low-carbon technologies and nature-based strategies to not only reassure and retain the existing workforce but also to enhance MISC's attractiveness as a future-oriented and socially and ethically responsible employer

Strategic Planning To Manage Risk

Our long-term focus extends to developing a new portfolio of businesses within renewable energy and waste-to-value markets, recognising sustainability as the confluence of environmental considerations and commercial viability. For more information about our Transition Plan, please refer to pg. 96-103 of MISC's Sustainability Report 2023.

EXTREME WEATHER

All MISC vessels and offshore assets are well engineered to withstand extreme weather conditions. To enhance the crew's preparedness, these vessels receive real-time weather updates, including maps and satellite imagery, from the National Oceanic and Atmospheric Administration (NOAA) and guidance from port authorities. Equipped with advanced sensors and comprehensive weather monitoring solutions, MISC vessels can predict sea state, wind and other crucial weather conditions, ensuring safe navigation during extreme weather events.

MISC is committed to continually enhancing the specifications of our newbuild vessels to effectively address acute physical risks. Rigorous safety controls are implemented for vessel navigation, including a comprehensive set of procedures covering passage planning, vessel management during adverse weather conditions, navigational equipment maintenance, resource management and contingency plans for various vessel emergencies.

At the Group level, a robust Group Crisis Management Plan (GCMP) is established to manage corporate-level crises. Operational-level emergency plans are seamlessly integrated into the GCMP, forming a cohesive link to our business continuity management and disaster recovery planning, effectively mitigating business risks.

SEA LEVEL RISE

Persistent physical risks, such as rising sea levels, pose potential impacts on various facets of our operations, including shipping, offshore floating facilities, port facilities, marine repairs and heavy engineering yards. Recognising that the nature and severity of these risks may evolve, MISC remains vigilant by monitoring risk indicators and implementing targeted mitigation measures to ensure the resilience of our assets and infrastructures.

To address chronic physical risks, MISC is progressively enhancing preventive inspection and monitoring measures, including dredging activities, to reinforce coastal operational areas and prepare for potential impacts from rising sea levels and tidal waves. Simultaneously, we are improving vessel specifications to manage acute physical risks. Stringent safety controls are applied to vessel navigation systems and comprehensive procedures are introduced to enhance passage planning, vessel management during adverse weather conditions, navigational equipment maintenance, resource management and contingency planning for various vessel emergencies.

INCREASING ENVIRONMENTAL/CARBON POLICIES AND LEGISLATION

We expect that carbon-limiting policies and legislations will be the main drivers used to advance the Net-Zero agenda and over time, there will be a wide adoption of carbon pricing by countries. The IMO is also expected to implement more stringent regulations governing the industry to meet their target of achieving Net-Zero emissions by 2050 for the sector.

The Energy Efficiency Design Index (EEDI), in effect since 2013, continues to drive technical efficiency enhancements in new ships and this is progressively tightened every five years to foster ongoing innovation. Climate-related regulations including the Energy Efficiency Existing Ship Index (EEXI) and the CII scheme, were also enforced from 1 January 2023 and are expected to become more stringent in the future.

The European Union Emissions Trading System (EU ETS) is expected to extend to the shipping industry in 2024 and the Fuel EU Maritime Regulation, scheduled to take effect in 2025, are key considerations for MISC in aligning with low-carbon fuel usage and complying with GHG intensity limits. We factor in the compliance requirements and associated costs related to regulations in the countries and regions of our operations as part of our comprehensive compliance programmes. This approach ensures alignment with regulatory requirements.

Strategic Planning To Manage Risk

MISC is committed to expediting the transition to low-, ultra-low and zero-emission vessels and energy efficiency initiatives to ensure compliance and maintain a competitive edge. We have also established an internal carbon pricing mechanism to internalise the economic cost of GHG emissions for new investments and as a tool to identify potential climate risks and revenue opportunities while guiding business decisions.

Recognising that climate-related risk is fuelling the energy transition, MISC has developed a comprehensive Transition Plan that encompasses a variety of measures including fleet renewal, commercial and operational interventions, GHG removal, low-, ultra-low and zero-emission assets and value chain reduction among others. Additionally, to ensure sustained long-term growth, we are diversifying our operations and delving into supplementary revenue streams within the renewable energy and waste-to-value sectors, strategically aligning with our existing portfolio.

Incorporating regulatory and compliance risks tied to current or forthcoming regulations is an integral aspect of MISC's assessments of climate-related risks in our business planning. Our climate-related disclosure and transition plan is constantly evolving to adapt to national and international regulations and serve the needs of our stakeholders.

To stay ahead of the curve, we employ a multifaceted approach:

- Annual sharing sessions with industry experts and analysts to gain insights into market outlook and regulatory developments
- Active participation in maritime industry forums for idea exchange and staying informed about climate-related legislation
- Engagement with various stakeholders, including regulatory bodies, classification societies, flag states, marine departments and customers
- Internal assurance activities related to regulations and laws, involving self-assessment of compliance with existing and emerging regulations, along with attestation by relevant businesses
- Conduct detailed studies on technological options and planning CAPEX allocations to ensure compliance with current and emerging legislation

DEVELOPMENT OF NEW TECHNOLOGIES FOR LOW-CARBON SOLUTIONS

Technology and innovation are key enablers for businesses to mitigate and adapt to climate change. Embracing this, we have enhanced the technological design of our vessels to boost energy efficiency, aligning with stakeholder expectations. Our initiatives encompass both newbuilds and retrofitting of existing vessels with green technologies, focusing on energy efficiency measures and emissions reduction systems.

We were one of the world's first adopters of LNG dual-fuel vessels when we took delivery of our Dynamic Positioning Shuttle Tankers (DPST) in 2019. Since then, our dual-fuel fleet has expanded to ten vessels with more newbuilds underway. Our investment in dual-fuel vessels illustrates our commitment to invest in solutions that contribute to the decarbonisation of the shipping sector over the long-term. We believe that LNG is the best fuel option available immediately for use whilst we continue our ongoing efforts to achieve full decarbonisation.

As members of the Getting to Zero Coalition, we share the goal of deploying commercially viable deep-sea zero-carbon emission vessels powered by zero-emission fuels no later than 2030. In collaboration with key partners in The Castor Initiative, MISC is actively engaged in a joint development project aimed at creating commercially viable ultra-low emissions ammonia-fuelled tankers.

Efforts are also underway to explore GHG abatement technologies. These initiatives target the reduction of methane emissions from LNG-fuelled vessels and the implementation of carbon capture technologies for retrofitting our existing fleet. In the CCS value chain, MISC has been forming technology partnerships, devising an execution strategy for CCUS entry and collaborating with shipyards for design development.

At the broader MISC Group level, the New Energy and Decarbonisation Unit was formed to drive forward the decarbonisation pathway and focus on seeking a new portfolio of businesses within the CCS and hydrogen value chains that will enable the company to thrive in the Net-Zero economy.

Strategic Planning To Manage Risk

TRAINING FOR THE RIGHT EXPERTISE AND SKILLS TO MANAGE NEW ASSETS

The energy transition represents expanded opportunities for our Maritime Education & Training segment to provide specialised training and courses required to manage new technologies, new asset types and zero-emissions alternative fuels. In response to this, a strategic initiative has been launched by ALAM to develop new courses by the end of 2024. ALAM has proactively established an academic team tasked with engaging in research activities and participating in internal and external working groups. This dynamic approach aims to shape and implement new strategies for low-carbon solutions, positioning the organisation at the forefront of industry advancements and ensuring the upskilling of our workforce to adapt to the changing business environment.

SHIFT IN CUSTOMER AND MARKET EXPECTATIONS TOWARD A LOW-CARBON ECONOMY

To ensure our long-term business viability, MISC 2050 embodies our strategic initiative for sustained long-term growth and revolves around exploring innovative ideas supporting two growth pillars: Renewable Energy and Waste-to-Value. This entails diversifying our operations and delving into supplementary revenue streams within the renewable energy and waste-to-value sectors, strategically aligning with our existing portfolio. Exploring new business opportunities within the renewables segment presents a promising avenue for revenue growth.

Anticipating market shifts, MISC's shipping and Offshore Business segments are exploring new gas-related cargo carriers and alternative energy offshore assets for the energy transition. MISC expanded the business into the ethane market in 2021, resulting in six very large ethane carriers (VLECs) in our fleet as of 2023. Our VLECs are powered by a ME-GI (gas injection) engine that is fitted with state-of-the-art technology, making them some of the very few vessels in the world with ethane-burning capability.

MISC is proactively adapting to customer preferences for low-carbon solutions, particularly for our petroleum fleet through the deployment of LNG dual-fuel vessels. Our involvement in the Castor Initiative also serves to decarbonise our shipping operations by developing deep-sea zero-emissions vessels (ZEVs) by 2030.

For our Offshore Business segment, we unveiled the design of our future ready MMEGA Floating Production Storage & Offloading (NBFPSO) Unit at the Offshore Technology Conference 2023 in Houston, Texas. It is the world's first NBFPSO, which uses the Mega-Module Green Architecture (MMEGA) topsides and incorporates sustainable technologies into the design, which makes it one of the largest and greenest NBFPSOs in the market.

Incorporating SmartPort technology, our Marine Services segment is poised to revolutionise its operations, beginning with the Sg Udang Port Sdn Bhd, with plans to expand to other regions. Among the benefits include increased efficiency, improved capability, enhanced documentation management and improved customer service. Currently, the project is in progress with an expected completion date in 2024.

Our integrated Marine Services segment, adopts a multi-skilling approach and a structured capability development programme for our pool of seafaring employees. The goal is to enhance employees' competency levels and expand their proficiency across various business functions. Given the rising demand for gas and dual-fuel vessels, we actively reskill and upskill employees, providing training on the management of alternative fuels and facilitating the transition from conventional to gas vessels.

MHB, our Marine & Heavy Engineering segment has also capitalised on opportunities in the hydrogen market through a collaboration with FuelCell Energy for large-scale green hydrogen production. It is also venturing into offshore renewable energy through the fabrication of offshore wind substations. This project marks our venture into the renewable energy sector and further strengthens our presence internationally.

We have a shared responsibility to demonstrate our commitment to driving positive decarbonisation efforts within the shipping industry and locally through:

- Our role as a strategic partner of the Global Maritime Forum;
- Signatory to Getting to Zero Coalition since 2019; and
- Corporate Friends of Climate Governance Malaysia

In summary, these strategic initiatives not only contribute to environmental sustainability but also position the business to capitalise on emerging market trends and financial incentives tied to green and sustainable practices. For more information about our Economic Value Creation, please refer to pg. 66-78 of MISC's Sustainability Report 2023.

Strategic Planning To Manage Risk

CHANGING CAPITAL PROVIDERS TRENDS

In the current landscape, investors are increasingly diverting capital away from high-carbon or environmentally unsustainable assets. Investors and financial institutions are decarbonising their portfolios towards managing climate-related risks, ensuring regulatory compliance, aligning with market trends and promoting long-term stability and resilience in the face of a rapidly changing global economic landscape. Through proactive risk management and implementing adaptation strategies to enhance resilience to climate-related risks, we ensure alignment with investor expectations.

Recognising the need for global decarbonisation, there has been a significant increase in spending on assets is required. For MISC, this is an opportunity to leverage capital, by attracting investors interested in sustainable practices and gain a competitive edge in our industry. Proactive collaborations with players across the value chain showcase a stronger sector-wide commitment, unlocking new sources of funding.

Offering modifications, retrofits and conversions on vessels and assets to reduce GHG emissions aligns with environmental sustainability goals and opens avenues for revenue generation through emission reduction services. The adoption of low-carbon technology and a focus on sustainability can lead to reduced cost of borrowing and increased chances of securing preferential rates through sustainability-linked loans or green financing, offering financial benefits as an early mover in the low-carbon technology space.

Strategic Planning To Manage Risk

BEING PERCEIVED AS ADVANCED/LAGGARD IN CLIMATE CHANGE

We are committed to actively addressing climate change risks and enhancing the company's reputation. MISC has a robust climate-related reporting structure which is constantly evolving to adapt to global best standards and national and international regulatory requirements. Our transition plan and regular engagement with key stakeholders, namely regulators, customers and investors will help manage expectations. Some of the initiatives implemented include:

- Publicly committing to achieve Net-Zero GHG emissions by 2050 and transparently communicating sustainability endeavours to both internal and external stakeholders
- Decarbonising our business portfolios, ensuring proactive risk management and adaptation strategies to enhance resilience to climate-related risks that align with investor expectations and securing financing for future initiatives
- Proactive collaborations with players across the value chain to showcase a stronger sector-wide commitment and unlock new funding sources
- Embarking on a responsible supply chain management programme with comprehensive self-assessments, engagements and initiatives to strengthen our reputation and manage stakeholders' expectations as part of climate risk management
- Actively navigating the transition risks associated with talent retention, attraction and climate change action within the maritime and energy sectors
- Engaging in strategic partnerships, exemplified by our role as a key partner of the Global Maritime Forum, our signatory status with the Getting to Zero Coalition since 2019 and others. These affiliations and presence in the global maritime sector underscore our dedication to contributing to climate action both globally and locally

TALENT RETENTION AND ATTRACTION

Recognising that the energy transition will bring about a change in technology and the required skillsets to manage it, we have taken steps to address the transition risks associated with talent retention and attraction. We have devised plans to reskill our workforce and collaborate with new business partners to align with emerging low-, ultra-low or zero-carbon technologies. These measures not only reinforce MISC's stewardship position but also position us as a leading global player contributing to advancements in decarbonisation technology. There is an opportunity to increase revenues for our Maritime Education & Training segment to provide specialised training and development skills to manage new technologies and new asset class vessels.

Outcome Of MISC Group Climate Scenario Analysis

Outcome Of MISC Group Climate Scenario Analysis

The following is the outcome of our analysis using the three future scenarios identified and respective time horizons. We have systematically categorised climate-related risks and opportunities and identified risks of particularly high importance, considering the degree of impact and importance, as well as stakeholder interest.

Material risks and opportunities will be incorporated into our strategic priorities within our business plan. The risk or opportunity is deemed material if it has a high chance of occurrence and has a substantial financial impact on MISC's businesses.

Insignificant to minor impact on MISC's current business objectives.

Minor to moderate impact on MISC's current business objectives.

Major or substantial impact on MISC's current business objectives.

Risk Category	Driving Forces	Risk	Low Emissions Scenario	Medium Emissions Scenario	High Emissions Scenario
Physical	Acute	Extreme weather	• Minimal impact as our assets are built to withstand certain extreme weather conditions	• Increased OPEX to maintain and reinforce assets due to heightened extreme weather conditions	• Increased CAPEX for designing and constructing new assets and OPEX to maintain and reinforce assets due to heightened extreme weather conditions
	Chronic	Sea level rise	• Additional incurred cost of property maintenance/ reinforcements due to erosion from sea level rise/tidal wave changes	• Increased cost of property maintenance/ reinforcements and relocations due to erosion from sea level rise/tidal wave changes	• Increased OPEX to relocate or implement adaptation measures for operations at coastal locations, such as upgrading building sites/ yard infrastructures or relocating to higher grounds • Increased cost from operational delays and disruptions related to trading routes, ports and related infrastructure due to submergence, coastal flooding and coastal erosion
Transitional	Regulatory	Increasing environmental/ carbon regulations	• Significantly increased compliance costs due to stringent carbon policies and legislation for more efficient assets – CAPEX and OPEX	• Increasing compliance costs due to extensive carbon regulations–CAPEX and OPEX	• Increased compliance cost due to moderately increasing carbon regulations – CAPEX and OPEX
	Technological	Development of new technologies for low-carbon solutions	• Significantly increased investment costs in low-carbon solutions	• Increased investment costs in low-carbon solutions	• Increased investment costs in low-carbon solutions
		Training for the right expertise and skills to manage new assets	• Increased talent development and upskilling costs (OPEX)	• Increased talent development cost (OPEX)	• Increased talent development cost (OPEX)
	Market	Shift in customer and market expectations toward a low-carbon economy	• Substantial reduction in market demand for oil and gas production, storage and transportation assets and logistic services	• Costs of investment and risk of temporary business interruption in adapting to the uncertainties to transition and expand low-carbon solutions technology to meet customer expectations	• Market trends toward profit-driven motives, showing less emphasis on environmentally conscious and lower-carbon solutions • The global demand for fossil fuels is expected to decrease moderately, potentially affecting exploration and production activities, impacting business operations and revenues
		Changing capital providers' trends	• Lack of funding/increased interest rates for conventional marine-fuelled assets	• Shift in investor sentiment impacts the valuation and funding opportunities for traditional energy companies • Increased cost of borrowing and reduced capital availability	• Lack of funding/increased interest rates for conventional marine assets • Challenges in attracting the requisite capital for our operations and growth with increasing apprehension about committing capital to carbon-intensive industries
	Reputational and Social	Being perceived as advanced/ laggard in climate change	• Increased costs, potential fines and a negative impact on reputation from failure to meet stakeholders increasing social awareness	• Increased costs, potential fines and a negative impact on reputation from failure to meet stakeholders increasing social awareness	• More room for adjustments to expectations and requirements towards low-carbon solutions with lesser concerns on compliance issues
		Talent retention and attraction	• Increased OPEX to attract and retain talent	• Increased OPEX to attract and retain talent	• Moderately increased OPEX to attract and retain talent

Our Transition Plan

In the dynamic landscape of the contemporary global maritime and energy industry, we are acutely aware of the imperatives posed by climate change. Acknowledging the intricacies of our sector and the profound implications of environmental shifts, our Transition Plan is aligned with identified climate-related risks. It has been crafted to not only navigate the challenges inherent in our operations but also to seize the opportunities emerging in the transition towards a low-carbon energy future.

By systematically addressing the risks and opportunities identified, we aim to fortify our resilience, reduce emissions and foster sustainable practices throughout our value chain. Grounded in innovation and strategic foresight, our plan underscores our commitment to sustainable shipping practices, ensuring the long-term viability of our industry while responsibly contributing to global climate goals.

MISC GROUP TRANSITION PLAN FROM LOW-CARBON TO NET-ZERO BY 2050

Transition to low-carbon operations

Deploy Zero-Carbon Emissions Vessel latest by 2030

Decarbonised shipping operations by 2050

MISC Group Net-Zero GHG emissions by 2050

Short-Term (within the next 2-3 years)	Medium-Term (current year up to 2030)	Long-Term (2031 - 2050)

Fleet Renewal and New Builds

- Progressive fleet renewal of our shipping fleet to high-efficiency LNG dual-fuel engine vessels from now to 2030
- Methane abatement on selected vessels

Fleet Renewal and New Builds

- Progressively renew the fleet with ULEVs and ZEVs latest by 2030
- The Castor Initiative: Deployment of ultra-low emissions ammonia vessel in or after 2027 (except LNGCs)
- Methane abatement on selected vessels

Value Chain Reduction

- Value Chain emissions (Scope 3) reductions

Beyond Value Chain Mitigation (Carbon Removal, Avoidance & Reduction)

- Carbon avoidance, reduction and removal outside of MISC's value chain

GHG Removal

- Explore and adopt commercially viable technologies for our existing fleet with methane and carbon capture technologies to safely capture and store away excess carbon

Technical and Operational Efficiency

- Continuous exploration and adoption of technological solutions and improvements to optimise the operational efficiencies of our vessels

Low-Zero Carbon Offshore Assets

- Explore and adopt commercially viable energy efficient, zero-flaring, GHG reduction and CCUS-ready technologies for offshore assets

Renewable Energy

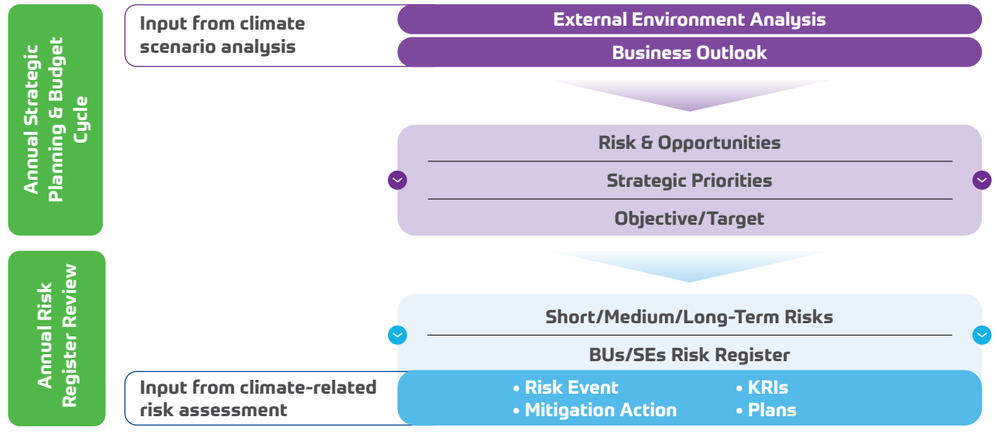
- Explore and adopt renewable energy for shipping and non-shipping assets

More detailed information about the individual aspects of our Transition Plan can be found on pg. 84-97 of MISC's Sustainability Report 2023.

RISK MANAGEMENT

Our risk management process is integral to our sustained business success and resilience against climate change impacts. It seamlessly incorporates the identification, assessment and management of climate-related risks within our comprehensive risk management programme, which is specifically structured to identify risks across MISC Group, gathering input from each business unit and function.

MISC Group incorporates climate risk evaluation into our strategic planning and business processes, aligning with our Enterprise Risk Management (ERM) framework. Specifically, a Project Risk Assessment (PRA) is systematically conducted before the initiation of any new capital-intensive project. This thorough assessment aids in the identification of potential risks associated with the project, allowing the business to implement effective controls and measures to mitigate these risks.



Enterprise Risk Management

Climate-related risks are just as important to MISC as other risks and we fully integrate the identified climate-related risks into our comprehensive Enterprise Risk Management (ERM) Framework. Risk management processes are undertaken at service units, business units and subsidiary levels across the Group. They are required to perform an annual review of their risk profiles, with a focus on linking risks to MISC's business objectives, which includes climate-related risks, their impact and mitigation plans.

Outcomes of this exercise, documented in quarterly ERM reports are reviewed, monitored and reported to the Risk Management Committee (RMC), before being escalated to the BSRC and subsequently the Board. Oversight of ESG and sustainability risks and opportunities is an essential component of the Group's comprehensive business strategy, influencing decisions at both Board and Management levels.

In 2023, the BSRC dedicated attention to guiding the overall transition of MISC's business, focusing on reducing carbon emissions in the current portfolio and exploring potential investments to bolster stable financial returns. Building upon the decision by the Board in 2022 to integrate sustainability risks into BSRC reviews, we have continuously improved our disclosures on climate risks and opportunities to our stakeholders.

Within MISC, the Corporate Planning division is responsible for overseeing the annual integration of climate-related risks and opportunities into the group-wide strategic planning exercise. This integration aims to facilitate the development of business plans that encompass both financial and climate-related considerations.

MISC adheres to the PETRONAS Resiliency Model which takes a comprehensive approach to the overall strategy towards risk management. Our practices align with international standards such as ISO 31000 and the Malaysian Code of Corporate Governance (MCCG) 2021. For more information about our Enterprise Risk Management practices, please refer to pg. 185-198 of MISC's Integrated Annual Report 2023.

Risk Oversight Structure

Board Level

Board of Directors

Responsible for the overall oversight of MISC Group's risk management system and activities.

BSRC

- Reviews the adequacy and effectiveness of MISC's Risk Manangement Framework and on-going activities for identifying, evaluating, monitoring and mitigating risk.
- Reviews the Group's risk tolerance level.

Management Level

Corporate Planning (CP)

- Review and monitors risk reporting quarterly
- RMC Secretariat

RMC

Provides a reasonable level of assurance to the BSRC that the Group's risk are being managed appropriately.

Business Unit/ Service Unit/ Susbsidiary

Risk Owners

Responsible for implementing risk management processes at respective units.

Identifying and Assessing Risk and Opportunities

At MISC our ERM Framework serves as a guide for identifying, tracking and monitoring climate-related risks-both physical and transitional risks across our business. This is performed through our 'three lines of defence' risk management model against existing and emerging risks that impact our ability to generate value for our stakeholders. We define risks as encompassing both risks and opportunities where the internal and external contexts are considered in the scoping and management of these risks and opportunities to facilitate strategy and decision-making.

The external context involved reviewing all external factors that may affect the achievement of the Group's objectives. The external environment analysis includes assessing the impact of climate-related scenarios on our business outlook. This serves to assist the Group in identifying trends, changes and external driving forces, economic, political and social conditions related industry environment, as well as regulatory requirements and other external factors.

The internal context is an overview of the Group's strategic direction, our main operations and targets. Understanding the internal context will ensure that the management of risk is at the appropriate level and is coherent with the MISC's objectives and strategies.

Material risks and opportunities will then be translated into strategic business priorities as part of our five-year rolling business plan. A risk or opportunity is deemed material if has a high probability of occurrence and has a substantial financial impact on MISC.

Investment Decisions – Project Risk Assessment

Climate-related risks and opportunities undergo evaluation during project risk assessments and project economics, where details are included in the Management and the Board's Final Investment Decision (FID) papers. MISC systematically prioritises these factors, particularly those linked to climate challenges, by evaluating the potential impact severity of risks and the scale of opportunities.

During MISC's investment decision-making process, the assessment of identified climate-related risks, specifically carbon emissions from new assets, involves estimating the potential emission amounts and scope. This includes proposing options to mitigate, transfer, accept, or control these risks through considerations such as:

- **Existing and emerging regulatory requirements related to climate change, including applicable external carbon prices**
- **Potential implementation of low-carbon technologies to reduce asset emissions and improve energy efficiency and performance, with sensitivity assessments utilising internal carbon pricing (shadow price comparisons)**
- **Evaluation of total GHGs and intensity rates of the new asset, aligning with MISC's climate commitments**

METRICS AND TARGETS

In quantifying our commitment to climate resilience, we have identified several performance indicators and targeted benchmarks used to manage climate-related risks and opportunities that are essential in steering us towards a sustainable and low-carbon future. These include:

- GHG intensity performance (in annual emissions ratio in the unit of gCO_2e/t-nm) for historical periods and 2050 projections;
- Total GHG for Scope 1, 2 and 3;
- Internal carbon price;
- Revenue from low-carbon services;
- Operating expenditure on low-carbon or energy reduction initiatives; and
- Energy consumption

Our Commitment and Performance

Mid-Term Target: 50% reduction in GHG intensity (for shipping operations) by 2030

Scope

- Gas and petroleum shipping falls within MISC's GHG Organisational Boundary (Financial Control)
- Ships not subjected to the requirements of Regulations 21 and 25 of MARPOL Annex VI are excluded

Base Year	Target Type	Measurement Metric
2008	Intensity reduction	AERCO_2e (gCO_2e/t-nm)

GHG Included

All material GHG: • Carbon dioxide • Methane • Nitrous oxide

Long-Term Target: Net-Zero GHG Emissions by 2050

Scope

MISC Group of Companies' Value Chain:
- MISC's own operations (Scopes 1 and 2)
- Material upstream and downstream operations to MISC (Scope 3)

Base Year	Target Type	Measurement Metric
2008	Absolute reduction	AERCO_2e (gCO_2e/t-nm)

GHG Included

All material GHG: • Carbon dioxide • Methane • Nitrous oxide

Our Net-Zero Equation

TOTAL GHG - CARBON ABATEMENT - CARBON REMOVAL = RESIDUAL EMISSIONS - CARBON REMOVAL OFFSET =

NET-ZERO EMISSION 2050

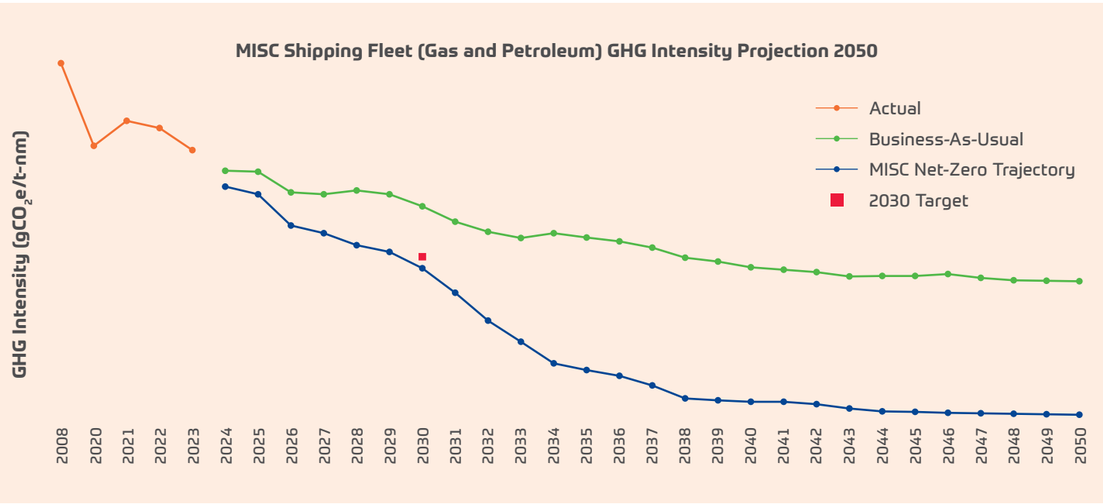
Scope of Gases	Scope of Activities	Mitigation Pathways	Timeframe
• All GHG • Unit: CO_2e	• Scopes 1, 2, 3	• Abatement • Removal • Removal Offset (beyond value chain)	• Long-term
GASES INCLUDE • Carbon dioxide (CO_2) • Methane (CH_4) • Nitrous oxide (N_2O)	• MISC operations (Scope 1 & 2) • Upstream and downstream of MISC's operations (Scope 3 on material categories)	• Abatement and removal pathways to reduce own operations and value chain emissions • Beyond value chain carbon removal, avoidance and reduction to offset residual GHG	• 2050

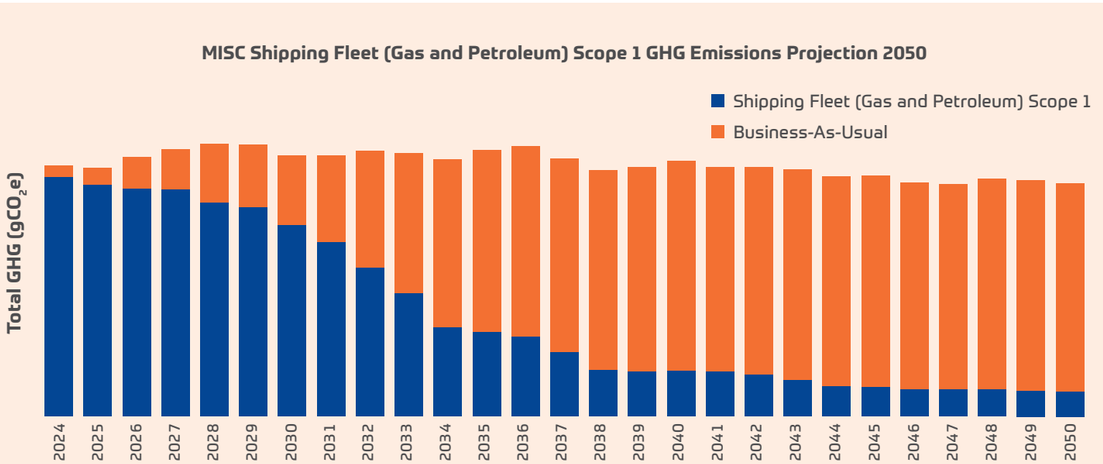
RATIONALE WHY NET-ZERO BY 2050

- Investments in our newbuild assets generally last for 20 years on average
- Assuming ZEVs are commercially available only in 2030, we will need 20 years from 2030 to complete the transition from existing fleet to ZEVs

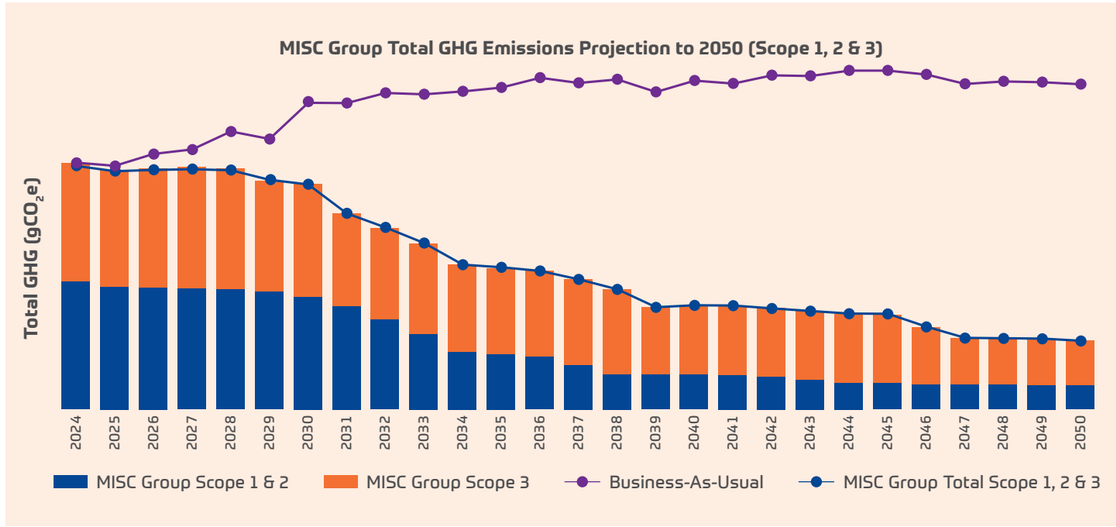
MISC Group GHG Projections & Emissions Pathway

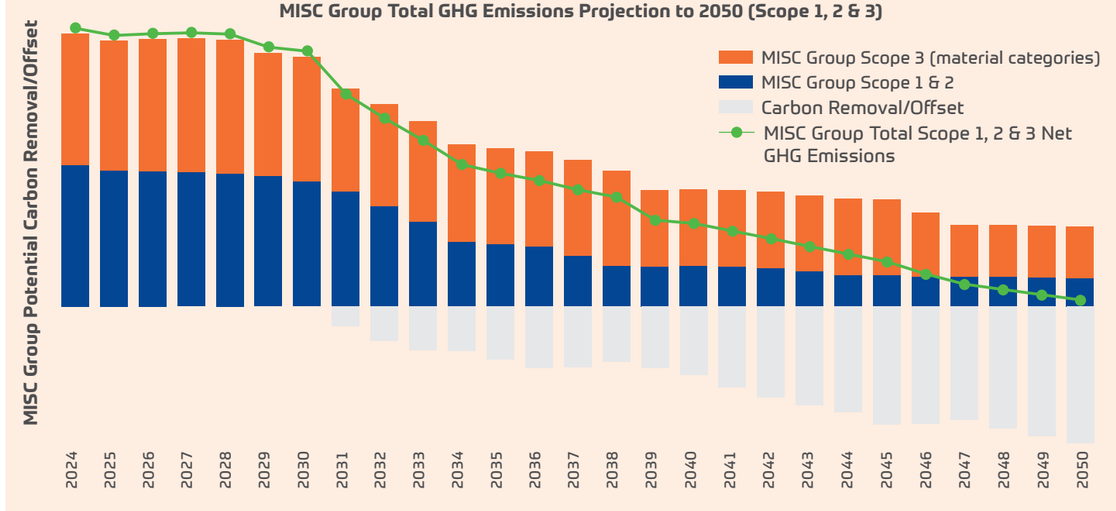
We conduct annual assessments to determine our GHG profile and potential pathways towards decarbonising our business, premised on our business plan. These assessments consider our existing fleet including individual vessel performance, as well as newbuilds and upcoming projects. We also take into consideration potential operational and technological interventions that can be deployed on existing assets to further improve energy efficiency and reduce overall emissions.





MISC Group GHG Projections & Emissions Pathway





We expect to see a steady decline in our GHG emissions between 2024 to 2027, with contributions coming from the expected energy efficiency improvements on the existing fleet and the introduction of new vessels with high efficiency/low-carbon design. A steeper decline in emissions is expected after 2027 with the introduction of new assets that can run on zero or near-zero carbon fuels and the potential installation of shipboard CCS on existing older vessels.

MISC Group GHG Inventory

MISC Group's GHG inventory is based on our organisational boundary of the GHG Protocol Corporate Standard's financial control approach. MISC has financial control over an operation if MISC can direct the operation's financial and operating policies to gain economic benefits from the operation's activities. More information on reporting principles, data assumptions and emission factors can be found in the Additional Information section on pg. 196 of MISC's Sustainability Report 2023.

SCOPE 1 & 2

All direct GHG emissions occurring on assets where MISC has financial control are accounted under MISC's Scope 1 GHG emissions. All indirect emissions from energy purchased for consumption on assets where MISC has financial control are accounted for under MISC's Scope 2 GHG emissions.

Scope 1 accounts for 99% of MISC Group's total Scope 1 & 2 GHG emissions with most of the emissions, i.e., 98% emitted from MISC's shipping operations. Scope 2 GHG emissions are from purchased electricity by yard and building operations, mainly from our non-shipping operations.

SCOPE 3

MISC Group accounts for and reports material Scope 3 emissions according to the following definition:

- Top Scope 3 categories covering at least 67% of the total Scope 3 emissions. This threshold shall be applied at the business/ entity level of MISC's core businesses i.e., shipping, offshore and heavy engineering.
- Operational emissions from assets not accounted as MISC's Scope 1 and 2, which fall under the following Scope 3 categories:

i. Category 8-Upstream leased assets and facilities where MISC has no financial control.
ii. Category 13-Downstream leased assets and facilities where MISC has no financial control.
iii. Category 15 – Investments not accounted for in MISC's Scope 1 and 2.

Based on this definition, the following Scope 3 categories were deemed material to MISC:

i. Category 1 (Purchased Goods and Services).
ii. Category 3 (Fuel-and Energy-Related Activities).
iii. Category 8 (Upstream Leased Assets)-In-chartered vessels where MISC is the commercial operator only (neither the vessel owner nor has technical control).
iv. Category 13 (Downstream Leased Assets)-Leased offshore assets such as our FSOs and FPSOs which are owned by MISC but leased out to our customers.
v. Category 15 (Investments)-Vessels which are jointly owned by MISC and other parties, where MISC has equity ownership but does not have financial control.

MISC Group Scope 3 GHG emissions account for 40% of the Group's total GHG (Scope 1, 2 and 3) in FY2023. Fuel-related activities (i.e., emissions associated with upstream fuel production and transportation) are the primary source of Scope 3 emissions for MISC. Other main activities driving our Scope 3 emissions include operational emissions of our offshore assets which are leased out to customers and purchased goods and services in our heavy engineering business.

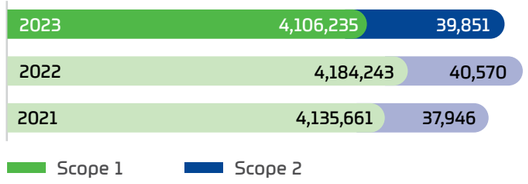
CARBON INTENSITY MEASUREMENT METRICS

We measure our carbon intensity using the Annual Efficiency Ratio (AER) metric which is aligned with IMO's mandatory scheme on operational CO_2 reduction known as CII. AER measures a vessel's total CO_2 per unit of transport work (unit: gCO_2/t-nm). Transport work is calculated by multiplying the vessel's deadweight by the distance travelled.

However, the AER metric only measures CO_2 and does not include other GHGs converted into CO_2 equivalent (CO_2e). Therefore, in addition to AER, we also track and report our vessels' GHG performance in units of gCO_2e per t-nm which includes all relevant GHGs from our operations, i.e., CO_2, methane (CH_4) and nitrous oxide (N_2O). For our VLECs which consume ethane as fuel, GHG from ethane (C_2H_6) is also included in the CO_2e calculations.

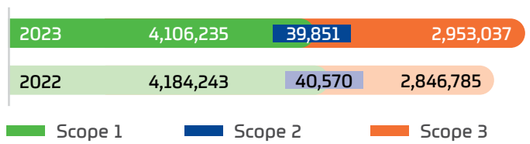
GHG EMISSIONS PERFORMANCE

GHG Emissions



MISC total Scope 1 and 2 GHG emissions range from 4.15 to 4.17 million tonnes CO_2e between 2021 to 2023.

In 2023, we achieved a 24% reduction on average for our shipping fleet CO_2e intensity compared to 2008. In comparison to our performance in 2022, our fleet average intensity improved by 7% in 2023. The improvement is largely due to new and higher efficiency assets introduced to the fleet and improved commercial and operational efficiency interventions in our existing fleet.



In 2023, Scope 3 emissions on material categories accounted for 2.95 million tonnes CO_2e. In comparison to 2022 performance, our Scope 3 emissions in 2023 slightly increased by 4% due to an increase in the purchase of goods and services from our Marine & Heavy Engineering segment.

SHIPPING CARBON INTENSITY

In 2023, we achieved a 7% reduction in our shipping fleet average GHG intensity compared to 2022, a 24% reduction when compared to 2008.

Shipping Fleet GHG Emissions Intensity (gCO_2e/t-nm)

The improvement was due to:

- Introduction of new fleet assets with better fuel efficiency. In 2023, two new dual-fuel engine LNGCs *Seri Damai* and *Seri Daya* were introduced to the MISC gas fleet while two new LNG dual-fuel EEDI Phase III compliant VLCCs, *Eagle Vellore* and *Eagle Ventura* were introduced by AET.

- Ongoing commercial and operational excellence interventions on the existing fleet, predominantly:

  - Awareness and collaboration with charterers to optimise speed (slow steaming), improving voyage planning and maximising consumption of boil-off gas for propulsion;
  - Internal awareness of energy efficiency performance and operations;
  - Trade optimisation particularly vessels on STS trading;
  - Hull and propeller cleaning;
  - Application of ultra-low friction paint when vessels are in drydock; and
  - Increased use of biofuel

Energy Management

The maritime sector uses a significant amount of energy to power ships and for maintenance and upgrading of ships. Energy management is important to ensure our ships and activities are energy-efficient to reduce operating costs, optimise efficiency and minimise environmental impacts. As the maritime and shipping sector faces increasing pressure to reduce its environmental impact, adopting energy-efficient practices and transitioning to cleaner fuels contribute to environmental sustainability and compliance with emission regulations. Optimising energy performance, monitoring and controlling energy consumption and implementing best practices lead to more reliable and efficient operations.

With this, we have identified energy efficiency as one of the sustainability strategic pillars and aim to implement energy efficiency measures within the short- and medium-term. One of the initiatives is the certification to the ISO 50001:2018 Energy Management System for our Gas and Petroleum fleet. As part of the requirements under ISO 50001, internal and external audits are conducted annually to ensure compliance and identify areas for improvement. To support the implementation of energy efficiency initiatives, energy efficiency-related training is regularly organised for our seafarers and shore staff.

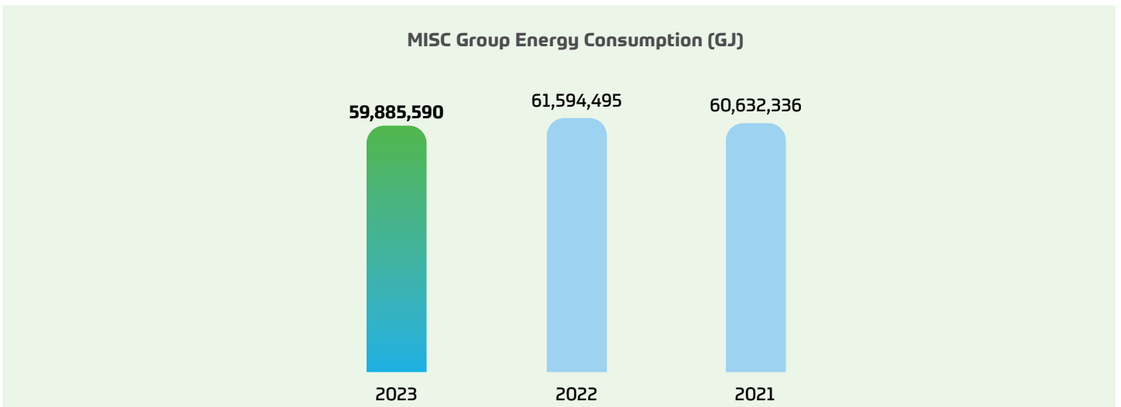
INITIATIVES ON ENERGY MANAGEMENT

Among initiatives under our Shipping operations are:

- Implementing controls under ISO 50001, including monitoring of energy consumption at discharge and loading ports; and audits and corrective actions under ISO 50001
- Commercial and operational efficiency interventions as described in the decarbonisation section are collectively aimed at reducing energy consumption while delivering the same or higher work outputs

For non-shipping operations, some initiatives undertaken are:

- Fuel consumption monitoring for Marine Services segment support craft to identify and correct inefficiencies
- Installation of LED lighting and motion sensor lighting at selected facilities at ALAM, MHB and FSUs



Note:

2021 and 2022 data was restated due to recalculation of our data.

Climate-related Remuneration

MISC first introduced climate-related strategic initiatives and annual GHG emissions intensity targets as part of ESG-related key performance indicators (KPI) into the Group Balance Scorecard in 2022. Related business units and subsidiaries that have direct control over carbon management or are tasked to implement climate-related opportunities including attainment of targets, are rewarded through work performance for their contributions to improving of the company's GHG performance.

The ESG-related performance of senior management via the scorecard and remuneration is reviewed by the Board Nomination and Remuneration Committee (BNRC). The BNRC conducts performance appraisals for the Company and the PGCEO, covering aspects of financial performance, strategic initiatives, operations, HSSE, sustainability and people development. The BNRC then makes the appropriate recommendations to the Board for approval, based on performance.

Since 2022, the Board's KPI also included the consideration of sustainability risks and opportunities in decision-making processes. In 2023, the management of climate-related risks and opportunities accounted for 12% of the Group Balance Scorecard.

Internal Carbon Pricing

In 2023, MISC established an internal carbon price (ICP) to anticipate and manage immediate and future regulatory developments related to carbon emissions. The ICP is used to encourage the consideration of carbon emissions and associated costs when evaluating investment decisions, CAPEX and long-term business strategies, apart from managing client and investor expectations. The ICP, set at an internal price of USD50/tonne CO_2e in 2023 was used to calculate new investment costs.

An internal process was also developed in 2023 to determine the annual internal carbon price and integrate this into calculations for asset investments and project risk assessments. In 2024, this price will be revised to USD68/tonne CO_2e.

Revenue from Low-Carbon Services

Most of our business is within the traditional energy space where we continue to capitalise on our expertise and financial strength to ensure steady returns for our stakeholders. For our next phase of growth, we aim to achieve 25% of our cashflow from operations from Clean Energy Solutions by 2030. This includes the operations of zero-emissions vessels, carbon capture and storage, offshore renewables and alternative fuel value chains as stated in our transition plan.

Climate-related Expenditure

In 2023, MISC spent a total of RM RM157.8 million on climate-related expenses which included costs to retrofit of our assets to improve energy efficiency and reduce emissions. An additional RM49.5 million was spent on Low Sulphur Marine Gas Oil and Very Low Sulphur Fuel Oil to reduce emissions and comply with the IMO 2020 Global Sulphur Cap.

MOVING FORWARD

This report serves as a comprehensive and transparent disclosure of MISC Group's climate-related risks and opportunities. We have demonstrated our commitment to integrating climate considerations into our business strategy and decision-making processes. Through diligent assessment and disclosure, we aim to enhance stakeholder understanding of our climate-related impacts, foster resilience and contribute to the broader global effort towards a sustainable and low-carbon future.

As we continue to navigate the dynamic landscape of climate-related challenges, we remain steadfast in our pursuit of sustainable practices, innovation and responsible stewardship, underlining our dedication to creating long-term value for our organisation, our value chain and our stakeholders.

List of Abbreviations

AER	Annual efficiency ratio
AER CO_2e	Annual efficiency ratio carbon dioxide equivalent
ALAM	Malaysian Maritime Academy Sdn Bhd
BGRC	Board Governance and Risk Committee
BNRC	Board Nomination and Remunerations Committee
BSRC	Board Sustainability and Risk Committee
CAPEX	Capital expenditure
CCS	Carbon capture and storage
CCUS	Carbon capture, utilisation and storage
CH_4	Methane
C_2H_6	Ethane
CII	Carbon intensity indicator
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CP	Corporate Planning
DPST	Dynamic Positioning Shuttle Tanker
EEXI	Energy Efficiency Existing Ship Index
EEDI	Energy Efficiency Design Index
ERM	Enterprise Risk Management
ESG	Environment, Social and Governance
EU ETS	European Union Emission Trading Scheme
FID	Final investment decision
FSU	Floating storage unit
GCMP	Group Crisis Management Plan
GHG	Greenhouse gas
HSSES	Health, Safety, Security, Environment and Sustainability
ICP	Internal carbon price
IEA	International Energy Agency
IMO	International Maritime Organisation
IPCC	Intergovernmental Panel on Climate Change
IRENA	The International Renewable Energy Agency
ISO	International Organisation for Standardisation
KRI	Key risk indicators
LED	Light-emitting diode
LNG	Liquefied natural gas
LNGC	Liquefied natural gas carrier
MARPOL	International Convention for the Prevention of Pollution from Ships
MCCG	Malaysian Code on Corporate Governance
MMEGA	Mega Module Green Architecture
MHB	Malaysia Marine & Heavy Engineering
NBFPSO	New Built Floating Production Storage and Offloading
N_2O	Nitrous oxide
NOAA	National Oceanic and Atmospheric Administration
OECD	Organisation for Economic Cooperation and Development
OPEX	Operational expenditure
PGCEO	President and Group CEO
PRA	Project risk assessment
PRASC	Project Risk Assessment Sub-Committee
RMC	Risk Management Committee
SSP	Shared Socioeconomic Pathways
STS	Ship-to-Ship
t-nm	tonne nautical mile
VLEC	Very large ethane carrier
ZEV	Zero-emission vessel

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