



**TASK FORCE ON
CLIMATE-RELATED
FINANCIAL
DISCLOSURES (TCFD)
REPORT 2022**

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ABBREVIATIONS

Abbreviation	Detail	Abbreviation	Detail
ABMS	Anti-Bribery Management System	LOBs	Lines of Business
B2B	Business to Business	MC	Management Committee
BAU	Business as Usual	NGFS	Network for Greening the Financial System
BCM	Business Continuity Management	NPS	Net Promoter Score
BCMS	Business Continuity Management System	NZE	Net Zero Emissions
BCP	Business Continuity Plan	PLC	Public Listed Company
BRC	Board Risk Committee	RCP	Representative Concentration Pathway
CCRO	Chief Corporate and Regulatory Officer	SSPs	Shared Socioeconomic Pathways
CDR	Carbon Dioxide Removal	SCM	Sustainability Champions
CRO	Chief Risk Officer	SS	Sustainability Stewards
CCUS	Carbon Capture, Utilisation & Storage	SWG	Sustainability Action Working Group
DRE	Disaster Recovery Equipment	TCFD	Task Force on Climate-Related Financial Disclosures
DRP	Disaster Recovery Plan	tCO₂e	Tonnes of carbon emissions equivalent
EBIT	Earnings Before Interest and Taxes	TM	Telekom Malaysia Berhad
EEO	Energy Efficiency Optimisation	TNB	Tenaga Nasional Berhad
EMS	Environmental Management System	USD	United States Dollar
EPC	Energy Performance Contract	WEO	World Energy Outlook
ERM	Enterprise Risk Management		
ESG	Environmental, Social and Governance		
EV	Electric Vehicles		
FMC	Fixed-Mobile Convergence		
GCEO	Group Chief Executive Officer		
GCR	Group Corporate Regulatory		
GDP	Gross Domestic Product		
GET	Green Electricity Tariff		
GHG	Greenhouse Gas		
GLC	Government-Linked Company		
GRM	Group Risk Management		
GSC	Group Strategic Communications		
IAR	Industrial All Risk		
ICAO	International Civil Aviation Organisation		
IEA	International Energy Agency		
IPCC	Intergovernmental Panel on Climate Change		
ISO	International Organisation for Standardisation		
KCI	Key Control Indicator		
KPI	Key Performance Indicator		
KRI	Key Risk Indicator		
kWh	Kilowatt-hour		
L	Litres		
LED	Light-Emitting Diode		

A MESSAGE FROM OUR CHIEF EXECUTIVE OFFICER

As the world continues to grapple with the climate crisis, efforts have been made across Malaysia to accelerate the nation's progress towards a more sustainable and climate resilient future. Notably, Malaysia has committed to reducing its greenhouse gas (GHG) emissions intensity against GDP by 45% by 2030 – a commitment that has been strengthened by Malaysia's announcement in 2021 to become a carbon neutral nation by 2050.



As the national telecommunications provider, we recognise the salience of our role in enabling Malaysia's transition towards a low-carbon future.



There has never been a more pressing time to take climate action. It is within this context that TM has sought to strengthen its response to climate change, particularly through its environmental sustainability commitments and initiatives. This namely encompasses efforts to reduce emissions and achieve TM's overall commitment to net zero emissions by 2050. TM has embarked on a long-term journey to ensure that it continues to meet the needs of its customers whilst also tackling the challenges posed by climate change. Becoming a strong advocate for climate action within Malaysia, we have set ambitious emission reduction targets, invested in renewable energy sources, commenced our carbon offsetting program, supported our supply chain to adopt sustainable procurement practices, and launched several awareness campaigns to educate our employees and customers on the importance of addressing climate change. This year we have continued our climate journey by preparing our inaugural Task Force on Climate-related Financial Disclosure (TCFD) report. Through this exercise we have sought to build upon our existing initiatives to provide a future-focused examination on how climate change will impact our business and our resilience through identified physical and transition risks. In undertaking this exercise TM has taken a critical step forward to understand its exposure to climate change. These insights will provide an important foundation that will enable us to continually improve our responses to climate change across each aspect of our value chain. Moving forward, we will seek increased alignment with the recommendations provided by the TCFD framework, with the aim to ensure full compliance in the coming years.

As the national telecommunications provider, we recognise the salience of our role in enabling Malaysia's transition towards a low-carbon future. As such, we are deeply committed to achieve our climate ambitions, and we hope that this TCFD report will provide our stakeholders with valuable insights into how climate change might potentially affect our business and our corresponding efforts to address these potential effects as we strive to become a Human-Centred TechCo, towards a sustainable tomorrow.

Dato' Imri Mokhtar
Managing Director/Group CEO

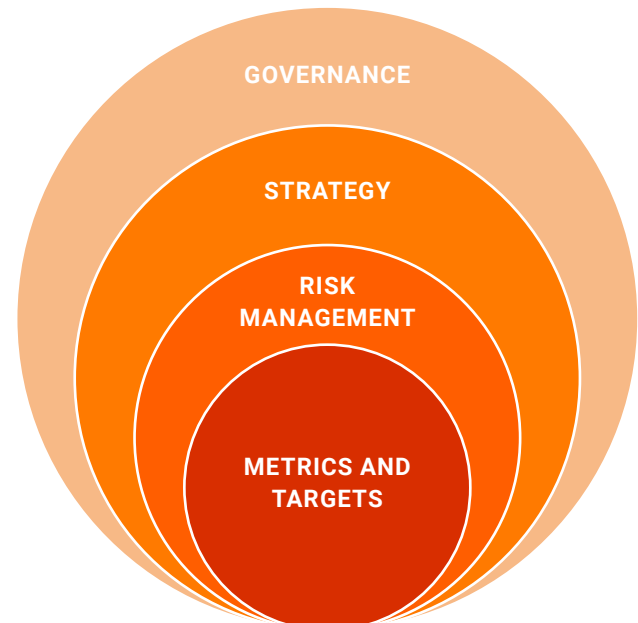
ABOUT THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

The TCFD began as a voluntary disclosure framework which aimed to increase access to decision-useful, climate-related information for participants in financial markets, including investors, lenders, insurers, and other stakeholders. Compared to other disclosure standards, TCFD focuses on increasing transparency around the financial implications of an organisations' climate-related risks and opportunities. Since the launch of their recommendations in 2017, TCFD adoption has grown significantly, with regulators across the world pushing for more robust climate-related disclosures aligned with the TCFD framework, including in Malaysia. As such, Bursa Malaysia released its enhanced sustainability reporting requirements in 2022, which will require publicly listed companies to align reporting to the TCFD disclosures by December 2025.

TCFD revolves around eleven (11) widely adoptable recommendations structured around four thematic areas (Figure 1). Each recommendation seeks to increase accountability on the impact of climate-related risks and opportunities on a company's operations and financials.

At TM, we understand the increasing urgency to address the risks and opportunities posed by the climate crisis. We continuously conduct thorough assessments to better understand the impact of climate change on our long-term business objectives, covering both physical and transition risks and opportunities. Further, in addressing the potential impact of climate change on our business we have also endeavoured to integrate climate-related risks into our corporate risks registers and as a key component of our Board Risk Committee (BRC) agenda, thus ensuring ongoing monitoring of our climate-related exposures. As we continue to refine our approach towards managing climate-related risks and opportunities, we will aim to be proactive and adopt the necessary measures to ensure the resilience of TM in view of the unprecedented challenges posed by climate change.

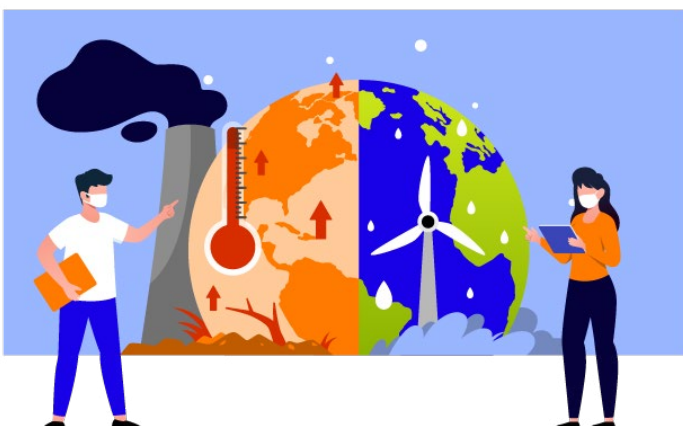
FIGURE 1: CORE ELEMENTS OF RECOMMENDED CLIMATE-RELATED FINANCIAL DISCLOSURES



Source: Recommendations of the TCFD, June 2017

In line with our commitment to climate action, we are pleased to disclose our first standalone TCFD Report in 2023, which aligns with the TCFD Framework, addressing eleven (11) recommended disclosures. This takes a forward-looking step in ensuring we are compliant with Bursa Malaysia's upcoming TCFD-aligned reporting requirements. This report represents the start of our ongoing ambition to increase transparency and accountability on our journey towards greater climate resilience¹.

At TM, we understand the increasing urgency to address the risks and opportunities posed by the climate crisis. We continuously conduct thorough assessments to better understand the impact of climate change on our long-term business objectives, covering both physical and transition risks and opportunities.




¹ This report reflects the structure, assumptions, and information known by TM Group as of the 31 December 2022. The details of this report will remain relevant as TM Group is expected to complete the Internal Reorganisation by 31 December 2023.

TCFD RECOMMENDATIONS




As of May 2023, we are of the view that we are aligned to nine out of eleven (11) TCFD recommendations for the financial year ended 31 December 2022². Moving forward, we will seek to further align with the TCFD Framework to ensure full compliance according to the requirements established by Bursa Malaysia³. This includes the fulfilment of the following recommendations by December 2025, at the latest:




Risk management (integration)

We are at the beginning of our climate-related risk management journey, and currently apply our existing Enterprise Risk Management (ERM) framework to identify and manage climate-related risks at the corporate level. In the next phase of our TCFD journey, we plan to leverage findings from our inaugural TCFD exercise to fully integrate the identification, assessment and management climate-related risks into our risk management processes. This will include adjustments to our ERM framework to incorporate climate considerations into our risk appetite, guidance on integrating climate risk data into our strategy and business planning methodologies and updates to our risk categorisation and risk matrix criteria.



Metrics and targets (emissions)

We are currently collecting data on Scope 1 and Scope 2 emissions, as well as aspects of our Scope 3 emissions. As our methodologies mature, we will address gaps in our emissions data, with the goal to collect and disclose our Scope 1, 2 and material Scope 3 emissions over time.



² For more information on how this report addresses the TCFD recommendations, refer to Appendix 1.
³ In 2022, Bursa Malaysia released its enhanced reporting requirements which require publicly listed companies to align their climate change-related disclosures to be TCFD-aligned by financial year ending on or after 31 December 2025.

OUR APPROACH

As part of our New TM Transformation Plan (2021-2023), we launched the New TM Compass (Figure 2) to ground our strategic objective of building resilience in four pillars: Our Purpose, Our Business, Our Customers and Our People.

The Compass embodies our strategic priorities, defining how we come together as a team to strengthen and align our Purpose, to serve our customers better, and in return, deliver outstanding Business performance, powered by the commitment and resilience of our People. Embedded within Our Purpose is our commitment to sustainability, signifying the importance of Environmental, Social and Governance (ESG) factors within our organisation. In embedding ESG within our strategy, we aim to better address relevant ESG risks and opportunities that may potentially impact our performance. Moreover, our sustainability strategy is driven by TM's Sustainability Architecture (Figure 3), which outlines execution pillars and enablers that support in the delivery of our sustainability vision.

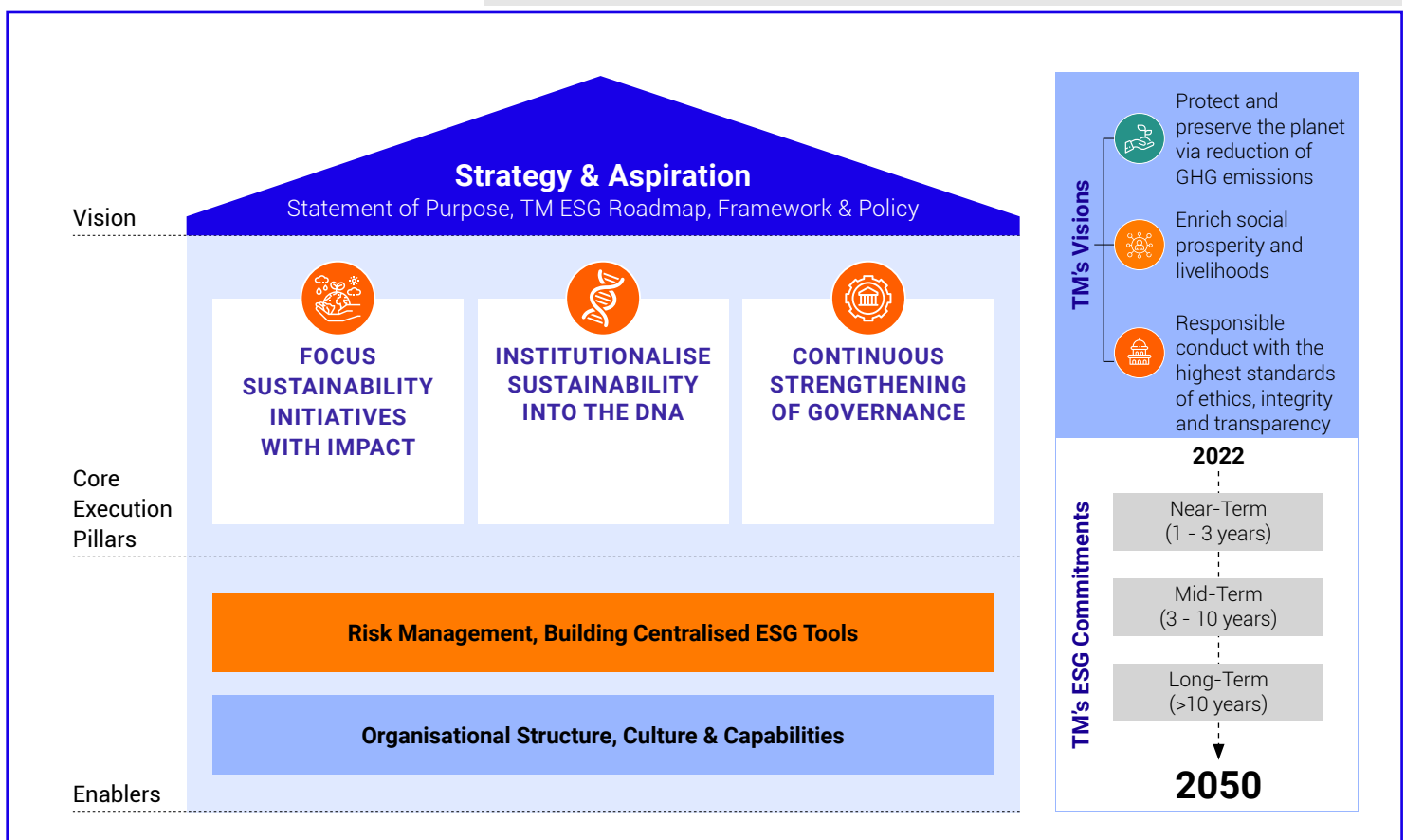


FIGURE 3: TM'S SUSTAINABILITY ARCHITECTURE

To facilitate our commitment to sustainability we developed TM's ESG Roadmap 2022-2050 (Figure 4), which was established to deliver on our aspirations with clear vision, commitments and execution plans across the three areas of ESG: Environmental, Social and Governance. In terms of Environmental sustainability, we have made various commitments focused on tackling the issue of climate change, including targets related to carbon emissions reduction and climate-related disclosures. A multitude of initiatives have been subsequently launched in relation to such commitments, with our goal to reach net zero emissions by 2050 (Figure 3). As we move into the final year of our Transformation Plan, we will be working on supplementing our existing initiatives by developing a decarbonisation roadmap to provide further clarity how we intend to reach net zero emissions by 2050.

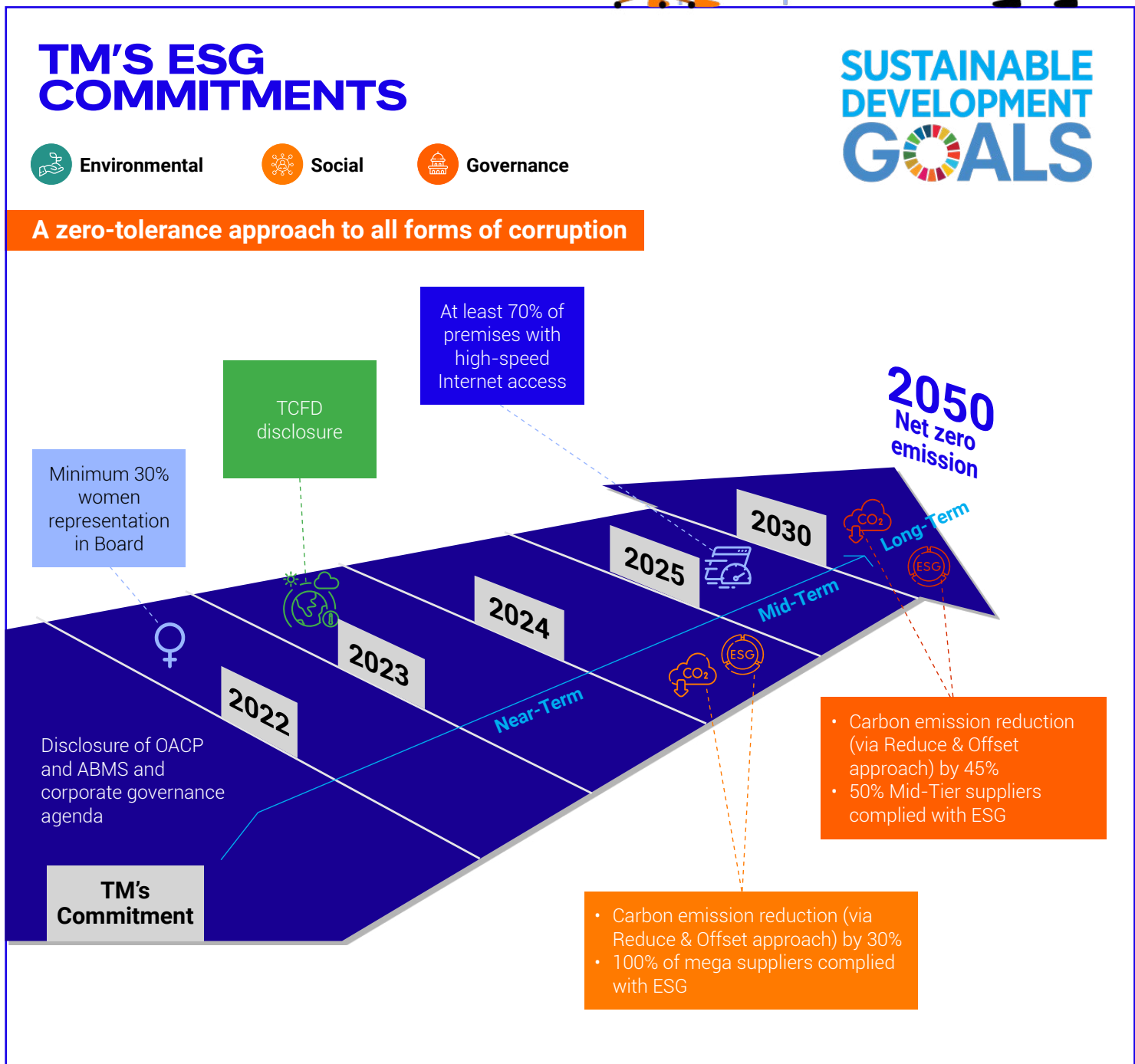


FIGURE 4: TM'S ESG ROADMAP, 2022-2050

GOVERNANCE

Governance refers to structures and processes that operate to define an organisation's direction and objectives, as well as enabling the monitoring and evaluation of an organisation's performance against its defined objectives. TCFD recommends the disclosure of relevant governance arrangements which oversee the assessment and management of climate-related issues, thus enabling stakeholders to understand whether such issues – including relevant risks and opportunities – are given appropriate board and management attention.

The Board's oversight of climate-related risks and opportunities

Within TM, climate-related matters are grouped under the banner of sustainability and is therefore governed under TM's Sustainability Governance Structure, as illustrated in Figure 5. Within this context, the Board sets the overall strategy related to sustainability, approves and validates all decisions related to sustainability, including climate-related matters and disclosures. The Board is supported by the Board Risk Committee (BRC) which works together to continuously enhance sustainability integration into TM's Risk Management systems. As such, the BRC reviews the Group's sustainability risk profile and associated strategies, policies, processes and practices, including climate-related risks and opportunities.

Climate-change risk and sustainability program updates are scheduled agenda items in TM's Board meeting through BRC report contents. The Board's oversight functions for climate-related issues includes reviewing and guiding TM's climate strategy, relevant action plans, risk management policies, annual budgets and business plans. The Board also establishes and monitors performance objectives and targets in relation to climate change. Specifically in relation to climate risk, the BRC monitors the ERM and Corporate Risk Report on a quarterly basis. In reviewing this report, the BRC is tasked to govern the monitoring and mitigation of all risks, including those that are climate-related, to improve risk movements and minimise adverse impact to TM.

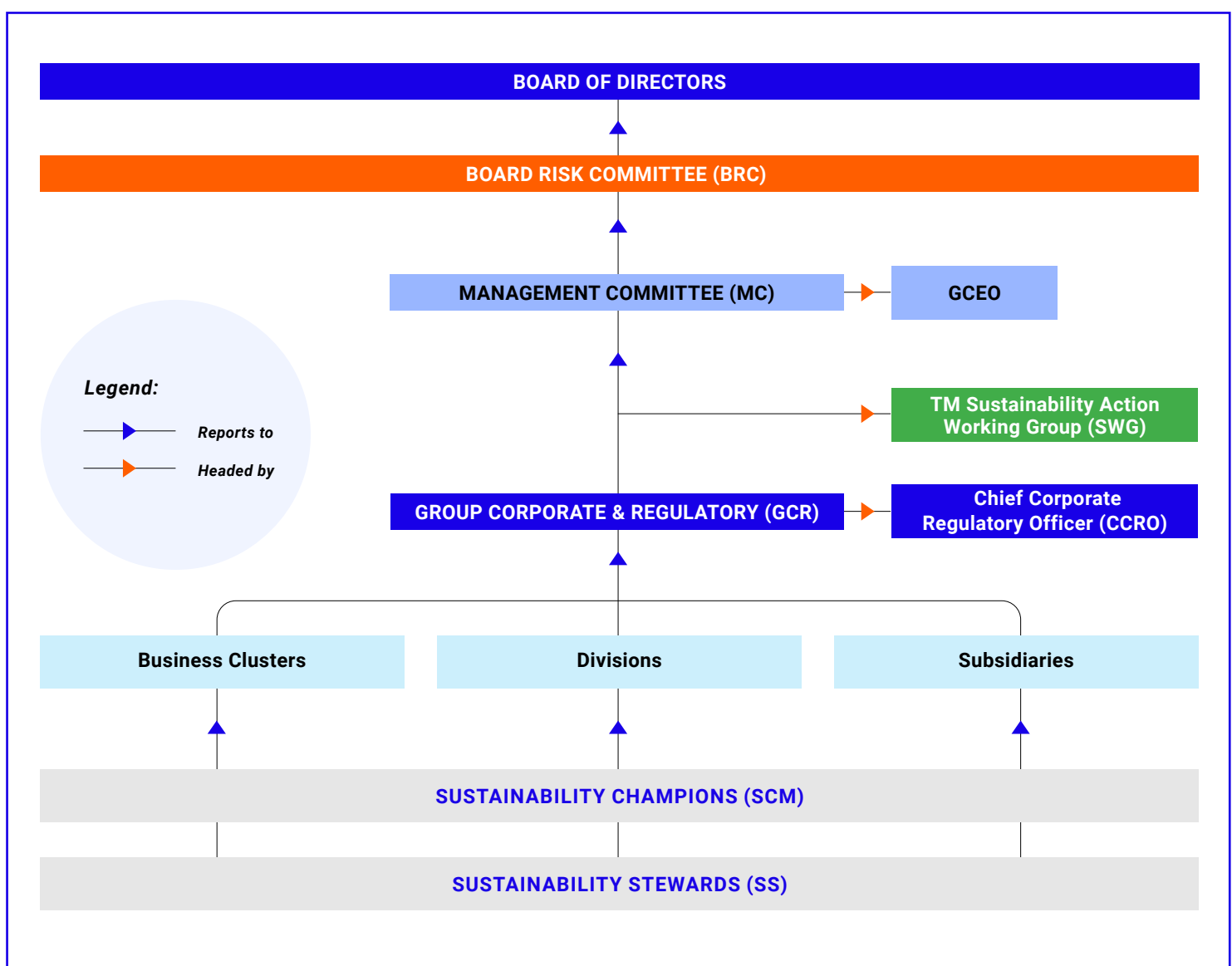


FIGURE 5: TM'S SUSTAINABILITY GOVERNANCE STRUCTURE

Management's role in assessing and managing climate-related risks and opportunities

Throughout 2022, the Group Chief Executive Officer (GCEO) provides leadership and direction, setting the sustainability vision, strategy and ultimately overseeing the deployment of strategies to meet TM's climate aspirations. Sustainability and climate-related KPIs have been established at the management level to provide targets and track progress on the achievement of our climate aspirations. The GCEO heads the Management Committee (MC), which is a management-level committee that deliberates the implementation of TM's sustainability strategy and action plans across the Group. The MC is supported by TM's Sustainability Action Working Group (SWG), which advises the MC and oversees sustainability-related improvement initiatives, performance management and monitoring within TM.

In 2022, TM's Group Risk Management (GRM) was directly responsible for overseeing the implementation of sustainability strategies and tracking progress against established targets. GRM was supported by Group Strategy and Strategic Communications (SC) to ensure alignment on sustainability risks and approaches with TM's overall strategy. The CRO spearheaded the Group's risk management and sustainability function, including developing and implementing sustainability strategies, policies and initiatives which aligned with TM's goals and objectives. Within their role, the CRO had ultimate responsibility for integrating and managing climate risks across all divisions in TM. The CRO reported on matters related to sustainability – including climate-related issues – to the GCEO and subsequently the Board of Directors via the BRC, a Board sub-committee.

In terms of implementation, TM's Business Clusters, Divisions and Subsidiaries implemented sustainability strategies and reported directly to GRM. Within TM's Business Clusters, Divisions and Subsidiaries, Sustainability Champions (SCM) and Sustainability Stewards (SS) are selected and work to identify and assess sustainability risks within their areas of responsibility and facilitate sustainability-related communication and data compilation, respectively.

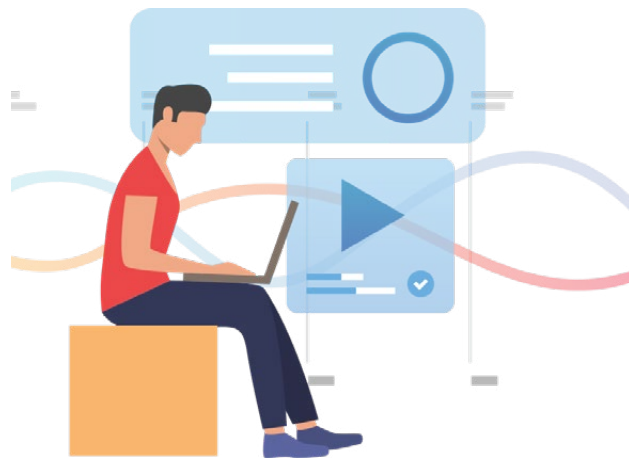
In addition to this, TM has specific structures and policies in place to ensure a proactive approach to managing climate-related risk. For physical risk, the relevant Program Manager sits within Business Continuity Management (BCM) and reported regularly to the CRO. The Program Manager coordinates all action items, and tracks progress with appointed BCM representatives within each TM division. On quarterly basis, a Steering Committee meeting on BCM will be chaired by the GCEO to address all risks and issues in a timely manner. During any climate-related incidents, the meeting will be conducted more frequently, depending on the severity of the event.

For transition risk, the relevant Program Manager sat under TM's Sustainability Management Team and reported to the CRO. Throughout 2022, weekly meetings were held to track the progress of all action items conducted at the Transformation Office, which were then reported to GCEO and subsequently to BRC and TM Board on quarterly basis.

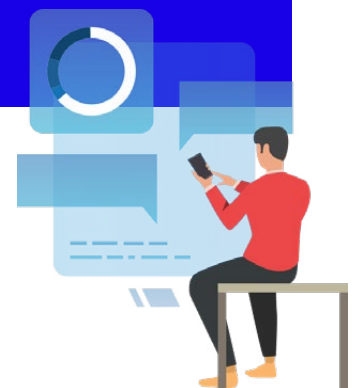
As part of TM's ongoing transformation to enable a digital Malaysia, we have commenced an internal reorganisation to further improve operational efficiencies, streamline processes and simplify customer touchpoints. As of 1 January 2023, the core sustainability function has shifted from the GRM to the Group Corporate and Regulatory (GCR) under the purview of the Chief Corporate and Regulatory Officer (CCRO). We anticipate our robust governance arrangements will remain largely unchanged, allowing a smooth transition of those climate-related responsibilities between the GRM and GCR resulting in no impact on the outcome of this report.

TM has specific structures and policies in place to ensure a proactive approach to managing climate-related risk.

TM's Business Clusters, Divisions and Subsidiaries implemented sustainability strategies and reported directly to GRM.



As part of TM's ongoing transformation to enable a digital Malaysia, we have commenced an internal reorganisation to further **improve operational efficiencies, streamline processes and simplify customer touchpoints.**



STRATEGY

Strategy encompasses an organisations' aspirations and related plans designed to achieve objectives. Within the context of climate change, stakeholders seek to understand how climate-related issues affect an organisation's businesses, strategy and financial planning over the short, medium and long term, thereby informing expectations about future performance of the organisation.

Climate-related risks and opportunities the organisation has identified over the short, medium, and long term

In transitioning to a low emissions economy, TM has identified twelve (12) material climate-related transition risks and opportunities that may impact the business depending on how transition could occur. Figure 6 summaries how these risks and opportunities may emerge over short, medium, and long term (note: elsewhere in book hyphen is not used suggest to standardise) except when refer to long-term, short-term, medium-term time horizons, in alignment with recommendations from the TCFD.

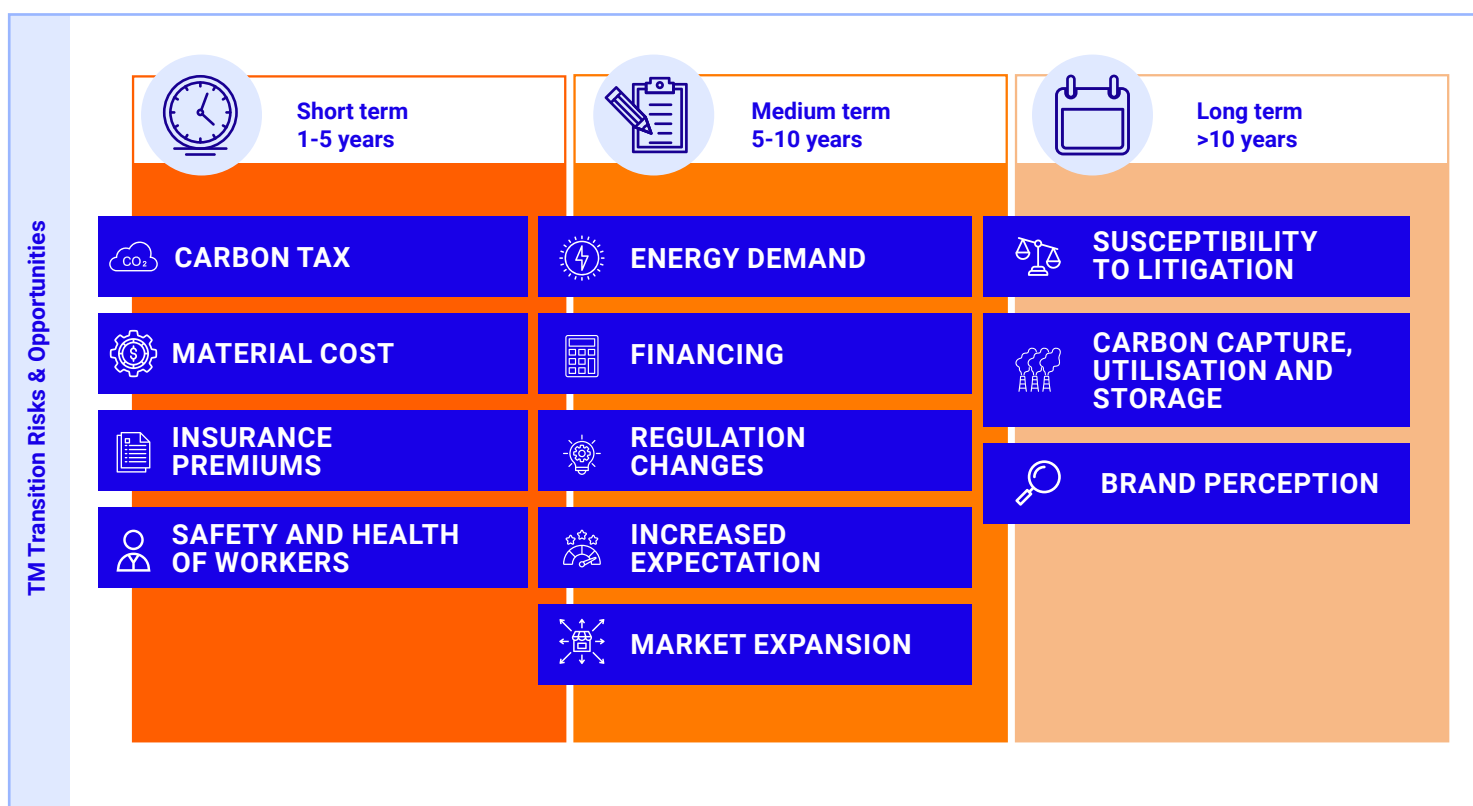


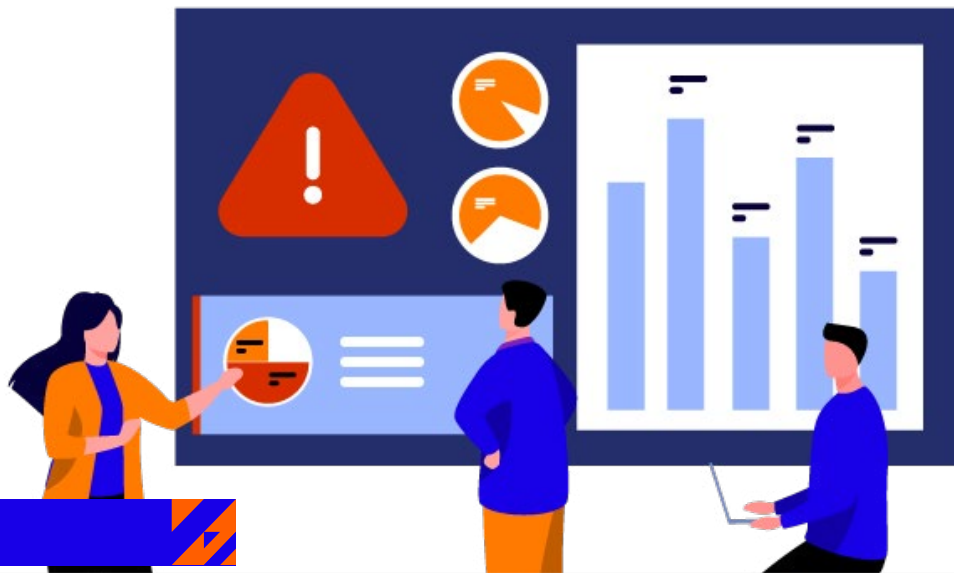
FIGURE 6: TM'S MATERIAL CLIMATE-RELATED TRANSITION RISKS AND OPPORTUNITIES

The selected time horizons align with TM's existing business planning cycles that we regularly deliberate, realign and reassess according to our transformation plans. These short planning cycles reflect the pace and complexity of change in our industry and allows us to be responsive to the changing needs of our business, customers and external stakeholders. We recognise climate-related issues often manifest themselves over the medium to longer terms, and while we can discern the types of risks which may eventuate, the impact and timing of those risks is uncertain. Climate-related issues are a growing input into TM's strategic and financial planning processes.

To understand how these risks might change in the medium to long term, we have undertaken climate-scenario analysis. We have selected globally recognised scenarios developed by Network for Greening the Financial System (NGFS), International Energy Agency (IEA), and the Intergovernmental Panel on Climate Change (IPCC) which provide a range of possible future pathways for global GHG emissions, temperature changes and other climate-related impacts. Our selected climate scenarios are broadly classified into two categories:

- Various socioeconomic conditions associated with a shifting environment using IEA & NGFS scenarios to analyse our transition risks.
- Impacts to the physical environment using IPCC scenarios to analyse our physical risks.

These two broad categories are overlaid using varying degrees of global action to address climate change. We selected scenario providers with corresponding key scenarios to understand the potential impacts of transitioning to a low-carbon economy arising from physical climate change (Table 1). This qualitative and quantitative scenario analysis has provided us with useful insights into the nature, scale, and impact of our climate-related risks.



Transition risk

World Energy Outlook (WEO) 2022		
	Business-As-Usual (BAU) Stated Policies Scenario >2.5°C	NZE Net Zero Emissions by 2050 Scenario <1.5°C
Definition	A scenario which reflects current global policy settings based on a sector-by-sector assessment of the specific policies that are in place, as well as those that have been announced by governments around the world.	A scenario which sets out a narrow but achievable pathway for the global energy sector to achieve net zero CO ₂ emissions by 2050.
Network for Greening the Financial System (NGFS)		
	Business-As-Usual (BAU) Current Policies Scenario >2.5°C	NZE Net Zero Emissions by 2050 Scenario <1.5°C
Definition	A scenario which demonstrates only currently-implemented policies around the world are preserved, leading to high physical risks.	A scenario which limits global warming to 1.5°C through stringent climate policies and innovation, reaching global net zero CO ₂ emissions around 2050. Some jurisdictions such as the US, EU and Japan reach net zero.

Physical risk

Intergovernmental Panel on Climate Change (IPCC)		Representative Concentration Pathway (RCP) ⁴
	RCP 8.5	RCP 4.5
Definition	A high-emissions scenario, consistent with a future with no policy changes to reduce emissions and characterised by increasing GHG emissions that lead to high atmospheric GHG concentrations. It is aligned broadly with Current Policies or Business-As-Usual Scenarios.	An intermediate-emissions scenario, consistent with a future with relatively ambitious emissions reductions and GHG emissions increasing slightly before starting to decline in 2040.

TABLE 1: TM'S SELECTED CLIMATE SCENARIOS



Why we chose these scenarios?

- The selected scenarios have been developed based on recognised publicly available data and literature, including sources from IEA, NGFS and IPCC.
- They meet the TCFD recommendations to assess business exposure against two or three different climate-related scenarios, including a 2°C or lower scenario.
- They bring together socio-economic conditions (Shared Socioeconomic Pathways (SSPs)) and emissions projections (RCPs).
- These scenarios enable us to understand the spread of risk and opportunity with a long-term future-focused mindset and are not intended to be a forecast or prediction.

Detailed information regarding the climate scenario assumptions can be found in 7.2 Appendix 2: Climate Scenario Model Assumptions.

⁴ RCP represents the level of GHG concentration in the atmosphere and is adopted by the IPCC as the method to conduct climate scenario analysis. The higher the RCP number, the higher the concentration of GHG in the atmosphere. RCP4.5 and RCP8.5 – are labelled after a possible range of radiative forcing values in the year 2100 (4.5, and 8.5 W/m², respectively).

The impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning

We conducted two types of climate scenario analysis to provide a holistic view into both transition risks and physical risks. The two WEO scenarios and two NGFS scenarios were used to analyse transition risks, and the two IPCC RCP scenarios were used to analyse physical risks.








TRANSITION RISKS



In anticipation of a low-carbon world, TM is committed to ensuring that relevant transition risks are adequately identified and their potential impacts to the business are thoroughly understood. It is important for us to assess and manage these risks arising

from policy, legal, technology, market and reputational changes associated with a successful or unsuccessful transition to a low-carbon economy. As the global economy decarbonises, it will likely require a world that is more interconnected and digitised, providing TM with opportunities to advance connectivity and digital solutions for customers, Government and emerging industries.

The assessment of the twelve (12) transition risks considered the liability, operational, capital, revenue, and financial implications on TM's business. We have qualitatively described the inherent risk (without control measures from an outside-in perspective), to reflect the external influences of climate-related risks and to compare the risks across scenarios. As different scenarios evolve and take form, TM will adapt to actively manage the risks accordingly.

TABLE 2: TM'S TRANSITION RISK AND OPPORTUNITY INHERENT IMPACT ACROSS CLIMATE SCENARIO AND TIME HORIZON

Risk & Opportunity summary	Current policies scenario >2.5°C			Net zero emissions scenario <1.5°C		
	Short-term 1-5 years	Medium-term 5-10 years	Long-term >10 years	Short-term 1-5 years	Medium-term 5-10 years	Long-term >10 years
 CARBON TAX The implementation of a carbon tax or scheme may impact the implementation of TM's new energy intensive strategies such as the 5G network.	●	●	●	●	●	●
 MATERIAL COST The rising costs of materials within TM's supply chain due to carbon taxation and sustainable solutions.	●	●	●	●	●	●
 INSURANCE PREMIUMS Progressively frequent flood damage as climate-related risks become more extreme results in higher claims and increasing premiums.	●	●	●	●	●	●
 SAFETY AND HEALTH OF WORKERS Decreased staff productivity due to obstruction from the rising heat or flooding in the physical environment.	●	●	●	●	●	●
 ENERGY DEMAND Rising costs of energy prices as the world's energy system adapts to climate change compounded by TM's increasing energy demands as the business grows.	●	●	●	●	●	●
 FINANCING TM is unable to secure desired financing and achieve strategic objectives as lenders implement increasingly stringent sustainability requirements in order to address climate change.	●	●	●	●	●	●
 REGULATION CHANGES TM is unprepared for changes in regulations favouring low-carbon or energy efficiency measures leading to penalties.	●	●	●	●	●	●

Risk & Opportunity summary	Current policies scenario >2.5°C			Net zero emissions scenario <1.5°C		
	Short-term 1-5 years	Medium-term 5-10 years	Long-term >10 years	Short-term 1-5 years	Medium-term 5-10 years	Long-term >10 years
 INCREASED EXPECTATIONS FROM CONSUMERS Customer expectations for climate-related products and service are left unmet leading to a loss of TM's market share to competitors.	●	●	●	●	●	●
 MARKET EXPANSION TM fails to capture opportunities of new products/services to support emerging climate solutions.	●	●	●	●	●	●
 SUSCEPTIBILITY TO LITIGATIONS TM is increasingly targeted with climate-related litigations based on perceived contribution to global warming leading to high legal costs.	●	●	●	●	●	●
 CARBON CAPTURE, UTILISATION & STORAGE (CCUS) Available CCUS technology may not be cost effective for TM to deploy to reach Net Zero by 2050.	●	●	●	●	●	●
 BRAND PERCEPTION Customer trust is lost if TM is unable achieve Net Zero Emissions or to decarbonise by 2050.	●	●	●	●	●	●

➔

Increasing magnitude of risk and impacts across different time horizons.



Through our qualitative analysis, TM identified four (4) transition risks that could pose significant inherent threat to the organisation within the next five (5) years. **Considering the inherent impacts on our businesses, strategy, and financial planning, these risks have been prioritised for action.**







 CARBON TAX	 MATERIAL COST
<p>An overall increase in operating costs is expected especially with the implementation of new strategies such as the 5G network and the intensity of energy consumed by projected data centre utilisation.</p> <p>Carbon regulations may also impact TM's supply chain partners, resulting in additional pass-through costs to TM.</p> <p>Consideration of how we will balance our long-term growth strategy with our carbon emission reduction targets will be pivotal in managing carbon pricing consequences.</p>	<p>A cross-section of materials critical for TM's operations may be impacted by the transition to a low-carbon economy. The climate scenario exercise identified two (2) major influences impacting the price of future materials:</p> <ul style="list-style-type: none"> • Carbon intensive materials (steel and diesel) impacted by the implementation of carbon pricing and efficiency measures; and • Sustainable solution materials (lithium and copper) impacted by increasing demand for rechargeable batteries and limited projected supply.
 INSURANCE PREMIUMS	 SAFETY AND HEALTH OF WORKERS
<p>Progressively frequent floods resulting in increasingly damaged equipment could lead to higher claims and increasing premiums. This was evidenced in 2022 with TM's insurance premium increasing due to flood risk, as a result of the 2021–2022 Malaysian floods. It is expected that these premiums will continue to increase year on year.</p> <p>Insurance providers are placing greater emphasis on improvement and awareness of risk management to customers.</p> <p>There may be escalating costs to increase resiliency of assets against extreme weather events to avoid higher insurance premiums.</p>	<p>An increased exposure to heat stress and flooding conditions may lead to more frequent breaks or interruption to scheduled maintenance and capital works prolonging essential activities and loss in productivity, this may impact network reliability and performance.</p> <p>Additionally, disruption in the supply chain due to extreme weather events both locally and internationally may reduce the reliability of TM's vendors to provide services.</p>

TABLE 3: TM'S TRANSITION RISKS AND OPPORTUNITIES WITH A HIGH-RISK RATING OVER THE NEXT 5 YEARS

Transition risks modelling and analysis

Our climate scenario exercise quantifies the potential financial impacts of carbon pricing, energy prices, material costs, and expectations of consumers on our operations. We extended our three time-horizons to include 2040 and 2050 to inform long-term business strategy and decision-making.

Further information on the modelling methodology, assumptions and limitations is in 7.2 Appendix 2: Climate Scenario Model Assumptions.

We began our assessment with a qualitative analysis to identify the transition risks that could impact our business. The risks were prioritised for materiality with our Senior Leadership and C-Suite providing unique perspectives and contributions on where the organisation may be most exposed. From here we gathered relevant data and information including energy consumption, carbon footprint, critical material procurement prices, and customer demographics.

Carbon tax

Across the four scenarios carbon pricing was found to have varying financial impacts. The potential long-term financial impacts vary based on our analysis within a BAU scenario as well as a NZE scenario, with impacts more pronounced within NZE scenario. Our analysis is based on global and Southeast Asia reference points and include assumptions on TM's business growth and emission reductions. The model suggests a slow introduction of carbon tax that builds over time, with more significant increases in 2040 in an NZE scenario.

Across all four (4) scenarios the percentage impact on financial is expected to worsen should we not achieve our emissions reductions targets.

The underlying carbon prices used to determine these values were driven by:

- High carbon prices aligned with the NGFS NZE scenario, which acts as a high penalty on carbon in a net zero economy.
- Slightly lower carbon prices with the IEA WEO NZE that diverges significantly after 2040.

Energy demand

TM's primary energy source is electricity making up 70% of total energy consumption in 2022. A stable energy supply is critical to providing consistent essential connectivity services across the country. As our network grows, we are conscious how of our energy demand will change and the actions we must take in our role to address climate change.

Energy prices from fossil fuel sources are expected to continually rise over time in an NZE scenario and remain relatively stable over the next 30 years in a BAU scenario. These ranges are based on both global and Southeast Asia reference points.

Rising electricity prices are influenced by:

- Changes in fuel costs (diesel/petrol) as these play an important role in coal extraction and electricity generation
- Implementation of a carbon pricing mechanism
- Operating and maintenance costs to ensure equipment is compliant with increasingly stringent environmental regulations

In 2022, our electricity provider, Tenaga Nasional Berhad (TNB), provided their Green Electricity Tariff (GET) at a cost of 3.7sen/kWh, this is in contrast to their average commercial tariff ranging between 22.4 sen/kWh to 50.9 sen kWh and primarily sourced from fossil fuels. Our annual spend on electricity will be largely be dependent on the different programmes that electricity utility providers may roll out in effort to decarbonise.

Material cost

TM has a robust supply chain with over 1,827 local suppliers based here in Malaysia. As part of our supply chain, we identified four materials critical to our operations that have also been identified as either essential components in today's rapidly growing clean energy technologies or carbon intensive. Our scenario analysis found:

- **Steel prices** are expected to rise similarly across both BAU and NZE scenarios. While a low-carbon economy anticipates a higher carbon tax, CO2 emissions within steel production are expected to fall simultaneously. In contrast, lower carbon taxes will result in less aggressive process efficiencies and ultimately leading to similar price changes.
- **Copper prices** are not expected to have a material financial impact to TM as we plan to phase out copper cables by 2026 due to conversion to fibre.
- **Lithium prices** are expected to increase by 79% in an NZE scenario when compared to BAU scenario. Lithium plays a crucial role in the transition towards a low-carbon economy due to its use in batteries for electric vehicles (EV) and energy storage systems. The demand for lithium is expected to increase in a low-carbon economy while current projections of lithium production may not meet a net zero carbon economy targets. TM purchases Lithium-ion batteries as part of the energy back-up system for the network.
- **Diesel prices** are expected to decrease by 119% in an NZE scenario when compared to BAU scenario. The price of diesel is dependent on various factors such as supply and demand, government regulations and policies, and technical advancements in alternative fuel sources. Similar to steel prices, implementation of carbon pricing anticipates a reduction in CO2 emissions. The decreased price of fuel does not take into account Scope 1 carbon tax for TM, and therefore may be an overall more expensive energy option.

Customer expectations

Changing consumer preferences for existing offerings may lead to market share loss if we are unable to capitalise on consumer demand for low-carbon solutions and products. In 2022, TM was able to secure Green Electricity Tariff (GET) from Tenaga Nasional Berhad (TNB) for three of its data centres. Our primary data centres' users are our TM One and TM Global customers, providing TM the opportunity to support Enterprise customers in reducing our carbon emissions within the supply chain. With this in mind, our scenario analysis sought to understand how our customer preferences may change based on our sustainable offerings.

We found that the implementation of a carbon tax may increase our operating costs and could pass through to our customers. This impact would be more significant in an NZE scenario. Further investigation into consumer price sensitivity is underway to further understand triggers in behaviour change.

Our scenario analysis shows that the global availability of renewable energy as a share of total global energy supply will reach 29% by 2050 in a BAU scenario. This is below TM's renewable energy goal of 45% of energy consumption by 2050. This indicates potential supply issues of renewable energy for TM's long-term goals. TM is pursuing opportunities in other sources of renewable energy e.g., Solar Panel project.



TM's primary energy source is electricity making up 70% of total energy consumption in 2022. A stable energy supply is critical to providing consistent essential connectivity services across the country.



At TM, understanding our climate-related risks and opportunities provides us with the foundation to protect stakeholder value and business performance in the long term. With the aim to meet Malaysia's digital and connectivity needs whilst future-proofing our business, we have adopted several mechanisms that enable the identification of risks and opportunities related to climate change. This includes Sustainability risk management which are embedded into our ERM framework and Business Continuity Management System (BCMS).

PHYSICAL RISKS

As the national connectivity and digital infrastructure provider and Malaysia's leading integrated telecommunications company, we recognise the importance of ensuring the integrity of TM's infrastructure and assets. As such, understanding our exposure to physical risk is critical to building a more climate resilient business. Through our scenario analysis, we have identified floods as our key physical risk, as floods constitute the greatest climate-related physical risk in Malaysia – TM's main area of operations.

Physical risk modelling design

TM's assets are spread across the nation. This means that some of our assets are more exposed to flood risk than others. With this in mind, we designed the physical risk assessment model through mapping our list of material assets' geospatial locations at the address level against their elevation levels and the forecasted rainfall severity under the different key scenarios, namely RCP 4.5 and RCP 8.5, with a time horizon up to year 2050. To sufficiently capture the granularity of flood risk, we considered accuracy levels of up to 2 km x 2 km resolution for assets, whereas climate-related forecast data utilised a resolution of 50 km x 50 km.

The analysis performed was back tested against the vulnerability of the assets against flood risk based on historical events. We have further tagged rating grades by exposure level for ease of tracking our performance over time.

The dashboard below identifies and quantitatively expresses TM's exposure and vulnerability to flood risk, the primary physical risk driver for the period under review. The TM Exchange Level Asset Exposure categorises all assets that TM has defined as material assets that are susceptible to flood risk. Here, the Exposure by Rating Grade is the sum of exposure TM has by net book value of material assets based on the overall asset's susceptibility to flood risk. The count by rating grade refers to the total number of active material assets TM has based on the assets susceptibility levels to floods over the lifespan of the assets or 2050, whichever comes first.

SNAPSHOT OF FLOOD RISK ASSESSMENT FINDINGS

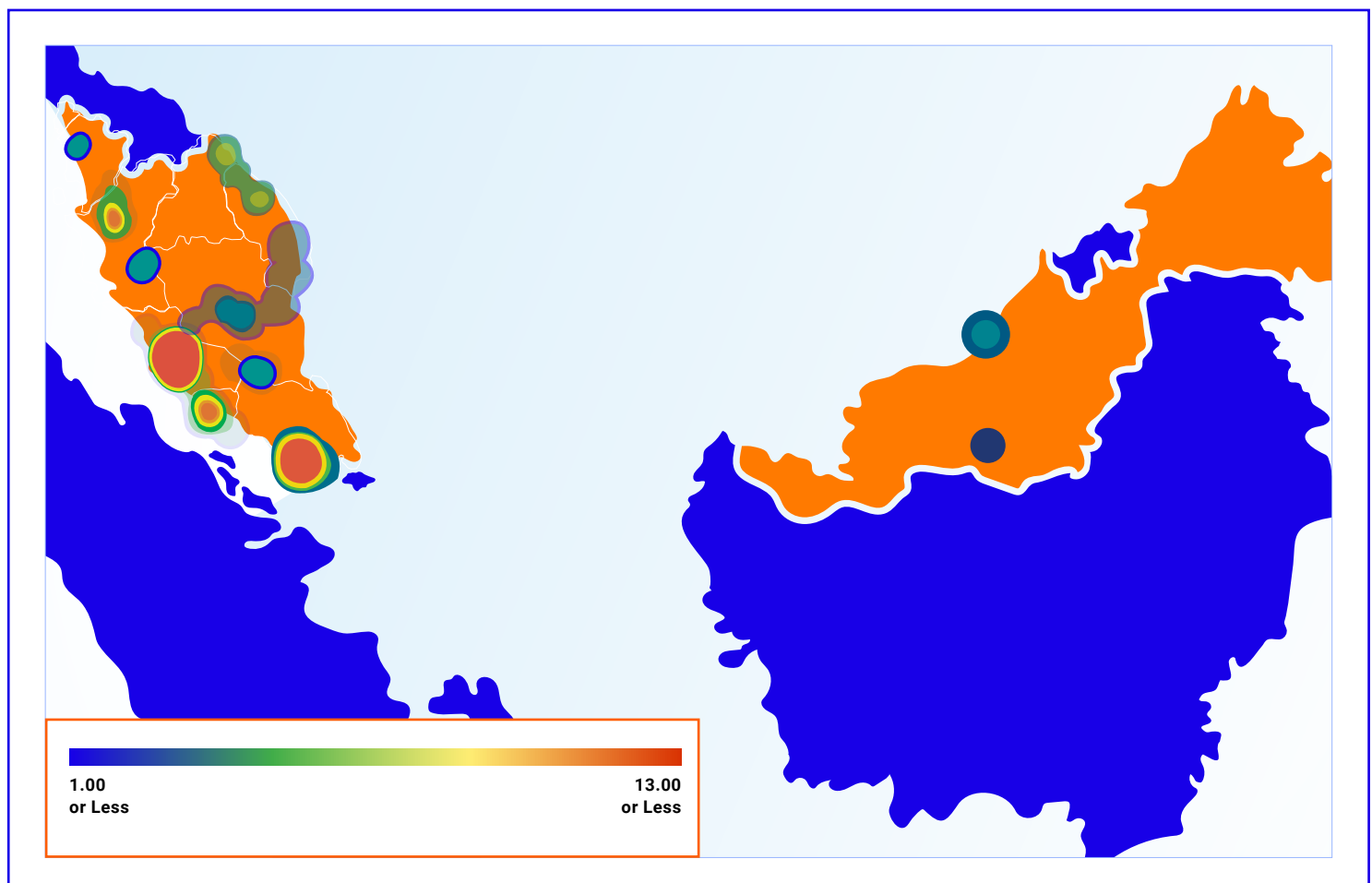


FIGURE 7: FLOOD RISK MAP AND DASHBOARD

The heatmap was generated based on more than 15,000 material assets across Malaysia to identify the concentration risk TM is exposed to and areas that are highly susceptible to flood risk based on the two different scenarios selected up to 2050 over the useful lifespan of the material assets. Based on the assessment conducted, it was identified that under the RCP 8.5 scenario, there would be up to a 70% increase in impact to asset value as a result of floods compared to the baseline scenario of RCP 4.5 based on the current distribution of material assets owned by TM.

In view of the risks posed by floods, TM has implemented several mitigation measures to minimise damage to our assets and disruption to our services. TM has in place modifications on susceptible equipment such as batteries and early warning signals for floods such as flood alarm systems at exchanges that are prone to floods to mitigate the impact of floods. This is primarily achieved through BCMS,

which encompasses a range of policies, procedures and practices aimed at minimising the impact of climate-related disasters on our operations and customer experience⁶. Additionally, from the analysis conducted and the insights from the flood heatmap, TM would be able to develop strategies to further mitigate these risks for high-risk exchanges or further divest from flood prone areas moving forward.

TABLE 4: TM'S PHYSICAL RISK EXPOSURE RATING BY STATE BASED ON A BASELINE SCENARIO OF RCP 4.5

STATE	RATING	STATE	RATING
Selangor	●	Sabah	●
Kelantan	●	Penang	●
Kuala Lumpur	●	Negeri Sembilan	●
Perak	●	Sarawak	●
Melaka	●	Terengganu	●
Johor	●	Kedah	●
Pahang	●	Perlis	●

- Low risk | Minimal impact to TM's financial and operations are expected
- Medium risk | Moderate impact to TM's financial and operations are expected
- High risk | Significant impact to TM's financial and operations are expected

Case Study:

Bukit Kemuning and Serdang

In 2021, Malaysia experienced heavy rainfall and floods across several states. A number of TM sites were affected by the flooding, impacting our physical assets and our ability to serve our customers. Following the floods, we have worked to improve our physical risk mitigation measures across key sites of operation, including our TM Exchange at Bukit Kemuning and Serdang.

Our exchange at Bukit Kemuning serves around 30,000 customers and was one of the most heavily affected TM sites during the 2021 floods, with equipment sustaining heavy damage as a result of floodwaters. To mitigate the impact of future floods, various measures have been implemented at the exchange. Foremost, we have relocated all major equipment to higher grounds, transferring assets from the ground floor to the first floor of the exchange building. We also intend to phase out copper and use a more temperature-resistant fibre material within our equipment, hence fortifying our equipment against potential fluctuations in temperature. Moreover, we have implemented relevant procedures to ensure the efficient resolution of potential disruptions to customer services.

At Serdang, we have Disaster Recovery Equipment (DRE) which is mobile and ready for deployment in case of a disaster or climate-related incident. The mobile DRE are capable of supporting up to 5,000 customers and is in ready state to ensure the equipment is at its optimum state and ready for mobilisation at any time. Further modifications to the DRE mobilisation strategy can be made depending on the severity of the crisis.



⁶ Refer to the Risk Management section of this report for further details on TM's BCMS.

The resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

By integrating sustainability into our strategy, TM can build our business resilience, create inclusive value for stakeholders, meet our nation-building agenda and contribute to solving global sustainability challenges.

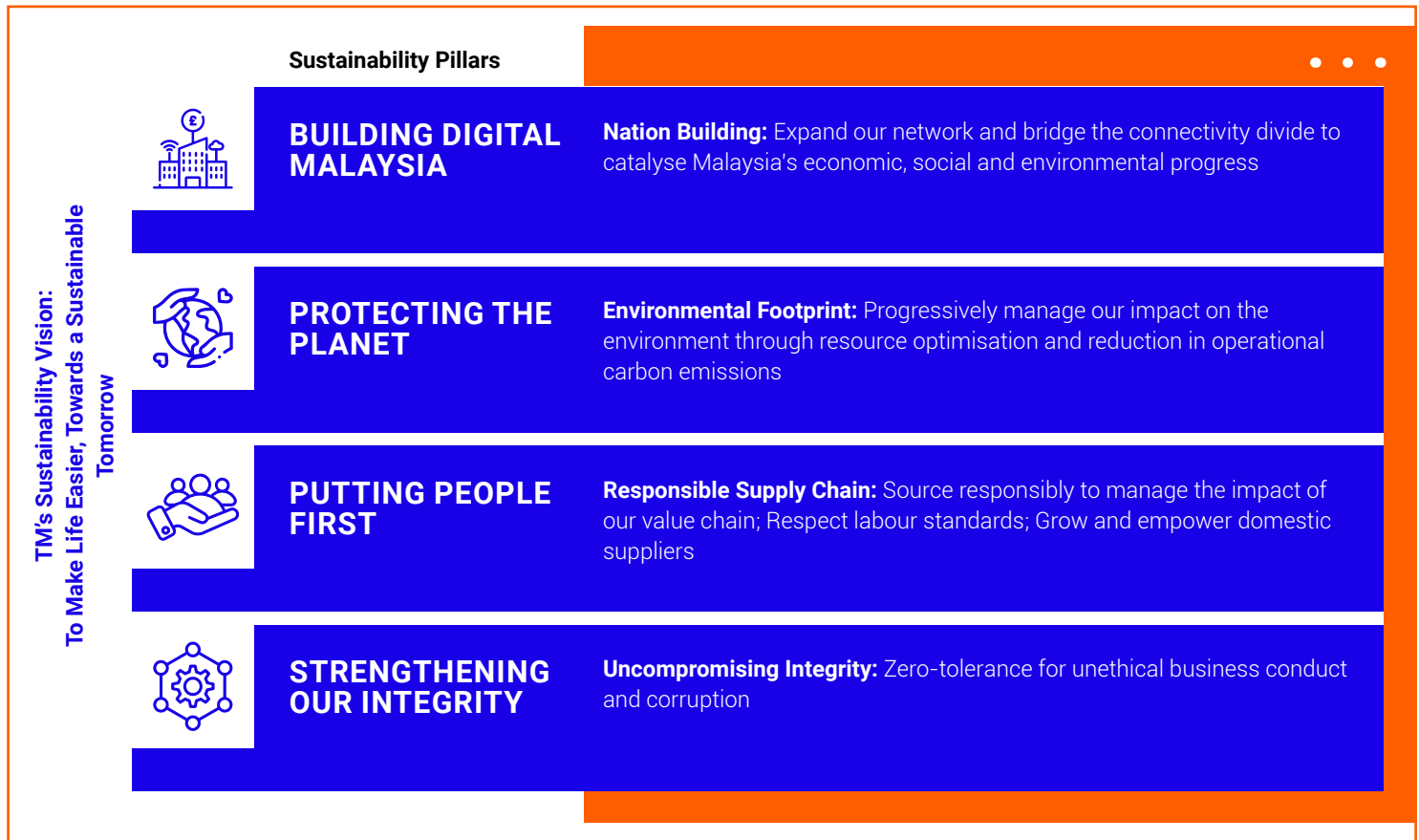







FIGURE 8: TM'S SUSTAINABILITY PILLARS

Following our engagement with relevant stakeholders across our business functions, the results of our latest scenario analysis provide us with key insights into building resilience in view of the potential worst-cast impacts of climate change. We also recognise the limitations of these scenarios as they provide only hypothetical futures with uncertainty in the magnitude and onset of these risks remaining. Our analysis demonstrates that our actions have led to strategic decisions that have made our organisation more resilient to climate-related risks.



		Current resilience	Future design	Strategic insights and future considerations
TRANSITION RISK	 <p>Carbon tax</p>	<p>TM has set long-term commitments to net zero emissions by 2050 with interim targets to track progress and integrate into business planning. These targets have led to the implementation of numerous initiatives that will reduce TM's carbon emissions and the severity of future carbon pricing policies. The initiatives include:</p> <ul style="list-style-type: none"> • Enterprise Energy Management System • Zero Capex Solar programme • GET purchasing from TNB • Tree planting program to begin carbon sequestration 	<p>Looking to the future, we are in the process of developing a net zero emissions strategy to provide a clear path forward and set future direction to enable achievement of our Net-zero target.</p> <p>As part of this, we aim to significantly expand the tracking of Scope 2 emissions to cover 100% of all TM operations nationwide in 2022.</p> <p>In addition, TM has joined Bursa Malaysia's Voluntary Carbon Market, and has participated in the launch of the Bursa Carbon Exchange in March 2023.</p> <p>The Bursa Carbon Exchange will provide TM with the opportunity to access the Malaysian carbon ecosystem and make purchases to offset our emissions footprint and meet our climate goals.</p>	<p>Further enhancement of our monitoring capability through strengthened business processes to capture more broadly carbon emissions and financial impacts on our operations.</p> <p>The development of climate action principles to unify the application of our day-to-day decisions across the organisation as they relate to our climate.</p>
	 <p>Energy demand</p>	<p>TM's heavy investment into expanding Malaysia's 5G ecosystem involves expansion of the network, with particular focus on data centres. Data centres are responsible for significant amounts of energy consumption. To continue the growth of the organisation while protecting against rising and volatile energy prices, a range of initiatives are underway to improve energy efficiencies and reduce consumption including:</p> <ul style="list-style-type: none"> • Network Equipment Shutdown • Energy Performance Contract (EPC) • Air conditioner replacement • LED lights • Energy Efficiency Optimisation (EEO) for Facilities & Network 	<p>TM is leveraging our relationships with suppliers and Mega-Partners to exchange ideas and adopt new technologies that support a more green and circular economy.</p>	<p>Further incorporate climate impacts in our financial and strategic plan. This initial climate assessment provides a basis to test the vulnerability of TM's financial and strategic plans to address any climate-related impacts.</p>
	 <p>Material cost</p>	<p>TM's strategic decision to phase out copper cables and convert them to fibre cables by 2026 has placed us in a strong position against rising copper prices. Copper prices are expected to rise in a low-carbon economy as their significant role in rechargeable batteries outstrips copper supply.</p> <p>Cost-savings are currently being realised and will likely continue through our improved operational efficiencies of diesel. Current initiatives have provided significant improvements:</p> <ul style="list-style-type: none"> • Vehicle Optimisation Programme • Smart Fleet Monitoring System • TM EZFleet (Car sharing) 	<p>TM stays ahead of rising environmental regulations and costs through regular review of internal policies to support transitioning to a low-carbon economy.</p>	<p>Continual tracking and monitoring of materials significant to TM's operations and most likely impacted by climate-change include lithium, steel, and diesel.</p> <p>Consideration of financial 'buffers' for climate-sensitive for long-term TM projects that use critical materials, to address potential project overruns due to material cost changes.</p>



<p style="writing-mode: vertical-rl; transform: rotate(180deg);">TRANSITION RISK</p>  <p>Consumer behaviour</p>	<p>TM is committed to conducting itself with the highest standards of ethics, integrity and transparency. Our quarterly communication with external stakeholders provides opportunity to share our ESG activities.</p> <p>TM has invested RM61.4 million into research and development to advance smart solutions.</p>	<p>TM continuously strives in product innovation to address environmental and social challenges in improving our competitive edge.</p>	<p>There are significant opportunities for TM to provide products that enable customers transition to a low-carbon economy. This includes our business-to-business customers that are also striving towards a low-carbon economy with net zero emissions by 2050 commitments.</p> <p>TM will continue to monitor and disclose climate-related risks and opportunities each year. Including improvements in the coverage and standard of climate scenario modelling.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">PHYSICAL RISK</p>  <p>Flood</p>	<p>As part of our strategy to improve our readiness in addressing physical climate change risks, TM has implemented a robust BCM programme to mitigate prolonged service outages. Within our BCM programme we have various initiatives and activities that further improve the effectiveness of our BCP and DRP including:</p> <ul style="list-style-type: none"> • Building network resiliency via system, physical redundancy and hardening by design • Ensuring all fire prevention, fire detection, firefighting and suppression system, warning systems and other relevant systems are in working condition • Transferring of risk via insurance programme to cushion the recovery costs • Integrating Disaster Simulation Drill exercises into our operations to test the joint readiness of TM and other members of the Malaysian Communications and Multimedia Commission's National Disaster Management Working Committee 	<p>TM continually reviews and amends the BCMS scope with respective leaders evaluating long-term considerations and non-disruptive threats as well as opportunities. This serves to improve our practice and implementation of our BCM programme.</p>	<p>Further enhance our resilience efforts through targeted efforts towards our assets with closer proximity to bodies of water using historically exhibited cases of flooding.</p>



RISK MANAGEMENT

Risk management refers to processes that enable the identification, analysis and management of risks. When assessing an organisation’s overall risk profile and management activity, users of climate-related financial disclosures seek to understand how climate-related risks are identified, assessed and managed, as well as whether such processes are integrated into existing risk management systems.

The organisation’s processes for identifying and assessing climate-related risks

At TM, our ERM system guides the identification, tracking and monitoring of climate-related risks – both physical and transition – across our business, operating through our ‘three lines of-defence’ risk management model against existing and emerging risks that impact our ability to generate value for our stakeholders. In accordance with our ERM framework, TM defines risks as encompassing both threats and opportunities. Our ERM framework covers a five-step process to establish context, assess, treat, record and report, and monitor and review risks in line with the international standard (ISO 31000:2018).

In addition to our ERM system, our management regularly reviews the context and impact of climate change through key action items:

- Regular evaluation of internal factors which necessitate long planning horizons to adapt to climate change. This includes an evaluation of products, devices, and supply chain activities, as well as any areas of business vulnerable to weather events.
- Identification of potential collaboration amongst stakeholders as well as emerging government requirements in relation to climate risk management.
- Regular reviews of the BCMS scope with respective leaders to identify and evaluate climate-related threats and opportunities across different time horizons.
- Periodic Sustainability materiality assessment that utilises feedback from stakeholder engagements to identify material matters and evaluate their magnitude and impact on TM's business strategy and performance.

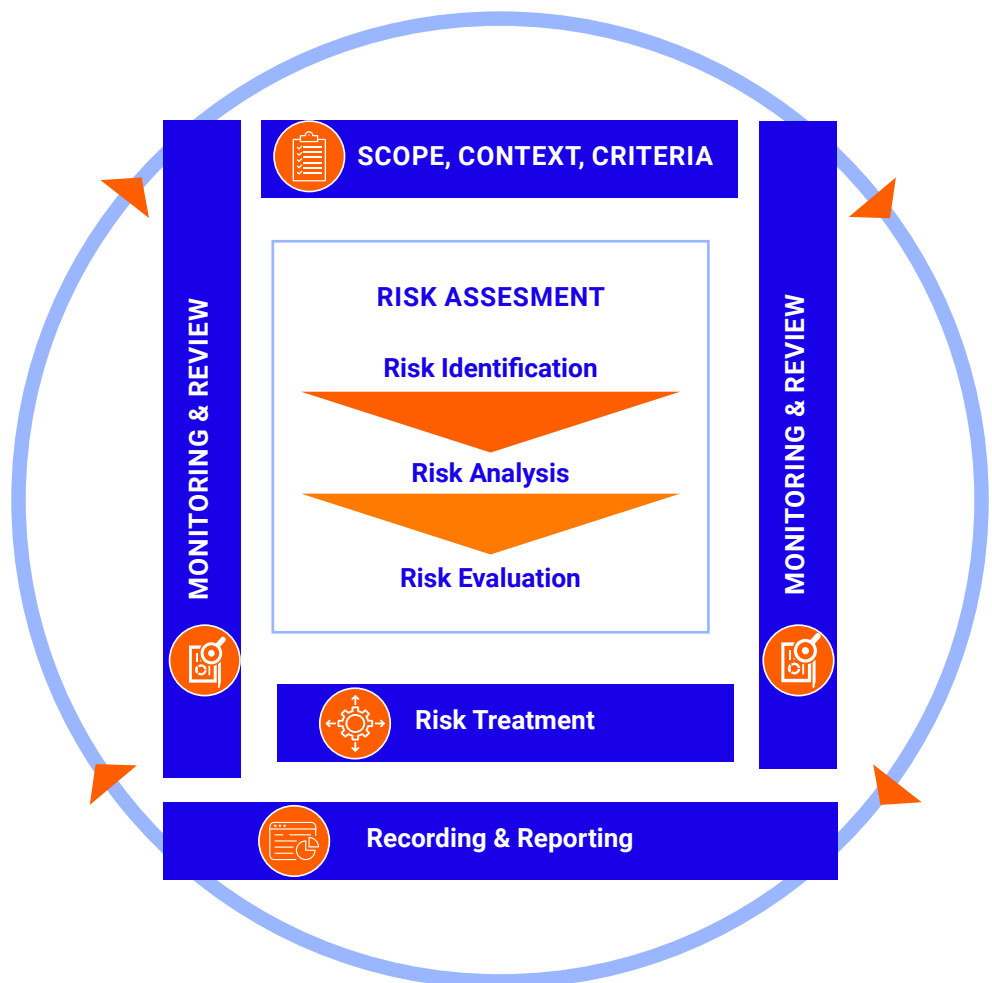


FIGURE 9: TM'S RISK MANAGEMENT PROCESS



In 2022, we have identified and prioritised our material physical and transition climate risks through scenario analysis, including projecting the financial and non-financial impacts across different time horizons. Moving forward, we intend to enhance our climate risk management processes by integrating our findings from our inaugural TCFD exercise.

The organisation's processes for managing climate-related risks

TM has established relevant working groups to manage identified climate-related risks, such as operational carbon emissions. We also prepare quarterly risk reports to the BRC on the management of corporate risks, which includes both transition and physical climate-related risks. The report entails several components, including documentation of risk trends, risk assessments, risk outlook, key controls, risk owners⁷, key risk indicators (KRI), key control indicators (KCI), and opportunities.

Furthermore, TM has operationalised an enterprise-wide BCMS to proactively address climate-related risks, particularly in terms of physical risks (Figure 10). This system aligns with ISO 22301:2019 and includes our Business Continuity Plan (BCP) and Disaster Recovery Plan (DRP), which encompasses various procedures and practices to respond to potential interruptions that may impact critical business functions. The system also critically enforces specified requirements across key divisions, Lines of Business (LOBs), States and Subsidiaries to minimise disruption and ensure a timely resolution of any issues that may arise during a crisis or disaster.

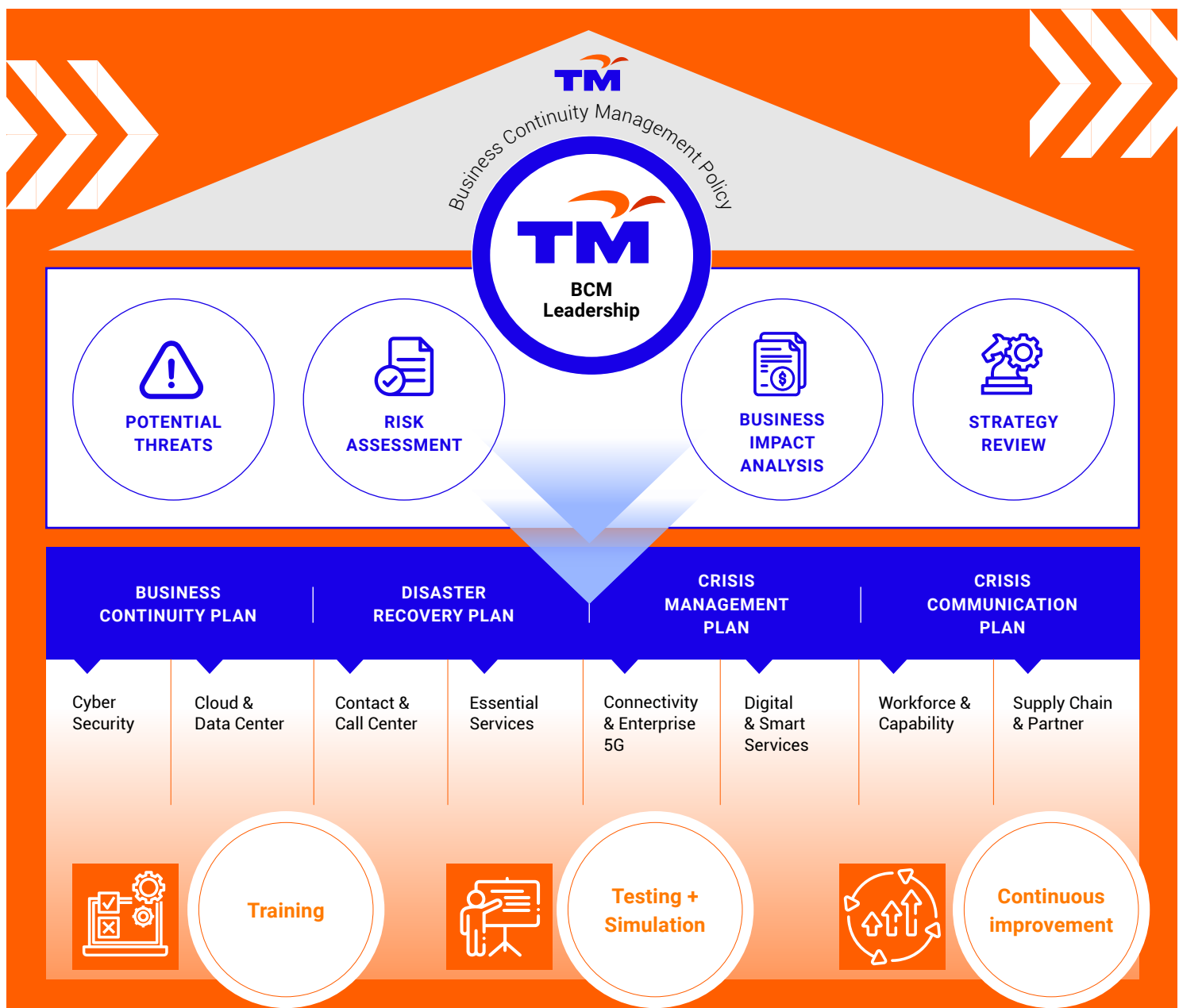


FIGURE 10: TM'S BCM FRAMEWORK

TM's BCMS also includes the following features.

- Implementation of BCP and DRP at TM Command Centres, thus minimising the impact of climate-related disasters on TM's operations and customers.
- Continuous assessment of potential disruption scenarios and incorporation of lessons learned from past incidents to ensure the adequacy of BCM controls and practices. This includes regular desktop exercises and physical drills.

⁷ GRM is the owner of climate-related risks in 2022

Processes for identifying, assessing, and managing climate-related risks are integrated into the organisation’s overall risk management

We are currently only partially compliant with the TCFD disclosure requirement to integrate the identification, assessment and management of climate-related risks into our overall risk management system. At present, sustainability represents one (1) of five (5) risk clusters at TM. Within sustainability, there are three (3) areas of focus: Economic, Environmental and Social. Climate changes and its related risks and opportunities are captured under the Environmental pillar (Figure 11).

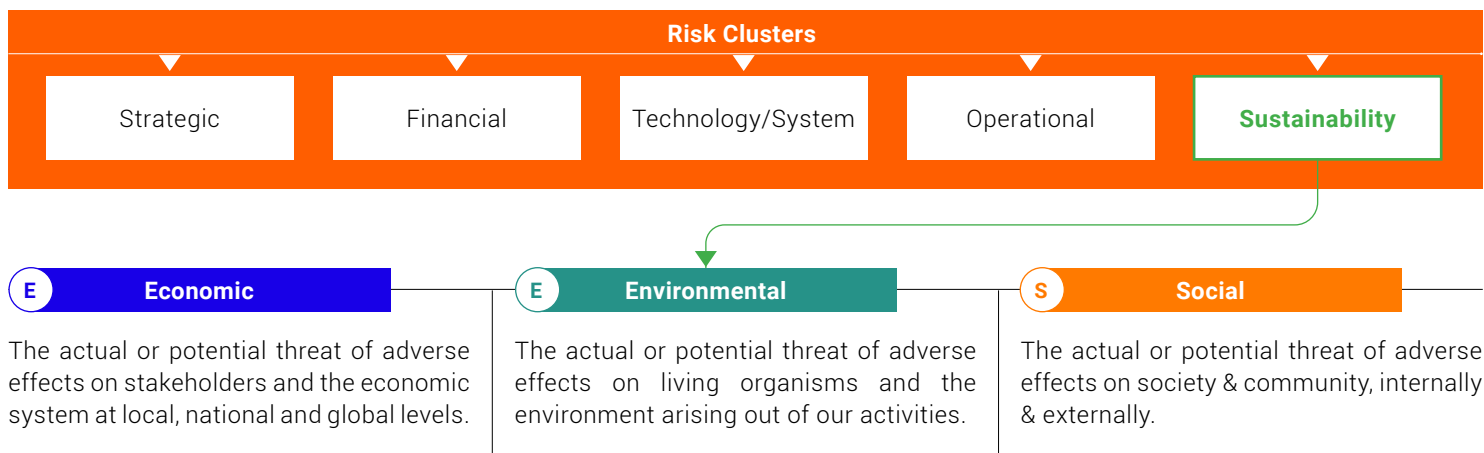


FIGURE 11: TM'S RISK CLUSTERS

In 2022, we commenced a review of our TM risk universe and conducted an ESG Risk mapping exercise to incorporate findings from our ESG report into current ERM processes.

In terms of improvement, we note the following areas which require further action for us to be fully compliant with this disclosure requirement:

- Climate-related risks are identified at the corporate level but have not been disseminated through the operational level.
- Climate-related risks at the operational level are not linked to risks identified at the corporate level.
- We currently do not have a risk appetite statement for climate-related risk.
- Our risk matrix does not include a measurement for sustainability impact.
- Further controls are required for each transition risk identified.

In the next phase of our TCFD journey, we plan to leverage findings from our inaugural TCFD exercise to fully integrate the identification, assessment and management climate-related risks into our risk management processes.

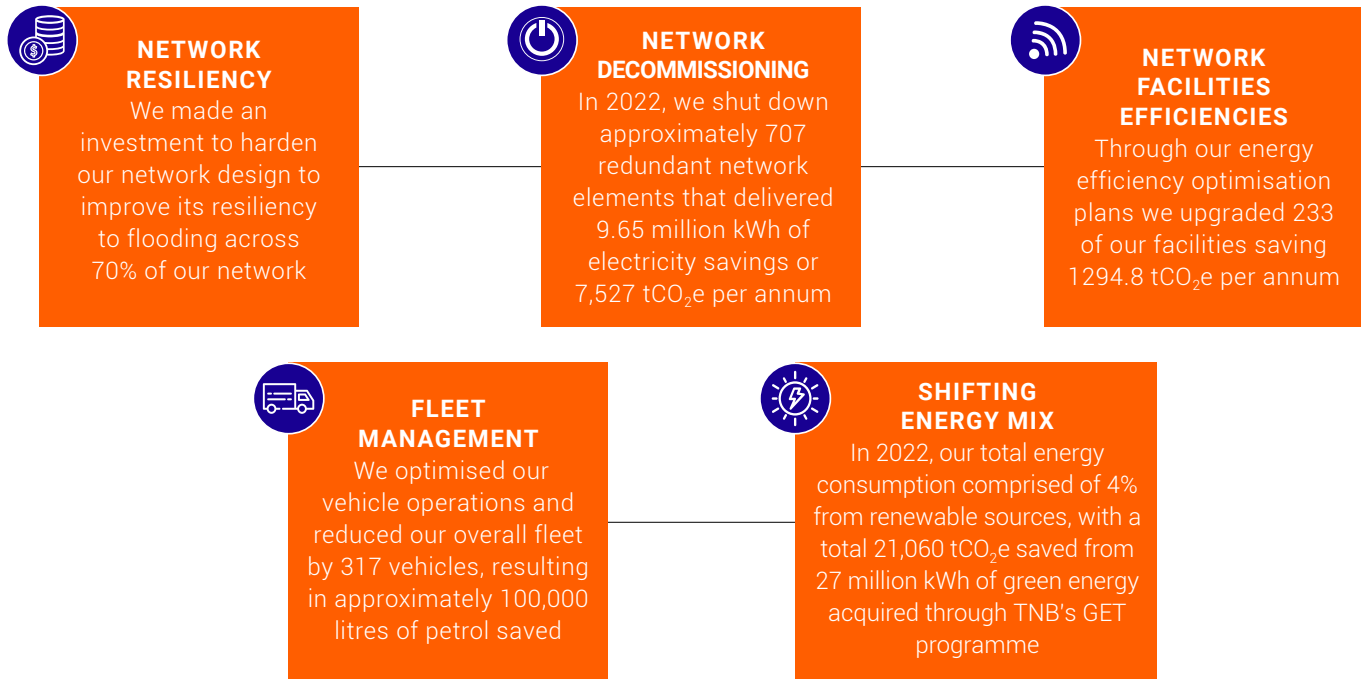
METRICS AND TARGETS

Metrics and targets are how an organisation measures and monitors its climate-related risks and opportunities.

Metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process

TM is committed to progressively minimising our operational emissions in line with keeping global temperatures within 1.5°C limits. Hence, climate-related metrics have been established to help us measure and monitor the most relevant parameters in shaping our collective action plan to address climate-related issues⁸.

In terms of the climate-related risks and opportunities we have identified, we have established relevant metrics to track our progress. These metrics presented below are assessed on a quarterly basis:



Scope 1, Scope 2 and Scope 3 greenhouse gas emissions, and the related risks

Our resilience towards a net zero future is embedded closely into our own operations and activities. We are committed in realising our nearest carbon emission reduction target, which is a 30% reduction in 2024 with a 12.45% overall emissions reduction in 2022, from 2019 baseline. These are realisable with a cumulative effort coming from, but not limited to, enhanced use of renewable energy, energy-saving initiatives and carbon offsetting efforts⁹.

With guidelines from GHG Protocol Corporate Accounting and Reporting Standard, the scope of our zero-carbon efforts is based on three (3) categories:

Scope 1: Direct Emissions from Vehicle Fleet¹⁰

We track the amount of fuel consumed by our vehicle fleet and convert them into the equivalent carbon emissions using IPCC Guidelines for National Greenhouse Gas Inventories, 2006.

Scope 2: Indirect Emissions from Electricity Consumption

We calculated our indirect emissions based on data collected from all TM assets in Peninsular Malaysia, with a goal to cover all assets nationwide from next year onwards. The carbon emissions are converted according to the CDM Electricity Baseline for Malaysia 2017 by the Malaysian Green Technology Corporation.

Scope 3: Indirect Emissions from Waste Production

Similar to electricity data, we currently collect waste generation data at eight (8) sites that have implemented an Environmental Management System (EMS). The data is converted into carbon emissions based on the IPCC Guidelines for National GHG Inventories, 2006.

⁸ For more information on metrics and targets related to our GHG emissions, refer to section 5.2.

⁹ Further information on TM's sustainability initiatives and performance can be found in our TM Integrated Annual Report 2022.

¹⁰ Data for genset has been calculated but is not currently reported for Scope 1 emissions as it is in the midst of verification.

Scope 3: Indirect Emissions from Air-Travel

Our air-travel emissions were determined through detailed tracking of employees' flight information, this includes distance flown, number of travellers and travel class. The International Civil Aviation Organization (ICAO) Carbon Emissions Calculator provides estimates to convert employee passenger distance travelled into total CO₂e released during the flight.

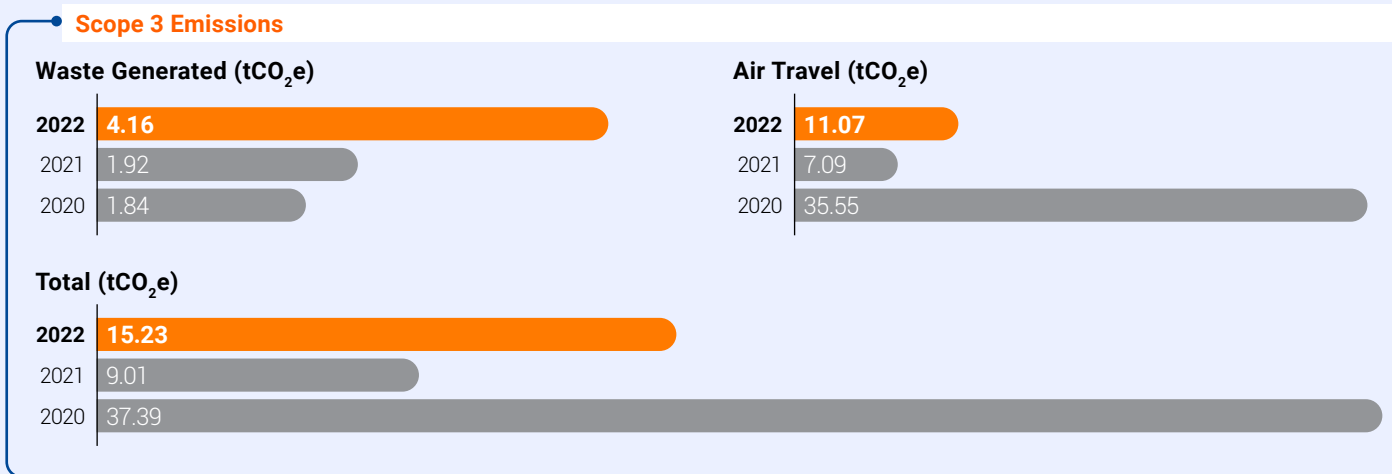
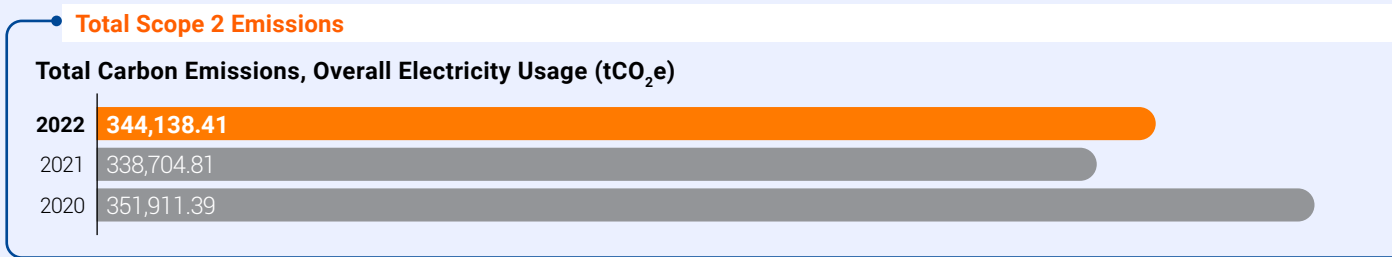
Currently, we are collecting data on Scope 1 and Scope 2 emissions, as well as aspects of our Scope 3 emissions. As our methodologies mature, we will address gaps in our emissions data, with the goal to collect and disclose the entirety of our Scope 1, 2 and 3 emissions. In order to reach our environmental targets, we have established several metrics to track our progress as summarised in Table 6.



METRICS	SCOPE	UNIT OF MEASUREMENT
Emissions		
Scope 1 Emissions	GHG emissions from petrol and diesel	tCO ₂ e
Scope 2 Emissions	Electricity consumption from TM operations	tCO ₂ e
Scope 3 Emissions	Indirect GHG emissions from TM's air travel and waste generation	tCO ₂ e
Petrol and Diesel		
Fuel consumption	All TM sites and operations	%
Decrease in emissions	All TM sites and operations	%
Total GHG emissions	All TM sites and operations	tCO ₂ e
Fuel consumption by vehicle fleet	All TM sites and operations	L
Energy		
Emissions from electricity	All TM sites and operations	tCO ₂ e
Energy consumption	All TM sites and operations	kWh
Waste		
Reduction in waste-generated emissions	All TM sites and operations	%
Emissions from waste generated	All TM sites and operations	tCO ₂ e
Air Travel		
Emissions from air travel	All TM sites and operations	tCO ₂ e

TABLE 6: TM'S ENVIRONMENTAL METRICS

Our latest emissions profile is summarised in Figure 12.



*Note: Although we have calculated our 2022 genset emissions as part of Scope 1, we are still verifying past genset data. Therefore, we only included vehicle fleet emissions to show our performance trend. We will verify the past year's data and include genset emissions in our total Scope 1 emissions in the future.

FIGURE 12: SCOPE 1, SCOPE 2, AND SCOPE 3 EMISSIONS (TCO₂E)

Targets used by the organisation to manage climate-related risks and opportunities and performance against targets

Within TM, sustainability considerations are integrated across our business and supported by our targets. We have set a range of ambitious sustainability targets to track our near-long-term sustainability performance, including an overall climate goal of becoming net zero emissions by 2050 (Table 7). In 2022, we have reduced our overall emissions by 4,755.53 tCO₂e, hence achieving a 12.45% carbon emissions reduction (from 2019 baseline). With this latest reduction in our carbon emissions, we are currently on track to achieve our 45% carbon emission reduction by 2030.

EMISSIONS TARGETS				
Overall target: Net zero emissions by 2050				
Interim targets:				
<ul style="list-style-type: none"> • 30% carbon emissions reduction by 2024 • 45% carbon emissions reduction by 2030 • Net zero emissions by 2050 				
AREAS OF EMISSIONS MANAGEMENT				
		Energy and fuel management We aim to progressively reduce our energy and fuel consumption (% reduction from 2019 baseline)	Renewable energy We aim to increase the proportion of renewable energy within our overall energy consumption (% increase from 2019 baseline)	Carbon offset We aim to increase the number of trees planted to offset our carbon emissions (Number of trees planted per tCO ₂ e)
Targets	Short-term (<5 years)	16%	14%	0%
	Medium-term (5-10 years)	20%	20%	5%
	Long-term (>10 years)	45%	45%	10%
Supporting Initiatives ¹¹	<ul style="list-style-type: none"> • Network Elements Shutdown • Energy Performance Contracting • Energy Efficiency Optimisation (EEO) • Cooling Unit Upgrading • Vehicle Optimisation • Smart Fleet Monitoring System • TM EZFleet • TM Fleet Electrification & EV Infrastructure 	<ul style="list-style-type: none"> • Green Energy Tariff (GET) 	<ul style="list-style-type: none"> • Tree Planting 	
2022 Target		9%	8%	7,000 trees
		Energy and fuel management We aim to progressively reduce our energy and fuel consumption (% reduction from 2019 baseline)	Renewable energy We aim to increase the proportion of renewable energy within our overall energy consumption (% increase from 2019 baseline)	Carbon offset We aim to increase the number of trees planted to offset our carbon emissions (Number of trees planted per tCO ₂ e)
Progress in 2022	Through our efforts, we managed to reduce our total Scope 1 Emissions by 1.77%.	The total Scope 2 GHG emissions for 2022 was reduced by 4.61% as we made efforts through the use of renewable energy.	We planted a total of 10,137 trees to contribute to the 100 million tree campaign and towards 10% carbon offset plan for net zero emissions by 2050 as per our ESG commitment.	

TABLE 7: TM'S ENVIRONMENTAL TARGETS

¹¹ Targets have been established for each initiative. Further information on these initiatives and their respective targets and progress can be found in our 2022 Integrated Annual Report.

NEXT STEPS

We are pleased to conclude our inaugural TCFD report for TM where we meet nine of the eleven (11) aspects of the four core elements recommended for disclosure. We recognise the progress we have made and the areas for improvement within our disclosures, particularly around integrating climate-related risk practices into our organisation's overall risk management and the deeper disclosure of Scope 3 GHG emissions.



Next steps in our TCFD journey

Having completed our first climate scenario analysis for four material transition risks and one physical risk, TM has a greater ability to identify areas for focus and mitigate our material risks further while leveraging on opportunities that support a low carbon transition.

We are committed to reviewing and updating our TCFD progress on an ongoing basis as we refine our financial assessments through climate scenario analysis. This will enable us to continually provide relevant and purposeful information to meet stakeholder expectations. We aspire to accelerate the achievement our climate ambitions and achieve full compliance with the TCFD recommendations by 2025 in line with Bursa Malaysia's reporting requirements. Some of our next actions include:



APPENDICES

Appendix 1: TCFD Recommendation Index

TCFD Pillars	Disclosure Recommendations	Page Numbers
Governance	Describe the Board's oversight of climate-related risks and opportunities	8
	Describe management's role in assessing and managing climate-related risks and opportunities	9
Strategy	Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term	10, 11
	Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning	12, 13, 14, 15
	Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	18, 19, 20
Risk Management	Describe the organisation's processes for identifying and assessing climate-related risks	21
	Describe the organisation's processes for managing climate-related risks	22
	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management	23
Metrics and Targets	Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process	24
	Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks	24, 25, 26
	Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets	27

Appendix 2: Climate Scenario Model Assumptions

Climate scenario inputs				Representative Concentration Pathway (RCP)	
Scenario	Business-As-Usual	Net Zero Emissions by 2050	Net Zero Emissions by 2050 (NZE)	RCP8.5	RCP4.5
Scenario input	Current Policies	WEO 2022	WEO 2022	IPCC	IPCC
Scenario provider	WEO 2022	NGFS 2.a GCAM5.3	WEO 2022	IPCC	IPCC
Narrative	Assumes current trends in emissions will continue with little or no action taken to mitigate climate change	Assumes significant action is taken to reduce emissions and limits global warming to 1.5 °C above pre-industrial levels	Assumes significant action is taken to reduce emissions and limits global warming to 1.5 °C above pre-industrial levels	Assumes low effort to curb emissions	Assumes moderate effort to curb emissions
Assumptions	<ul style="list-style-type: none"> - Reflects current and stated policies announced by government around the world - Provides benchmark of existing action and potential limitations 	<ul style="list-style-type: none"> - The 2015 Paris Agreement climate goal are not met - Increasing physical risks over the medium and long term 	<ul style="list-style-type: none"> - Relies only on emission reduction efforts from energy sector only - Universal access to electricity and clean cooking by 2030 - 50% probability to keep temperature rise below 1.5 °C - All countries co-operate towards achieving net zero emissions worldwide 	<ul style="list-style-type: none"> - No decline in CO2 or methane emissions - Reflects a business-as-usual scenario based on current trajectories in emissions growth assuming no government policies 	<ul style="list-style-type: none"> - Emissions peak around 2040 then decline - CO₂ emissions start declining by 2045 - Methane emissions stop increasing by 2050 and decline by approximately 75% compared to 2040 - Requires negative CO₂ emissions
Parameters					
Temperature	>2.5°C	<1.5°C	<1.5°C	>4°C	2-3°C
Emissions	31,979.1 MT CO ₂ in 2050	0 MT CO ₂ in 2050	0 MT CO ₂ in 2050	Continues to increase	Global peak in 2040
Sea level rise	-	-	-	0.63m of sea level rise	0.47m of sea level rise
Energy systems	Renewable energy comprises 29% of global energy supply in 2050	Renewable energy comprises 70% of global energy supply in 2050	Renewable energy comprises 59% of global energy supply in 2050	Dominated by fossil fuels, including coal and gas	Renewables with peaking gas
Technology	Convenience and security drive innovation and is constrained by low economic growth	Globalisation and improvement in living standards drive innovation in the digital world	Globalisation and improvement in living standards drive innovation in the digital world	No new technology	No new technology

Limitations: These scenarios include forward-looking data based on assumptions and information known by the scenario providers at the date of this report. The forward-looking statements contained within this report derived from these climate scenarios are provided as a general guide only and are not guarantees. TM believes the expectations reflected in these statements are reasonable as at the date of this report, but acknowledge they involve known and unknown risks, uncertainties and other factors, many of which are beyond the control of TM.

