

Task Force on Climate-related Financial Disclosures 2021



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Executive Summary

This is Fullerton Fund Management’s (“Fullerton”) first public report on our response to the recommendations of the Task Force on Climate-related Financial Disclosures (“TCFD”). The purpose of the report is to provide our stakeholders and clients with an understanding of how we are managing and mitigating climate-related risks to our business and investment portfolios, and the climate-related investment risks and opportunities we have identified.

Fullerton supports the TCFD recommendations because we know the importance of understanding and mitigating climate-related risks to our investments and corporate operations. We have a governance structure and risk management framework in place to monitor and manage our climate-related risks. To reflect our ESG strategy and procedures in this evolving environment, we started to conduct our first comprehensive climate risk scenario analysis in 2021. We understand climate change will have a far-reaching impact on our investments and our stakeholders are attaching more focus on Fullerton’s capability to mitigate climate related risks as a firm. Climate related risks are now embedded in our risk management processes and are regarded as material to our firm’s development. We have also identified metrics to monitor our progress in climate-related risk management and plan to evaluate the feasibility of setting carbon neutrality or Net Zero targets in the long term.

Here we summarise the key points in response to the TCFD recommendations.

TCFD Recommendations	Key Points
Governance: Disclose the organisation’s governance around climate-related risks and opportunities	
Describe the board’s oversight of climate-related risks and opportunities	<p>The Board reviews and approves Fullerton’s sustainability strategy on an annual basis and ensures sufficient resources are provided for implementation.</p> <p>The Board and a Board-level sub-committee, the Audit & Risk Committee, oversee climate related risk issues. ESG risks including climate risks are considered under the Enterprise Risk Management Framework approved by the Board.</p>
Describe management’s role in assessing and managing climate-related risks and opportunities	<p>The Executive Committee oversees the development and implementation of Fullerton’s sustainability strategy. In August 2022, an ESG Committee was established under the Executive Committee’s purview to manage and coordinate the implementation of ESG work matters across the firm.</p> <p>To ensure the effective implementation of our sustainability strategy, Fullerton reviews the relevant framework, policies, tools and metrics and ensures functional teams work collaboratively with clear responsibilities.</p>
Strategy: Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation’s businesses, strategy, and financial planning where such information is material	
Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term	Policy, legal, market, reputation, technology, acute and chronic risks are identified at both investment and corporate level.
Describe the impact of climate-related risks and opportunities on the organisation’s businesses, strategy, and financial planning	As an active asset manager, we believe that integrating climate-related factors in our research and analysis gives us a more thorough understanding of the climate-related risks and value drivers that may impact the companies we invest in. In turn, this is reflected in the investment performance of our portfolios.

	<p>We view climate change as an important component in product development, portfolio construction and investment processes. We also analyse the impact at the company level.</p> <p>At the corporate level, transition risks are likely to increase our operational cost in the short term and physical risks impact our contingency work plans in the long term.</p>
Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	Fullerton conducted its first climate risk scenario analysis exercise in 2021 to understand the risks and impacts on our business. The Appendix provides a detailed description of the methodology.
Risk Management: Disclose how the organisation identifies, assesses, and manages climate-related risks	
Describe the organisation's processes for identifying and assessing climate-related risks	Climate-related risk management is implemented through a '3 Lines of Defence' Model. The first line comprises the business units – investment teams and the Business Management teams – which manage the risks inherent in our day-to-day operations.
Describe the organisation's processes for managing climate-related risks.	The second line includes Risk Management and Compliance functions, to provide independent oversight of our investments and operations. The Risk Management team monitors the business' implementation of ESG policies, including challenging practices and decisions, where appropriate. Compliance team ensures that we are compliant with regulatory requirements.
Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	The third line is internal audit, which independently assesses the adequacy and effectiveness of internal controls and to provide assurance to Fullerton's Board of Directors and Executive Committee on the effectiveness of the internal controls.
Metrics and Targets: Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material	
Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process	The investment level metrics include the percentage of ESG-integrated Assets under Management (AUM), engagements on climate change, successful launches of our ESG Alpha Funds and the portfolio level carbon footprint. The corporate level metrics include our progress toward carbon neutrality, and reducing our carbon emission and carbon intensity as a firm.
Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks	<p>The total GHG emissions are 376.56 tCO₂e, 151.12 tCO₂e and 187.07 tCO₂e for 2019, 2020 and 2021 respectively. The detailed data of Scope 1, 2 and 3 are presented in Table 4.</p> <p>We attained the Climate Neutral Operations label for 2020 from South Pole and will continue to be climate neutral by offsetting corporate GHG emissions in 2021.</p>
Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets	We track the progress of metrics annually. From 2022, we plan to evaluate the feasibility of setting carbon neutrality or Net Zero target in the long term based on the results of our climate scenario analysis and the carbon footprint analysis.

We will continue to monitor and report on our progress regarding climate-related risk management. We plan to continue to explore evolving tools and constantly improve our strategy by incorporating best practices to better understand and mitigate climate-related impacts on our business and clients' investment portfolios.

Governance

The Board reviews and approves Fullerton's sustainability strategy on an annual basis and ensures sufficient resources are provided. The role of the Executive Committee is to oversee the implementation of the strategy in an efficient and effective way.

Board oversight

The Board reviews and approves Fullerton's sustainability strategy on an annual basis and ensures it is in line with the corporate strategy. The Board and Board sub-committee, the Audit & Risk Committee, oversee climate related issues and ensure that we are consistent in our plans. In 2021, ESG strategy, approach, progress and plans were discussed and reviewed by the Board, which included the risks and plans related to climate change. Key climate-related issues reported by the Head of ESG included the corporate level carbon neutrality plan, climate-related compliance requirement such as the MAS Guidelines on Environmental Risk Management for Asset Managers and our progress. ESG issues, including climate-related risks and opportunities, will be further considered in the reviewing and guiding of corporate strategy, annual budget planning, performance objectives of relevant directors and teams, stewardship and monitoring process.

Specific roles and responsibilities for overseeing and mitigating ESG risks are set at the Board level and Executive Committee level. The Board sub-committee Audit & Risk Committee is responsible for approving the Enterprise Risk Management Framework which includes ESG risk and related environmental risks. The Board ensures adequate and appropriate understanding, expertise, headcount, resources and tools for the efficient management of ESG factors in our business and clients' investment portfolios.

Role of management

The Executive Committee oversees the development and implementation of Fullerton's sustainability strategy. The Head of ESG updates the Executive Committee on the progress of the strategy implementation on a regular basis. To better manage and coordinate the implementation of ESG matters across the firm, an ESG Committee was established under the Executive Committee's purview in August 2022. The ESG Committee is composed of heads or representatives from the following teams – Risk Management, ESG, Investment, Legal and Compliance, Data Strategy and Management, Human Capital and Business Development. Climate-related issues are discussed in the ESG Committee's monthly meeting and reported to the Executive Committee and further to the Board.

Internal teams have been delegated with clear responsibilities and collaborate to implement our sustainability strategy. The Executive Committee is responsible for overseeing ESG integration into both investment and corporate processes. The Executive Committee reviews the effectiveness of ESG-related and environmental-related management framework, policies, tools and metrics. It makes appropriate revisions based on the internal and external changes. It also provides sufficient support for capacity building, innovation, raising awareness and knowledge sharing. We are considering integrating climate-related targets and indicators into incentive structures for relevant Executives and teams. The purpose is to ensure that all levels and functions have common understanding on the materiality of climate change and its impact on the company, and appropriate actions are taken accordingly.

The ESG team plays a critical role in developing ESG investment strategy and corporate sustainability initiatives. All members of the ESG team have a deep understanding and hands-on experience in ESG management. The team works closely with management to execute ESG strategy and assist in the implementation of ESG management procedures. It also provides relevant training to upgrade the firm's understanding on ESG and enhance ESG capability.

On ESG investment, the investment team is the owner of ESG integration and climate change is one of the most important considerations. Guidelines have been set up to incorporate climate change considerations into financial modelling and investment decisions. The Risk Management team independently oversees the implementation of ESG and climate risk related policies and monitors progress on a regular basis. The Legal and Compliance team monitors climate change related regulations, such as the Guidelines on Environmental Risk Management (“EnRM”) from the Monetary Authority of Singapore (“MAS”) and Sustainable Financial Disclosure Regulation (“SFDR”) from the European Union, as well as ensure that our processes and practices meet requirements. The Business Development team is responsible for client engagement on ESG matters and for communicating the firm’s ESG approach. The Marketing, Communications and RFP team promotes climate change knowledge, facilitates internal sharing within Fullerton and external communications of our progress to clients and the general public.

On corporate sustainability, the Business Management and Human Capital teams work together to direct the implementation of the company’s corporate sustainability plan. Relevant guidelines, trainings and tools are provided to all employees to reduce the environmental impact from our operations and climate data are recorded for analysis.

Exhibit 1: ESG governance structure of Fullerton



Strategy

Fullerton views tackling climate change as a key priority and it is one of the United Nations Sustainable Development Goals (“UN SDGs”) we support. Climate change is a systemic risk that may negatively affect the performance of our clients’ investments. We recognise the need to mitigate transition and physical risks in our investments to safeguard clients’ long-term financial interests, in a manner that is consistent with their investment objectives.

However, the impact of climate change goes beyond investment performance alone. Stakeholders’ expectations of our role in tackling climate change are increasing. More clients are aware of the climate change risks and are concerned about potential financial impact. To minimise risks and drive ESG alpha, clients are more inclined to invest with ESG considerations. They want to ensure how they are investing meets their core values and reflects their expectations. From the regulatory perspective, regulators from different jurisdictions are mandating climate change risk management and reporting, and introducing more detailed guidelines, in addition to principles.

In this regard, Fullerton has invested in internal capabilities to meet stakeholder demands and to provide the products and services to meet these changing demands.

Risks and opportunities identified and their impact

To set an effective strategy that carefully takes climate change into consideration, we must understand the risks and opportunities we are facing. There are two categories of risks – transition risks and physical risks. Transition risks are derived from the transitioning process to a lower-carbon economy, and this varies among countries, regions, industries, and development stages. Physical risks can be event driven or caused by longer-term shifts in climate patterns.

To formulate a targeted strategy, we looked into risks and opportunities at both the investment level and corporate level.

Investment level

The list of climate-related risks and opportunities to our investment management process and their impact can be seen in Table 1 below. Based on the analysis, there will be great impact on portfolio companies, which would in turn affect investment performance. Therefore, we see climate change as an important consideration in product development, portfolio construction and the investment process.



Table 1: Climate related risks and opportunities at the investment level

Risk type	Risks and opportunities description	Impact	Time horizon*	Financial impact	Mitigation strategy	
Transition	Policy and Legal	<ul style="list-style-type: none"> Mandate or requirements on climate related risks management and metrics reporting on investment level Carbon pricing mechanism on portfolio companies, which may impact their financial performance Regulations of products and services, especially funds taxonomy, marketing materials, process management and information disclosure 	<ul style="list-style-type: none"> Increased data and operational costs to meet requirements Increased specialised ESG compliance headcount and cost Increased cost due to compliance with regulations and additional fund/ investment relating to carbon assets of portfolio companies Possible asset write-offs of portfolio companies 	Short term	High	<ul style="list-style-type: none"> Subscribe to a specialised carbon data provider for company level analysis in portfolios Start reporting on portfolio level scope 1 and scope 2 carbon emissions intensity. Hire consultants to help us understand how to comply with regulations where appropriate Conduct internal ESG analysis and engagement to enable Fullerton to be more informed about the risks that portfolio companies face Incorporate carbon cost into our company financial models for the jurisdictions with high carbon compliance costs
	Market and Reputation	<ul style="list-style-type: none"> Stakeholders' concern on the systemic risks related to climate change on investment products and services Stakeholders' preference for greener products and services with transparent disclosure 	<ul style="list-style-type: none"> Decreased demand for products and services not considering climate change risks 	Short term	High	<ul style="list-style-type: none"> Make our investment products more transparent by providing sufficient ESG reporting Enhance our ESG integration approach to avoid 'greenwashing' Develop and launch ESG products to meet shifting appetites Extend the engagements with portfolio companies to disclose and manage climate related risks
	Technology	<ul style="list-style-type: none"> Portfolio companies' use of more energy efficient technologies Portfolio companies' shift towards use of renewable energy Portfolio companies' shift towards more sustainable product mix 	<ul style="list-style-type: none"> Reduced operating costs from portfolio companies due to energy saving and self-generated renewable power Better competitive position in the market and increasing revenue of portfolio companies 	Short term	High	<ul style="list-style-type: none"> Subscribe to specialised ESG datasets for impact and enhance ESG integration across portfolios to understand the financial impact from technological and innovation perspective Develop and launch specialised ESG funds on technology utilisation and innovation Seek out leaders in the low carbon transition space by conducting company level ESG analysis and engagement, as well as ESG thematic research

Physical	Acute	<ul style="list-style-type: none"> Increased occurrence of extreme weather events 	<ul style="list-style-type: none"> Disrupt operations of portfolio companies 	Short-to-medium term	Medium	<ul style="list-style-type: none"> Engage with portfolio companies on climate risk scenario analysis and relevant plans
	Chronic	<ul style="list-style-type: none"> Longer-term shifts in climate patterns such as rising temperatures Rising sea levels 	<ul style="list-style-type: none"> Disrupted access to water and food and thus affecting employee health and productivity of portfolio companies Possibility of choosing new locations for business operation of portfolio companies 	Long term	Low	<ul style="list-style-type: none"> Engage with portfolio companies on climate risk scenario analysis and relevant plans

* Short term - within five years; medium term - five to ten years; long term - more than ten years.

From our analysis of the risks and impact, we further identified the exact impact on each of the portfolio companies to assist in our investment decisions. We have already started to integrate ESG considerations, especially climate change impact in our valuation models, based on our in-depth assessment and engagement with companies. Some examples of our integration analysis are shown below.



A refining and marketing company

The company has a carbon intensive downstream business and faces high climate related risks, especially transition risks. We assessed its energy transition plan, especially for green technology investment and replacement of fossil fuel-based energy. We found that the company is amongst the few energy companies who have committed to a full energy transition and the company expects that over the next 30 years it will stop selling fossil fuels and will replace them with other forms of energy like solar and hydrogen. We believe the capital expenditure on green energy over the next 10 years is expected to create great value in new businesses for the company. Therefore, we expect higher capital expenditure and have assigned a lower multiple to its refining business.



A cement company

As the cement industry is among the high carbon emitters, the company faces great pressure on carbon reduction expectations. Carbon emission and capital allocation are among the most material issues to understand its transition roadmap to low-carbon production. We assessed the requirements and plans at the nation and industry levels, as well as market expectation, to estimate potential transition efforts needed for the company. The efforts include equipment and technical transformation, efficiency improvement, alternative energy use and renewable energy investment. We expect higher production cost and higher capital expenditure, as all efforts need high levels of investment.



An exploration and production company

The company has high carbon-related risks on their upstream portfolio. We assessed its risk exposure and transition plan on the core business, such as reduction in oil sand exposure, net zero gas flaring targets and low carbon business for potential financial impact. We think the impact of the company's decarbonisation roadmap is neutral on revenue in the near term but negative in the long term. Also, the efforts to reduce gas flaring and methane leakage through improving equipment will put some pressure on cost. Low carbon business spending also has lower internal rate of return compared to traditional oil and gas projects. Therefore, we expect lower returns and impact from the carbon tax.

Corporate level

The list of climate-related risks and opportunities to our operation and their impact can be seen in Table 2 below. Overall, transition risks are likely to increase our operational cost in the short term and physical risks impact our contingency work plans in the long term.

Table 2: Climate related risks and opportunities at the corporate level

Risk type	Risks and opportunities description	Impact	Time horizon*	Financial impact	Mitigation strategy	
Transition	Policy and Legal	<ul style="list-style-type: none"> Mandate or requirements on climate related risks management and metrics reporting at the corporate level Regulations of fund management 	<ul style="list-style-type: none"> Increased data and operational costs to meet requirements Increased specialised ESG compliance headcount and cost Possible asset write-offs Possible accelerating retirement of existing funds 	Short term	High	<ul style="list-style-type: none"> Internal corporate level climate reporting started since 2020 and will be published publicly in 2022 Keep abreast of ESG fund regulation and be part of Singapore industry consultations to reflect our suggestions and get better understanding of the regulations Hire consultants to help us understand how to comply with regulations where appropriate Explore datasets needed to comply with regulations
	Market and Reputation	<ul style="list-style-type: none"> Stakeholders' concern on the climate change impact on operations Stakeholders' willingness on collaborating with greener institutions with high environmental awareness and ethical standards 	<ul style="list-style-type: none"> Decreased Asset under management ("AUM") if we fail to assure stakeholders on our climate related commitment and ability to mitigate climate change risks 	Short term	High	<ul style="list-style-type: none"> Set action plan to reduce carbon footprint on operation level Have offset operational GHG emissions and obtained South Pole's carbon neutral label for 2020
	Technology	<ul style="list-style-type: none"> Use of more energy efficient technologies Use of low-carbon economy technologies 	<ul style="list-style-type: none"> Reduced operating costs on energy use Reduced need for travel and relevant expenses 	Short term	Medium	<ul style="list-style-type: none"> Encourage technologies, equipment and behaviour with low carbon emissions Use virtual meeting platforms and tools and actively monitor and reduce need for travel
Physical	Acute	<ul style="list-style-type: none"> Increased occurrence of extreme weather events 	<ul style="list-style-type: none"> Disrupted internet connectivity due to damage on infrastructure Diminished ability for employees to work if offices, residences or transportation are hit 	Short-to-medium term	Medium	<ul style="list-style-type: none"> Design remote working contingency plan
	Chronic	<ul style="list-style-type: none"> Longer-term shifts in climate patterns such as rising temperatures Rising sea levels 	<ul style="list-style-type: none"> Affect access to water and food and thus affecting employee health and productivity Possibility of choosing new office locations 	Long term	Low	<ul style="list-style-type: none"> Conduct risk assessment for choosing office location

* Short term - within five years; medium term - five to ten years; long term - more than ten years.

We monitor the latest regulatory requirements on environmental related issues on an on-going basis. We have already subscribed to a database for environmental risks analysis to prepare for the regulations ahead. At the operational level, we purchased carbon credits to offset our carbon emissions. For example, we purchased carbon credits funding Huoshui Small Hydropower, located in China, to offset the carbon emissions for 2020. Funding goes into building 88 small hydropower plants in Huoshui's mountainous areas.

Scenario analysis and resilience

Scenario analysis

As TCFD's framework suggests, "scenario analysis allows a company to understand the risks and uncertainties it may face under different hypothetical futures and how those conditions may affect its performance, thus contributing to the development of greater strategy resilience and flexibility". We see scenario analysis as a basis for strategy setting and adjustment.

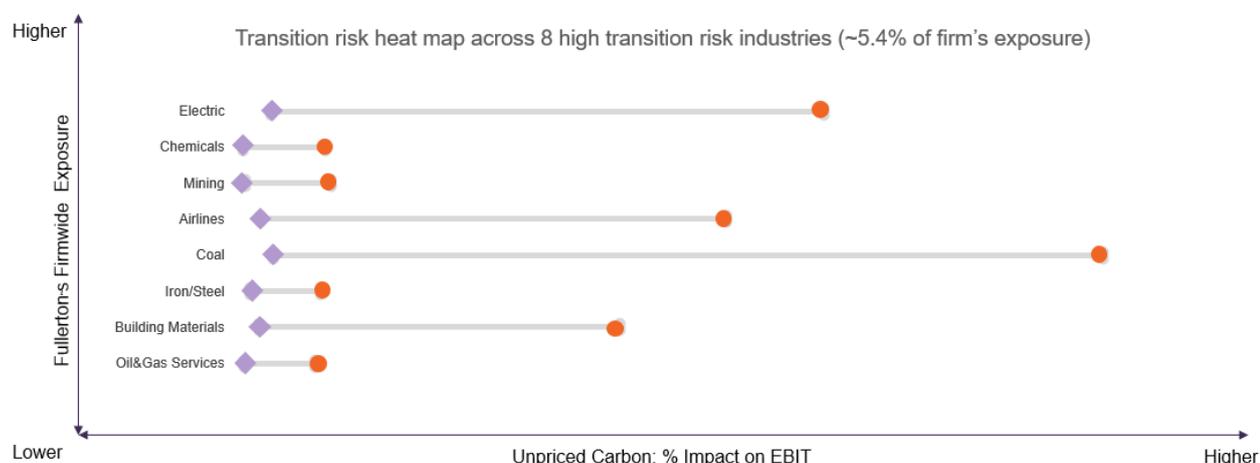
After conducting analysis on the impact of climate related risks and opportunities, we found that though physical risks are important in the long run, transition risks are more likely to have a significant impact on our portfolio companies, and therefore more likely to affect our firm in the short to medium term. We have thus decided to focus on quantifiable transition risks in the scenario analysis. Out of all the transition risks, we chose to focus on policy based on carbon price as these are quantifiable via countries' nationally determined contributions (NDCs). Market, reputation and technology are hard to quantify and to predict the impact, as there are many moving factors.

In our first climate change scenario analysis, we chose to use Carbon Value at Risk. Our data vendor uses patented data to derive company-level analysis and it models the effects of climate costs passed through to consumers on equity value impact. Impact is measured through exposure, sensitivity and adaptive capacity.

We selected two scenarios for our analysis. The first scenario is based on a full implementation of only country NDCs, based on research by the Organisation for Economic Co-operation and Development ("OECD") and the International Energy Agency ("IEA"). We believe that although it is not aligned with the Paris Agreement's goal of limiting global warming to well below 2 degrees Celsius, preferably to 1.5 degrees Celsius, compared to pre-industrial levels, it is the most realistic in the short term. The second scenario is based on the expectation of achievement of the Paris Agreement target, but with action delayed in the short term. We would like to see this scenario in the medium-to-long term as we expect progress after COP26 in Glasgow in 2021.

We chose a representative universe for our portfolios and identified eight industries with the highest transition risks, namely electric utilities (power generation), chemicals, mining, airlines, coal, iron / steel, building materials (cement) and oil & gas services. These industries comprise 5.4% of firmwide holdings as of 31 December 2021.

Exhibit 2: Transition risk heat map across eight high risk industries



Short term risk with Low Scenario(2025): Full implementation of country NDCs (but won't meet Paris Agreement).

Long term risk with Medium Scenario (2050): Policies are implemented to reduce emissions in line with the 2 degree by 2100 target (the Paris Agreement)

* 4 of other industries also have unpriced carbon cost > 4% of EBIT in 2025 but are relatively insignificant in terms of portfolio weight (<0.1%)

For more detailed process and approach of climate risk scenario analysis and key conclusions, please refer to the Appendix.

We have started to incorporate the results in the valuation process for some of our asset classes since 2021 with special emphasis on the eight industries mentioned above. We will review and update the results of the scenario analysis and continuously improve the way we incorporate the results in strategy and financial planning in the coming years, with emphasis on climate-related financial impact on investment strategy. The updates to the scenario analysis and incorporation are reviewed by the Board.

Resilience and follow up actions

To assess risks more comprehensively and to identify opportunities for alpha generation, we adopt an ESG integration approach in our investment process. For each portfolio company, the investment team determines material issues based on our proprietary framework and our understanding of the industry and the company. The team continuously tracks and measures the ESG progress made by portfolio companies according to publicly disclosed information and learnings from engagements. The analysis is integrated to financial models and portfolio construction to reflect our consideration of ESG factors. We also hope to effect positive change and influence among the portfolio companies by doing so. Specifically, we will share the trends we observe and industry best practices with the companies during the engagement process and ask if they have clear transition plan. We also ask about portfolio companies' consideration on the balance of economic returns and transition journey and request that they disclose their progress. We are pleased to see that some companies have disclosed their targets and transition roadmap and released relevant reports on their progress.

To enhance our ESG integration capabilities and improve our resilience, we are focusing on five key areas on an on-going basis.

Focus	Objective	Actions
Investment Research	<ul style="list-style-type: none"> Provide climate related research and data across all asset classes Investment integration of potential impacts to investment decisions 	<ul style="list-style-type: none"> Carbon data Climate change metric inputs into valuations ESG Thematic Research
Active Ownership	<ul style="list-style-type: none"> Understand portfolio companies' exposure and management of climate change issues Encourage disclosure and better climate change risk management 	<ul style="list-style-type: none"> Regular engagement with companies on climate change including collaborative engagement with AIGCC and Climate Action 100+ Conducted >100 company engagements in 2021
Portfolio Construction	<ul style="list-style-type: none"> Understand climate risk reward trade off and incorporate climate change risks in portfolio construction 	<ul style="list-style-type: none"> Portfolio level carbon footprint
Industry Collaboration	<ul style="list-style-type: none"> Collaborate with industry associations and participate in industry initiatives 	<ul style="list-style-type: none"> Founding member of Singapore Green Finance Centre Member of AIGCC & Climate Action 100+
ESG Reporting and Disclosure	<ul style="list-style-type: none"> Transparent disclosure to clients and regulators 	<ul style="list-style-type: none"> ESG client reports made available (including carbon intensity metrics) TCFD report



Investment research

We aim to provide climate-related research and data across all asset classes to help integrate potential impact to investment decisions. To do so, we will further take carbon data into consideration and incorporate climate change metrics into valuations. We have already included climate related metrics, such as carbon emission of our own operations and products and services, resilience, resource use, biodiversity and ESG integration of financials, into our internal ESG rating system. We plan to incorporate the risk analysis into financial modelling. We will also do ESG thematic research to explore investment opportunities.



Active ownership

We aim to understand portfolio companies' exposure and management of climate change issues as well as encourage disclosure and better climate change risk management. Therefore, we will continue to conduct regular engagement with companies on climate change, either on our own or in collaboration with other asset managers, initiatives or groups. We have urged companies to evaluate climate risks and impact using the TCFD framework whenever applicable. We have also discussed with companies about their plans to mitigate climate risks and to identify opportunities. More emphasis will be put on the companies within the eight high transition risk industries identified in the section "Scenario Analysis" of this report.



Portfolio construction

We aim to understand climate risk reward trade-offs and incorporate climate change risks in portfolio construction. We will continue to calculate portfolio level carbon footprints and monitor the trends. We will also further analyse the performance compared with the benchmark and monitor the changes in market preference. More explicit rules will be set for funds that promote environmental or social characteristics.



Industry collaboration

We aim to collaborate with industry associations and participate in industry initiatives. We are a founding member of the Singapore Green Finance Centre and a member of Asia Investor Group on Climate Change (AIGCC) and Climate Action 100+ (CA 100+). We are the co-lead investor and collaborative investor for two China coal-based diversified energy providers with CA 100+.



ESG reporting and disclosure

We aim to be transparent in disclosing climate related information to regulators and clients. We are in adherence to the Guidelines of EnRM from MAS and this is the first publication of our TCFD report, starting from 2022. ESG client reports including carbon intensity metrics are made available to clients upon request.

Risk Management

Climate change risks are monitored as part of our risk management strategy and process. There are three lines of defence in our risk management approach. The first line is the business units – Investment teams and the Business Management teams – which evaluate and manage the risks and opportunities inherent in our day-to-day business. In the second line, the Risk Management team independently oversees the implementation of ESG and climate risk related policies, including challenging practices and decisions, and monitors progress on a regular basis. The Compliance team ensures that Fullerton is in compliant with regulatory requirements at both the investment and corporate level. The third line is internal audit, which independently assesses adequacy and effectiveness of internal controls and to provide assurance to Fullerton’s Board of Directors and Executive Committee on the effectiveness of the internal controls. It also assesses the robustness of the risk management framework in managing ESG and environmental related risks, to ensure that relevant risks are properly controlled within an acceptable level.

For climate change risks at the investment level, the investment teams are the owners of identifying potential risks with support from the ESG team. We rate all the securities in our Funds with an ESG rating using our proprietary framework applied across our investment universe. As part of the fundamental research process, we assess companies’ exposure to material ESG issues, including climate change related issues. We assign each investee company an ESG rating that reflects the degree to which these ESG issues are managed by the investee company. Third-party data resource and analysis tools are provided to help the investment teams to consistently assess all the ESG issues that are material to the companies that Fullerton invests in.

The rating process is supplemented with active engagement with select companies in the portfolio. The aim is to influence corporate behaviour in the management of their material ESG issues, particularly where improvements in policies, practices and disclosure are expected to enhance and protect shareholder value. Prioritisation of engagement is based on the materiality of the issues identified through ESG research. In particular, we hold the view that climate change represents a systemic risk, and we engage with companies to improve their management of climate risk and to report under the TCFD guidelines. For instance, if an investee company agrees to report under the TCFD guidelines, we could reflect this positive development by upgrading the ESG rating assigned to the company. For the investment in Asian markets, where the energy mix is heavily tilted to fossil fuels (including thermal coal), we also engage systematically with portfolio companies with a significant involvement in the production and/or use of thermal coal (i.e., companies with a revenue or ownership exposure equal or above a certain threshold). We expect these companies to define, implement and disclose credible plans to transition to less carbon intensive business models in alignment with their country of operation’s climate reduction targets.

Portfolio limits are applied on securities with low rated ESG scores, which are calibrated based on the level of the score. These rules are designed to limit the exposure of the fund to companies with a high level of ESG risk and to exclude companies with severe ESG risk. Risk Management team monitors these exposures on a regular basis and provides reports to the Risk & Compliance Committee and the Board level Audit and Risk Committee, periodically.

Fullerton’s ESG policies and procedures mentioned above are embedded in the overall investment management process and are audited by our internal auditor, with effect from 2021.

For climate change risks at the corporate level, the ESG team, Compliance team and Risk Management team work collaboratively to monitor the latest regulatory requirements on the management and reporting of ESG and environmental risks. They also make joint efforts to ensure relevant procedures and approaches are adopted to meet the requirements. Material environmental risks will be raised to the Executive Committee for discussion and review if necessary. For market and reputation, technology and physical risks, ESG team and Business Management teams work together to monitor the carbon footprint at the operational level and will design action plans to meet the stakeholders’ expectations.

Metrics & Targets

Based on our ESG strategies and plans, we use several metrics to measure our progress in managing climate change risks, and we will set annual targets for these metrics. From 2022, we plan to evaluate the feasibility of setting carbon neutral or Net Zero targets in the long term based on the results of our climate scenario analysis and the carbon footprint analysis.

Investment level

At the investment level, we continuously enhance our ESG integration and stewardship. The metrics and targets are shown below.

Table 3: Metrics for climate change risk management on investment level

Metrics	Achievements in 2021	2022 Target
ESG integrated AUM	Cover Equity and Fixed Income portfolios	Cover all public market asset classes by end of 2022
Engagements on climate change	At least three companies per analyst per year was required Achieved engagement with around 100 companies on the discussion of climate change	At least five companies per analyst per year is required Expected to engage with more companies
ESG Alpha Funds	One	Four, including Equity and Fixed Income portfolios
Portfolio level carbon footprint	Five Luxembourg UCITS funds and selected client portfolios	All portfolios

ESG integrated AUM

refers to the portfolios adopting ESG integration approach as mentioned in the Risk Management section.

Engagements on climate change

refer to the engagements with at least one question involving climate change issues with investee companies.

ESG Alpha Funds

refer to the funds that aim to generate long term positive returns by investing primarily in companies with high or improving ESG characteristics or contributing to environmental or social objectives.

Portfolio level carbon footprint

refers to the weighted-average carbon intensity (WACI, tCO₂e/ mm USD), which is calculated by summing the product of each company's weight in the portfolio or loan book with that company's carbon-to-revenue intensity. We also measure the percentage of portfolio companies within the carbon intensive sectors.

Corporate level

At the corporate level, we aim to be carbon neutral in our operations. We have already attained the Climate Neutral Operations label for 2020 from South Pole. We will continue to be climate neutral by offsetting our carbon emissions in 2021.

We have accounted for our carbon emissions on operations since 2019 and have tracked the changes to identify potential areas for improvements. Relevant methodology and emission factors are used in line with the GHG Protocol¹. We have no Scope 1 emissions since we do not control operational management and maintenance on air conditioning and refrigeration system in office buildings, and there is no top up of refrigerant on our end and no company vehicles. For Scope 2 emissions (indirect emissions from the generation of purchased electricity and cooling consumed by the company), we have seen a reduction from 2019 to 2020, but the emission levels had remained largely unchanged from 2020 to 2021.

For Scope 3 emissions (all other indirect emissions that occur in a company's value chain), we cover fuel and energy-related activities, business travel and employee commuting currently as relevant data becomes more reliable with a more mature accounting methodology. Business travel had dipped significantly from 2019 to 2020 and there was a slight bounce in 2021. We understand it is mainly due to the COVID-19 pandemic and the various mobility restrictions and quarantine policies that were in place. Employee commuting had recovered to the 2019 level in 2021, after a significant decrease in 2020, partially because employees started returning to office in 2021 and partially due to the expansion of employee numbers. We have also reviewed other relevant Scope 3 categories, including purchased goods and services, capital goods and waste generated. We plan to review these data and calculating methodology in more detail to provide more credible and meaningful information in the next few years. We also plan to disclose our progress on more metrics such as water and waste management in the future.

In terms of carbon intensity, the GHG emissions per full time employee decreased by around 60% and increased a little, mainly due to COVID-19 and its impact on business travel.

Table 4: Climate emissions on corporate level

Scope	Categories	GHG emissions (tCO ₂ e)		
		2019	2020	2021
Scope 1		0	0	0
Scope 2	Purchased electricity	112.09	85.73	85.08
	Heating and cooling	1.19	1.34	1.21
Scope 3	Fuel and energy-related activities ²	22.60	16.24	24.77
	Business travel ³	204.19	33.41	40.25
	Employee commuting	36.49	14.40	35.76
Total		376.56	151.12	187.07

1 Sources of emission factors used are Defra, International Energy Agency, Singapore Energy Market Authority (EMA) and World Bank.

2 Fuel and energy-related activities include emissions from well-to-tank and transmission and distributed losses from generation and upstream.

3 Business travel include emissions from air flights, trains and taxis during business travel and accommodation.

Exhibit 3: GHG emissions by categories on corporate level

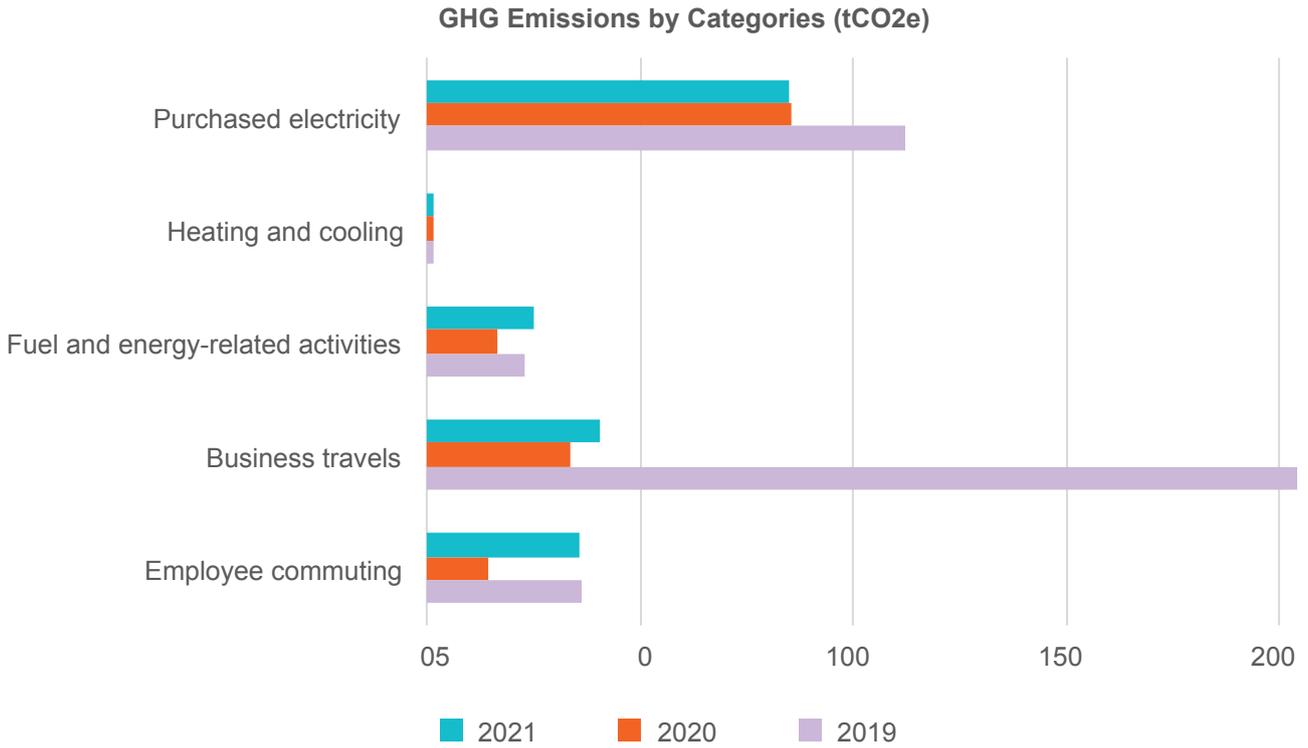
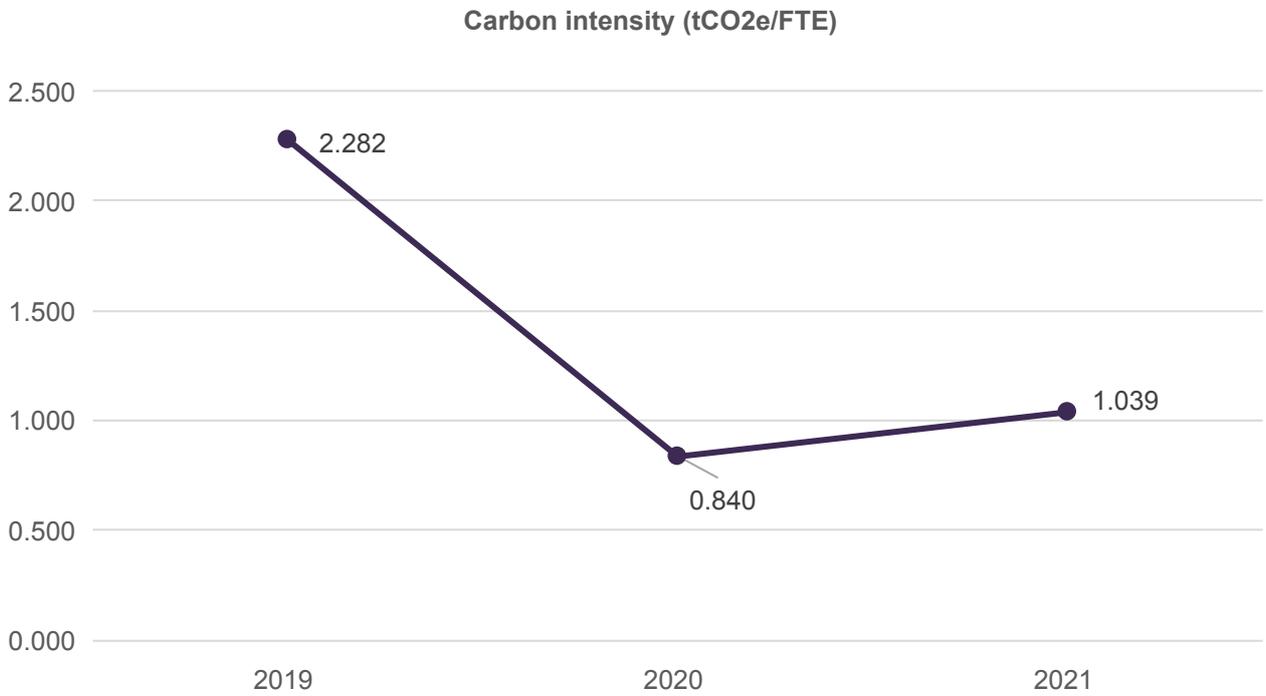


Exhibit 4: Carbon intensity trend on corporate level

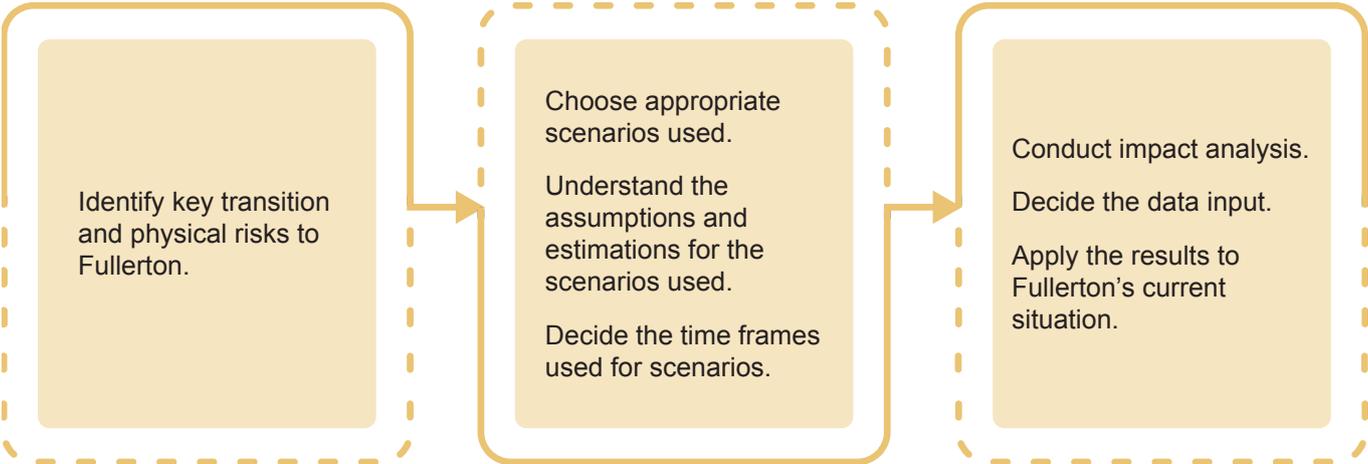


Appendix: Climate Risk Scenario Analysis

In late 2021, we conducted our first official climate risk scenario analysis to better understand the risks we are facing and to provide a reference point for climate related strategy development. We will evolve our approach and methodology as more accurate data and scenarios, coupled with more mature methodologies and analysis tools become available.

Overview of process

We took the following steps for the climate risk scenario analysis.



Identify key risks

As mentioned in the Strategy section, we have identified both transition risks and physical risks at the corporate level and investment level. Our findings show that the impact of climate-related risks on our investment portfolios would be more significant compared to the impact on our business operations. In addition, transition risks are more likely to have a significant impact on our portfolio companies and would therefore be more likely to affect our firm in the short to medium term. Hence, we chose to focus on quantifiable transition risks in the scenario analysis.

Choice of scenario used

Among all the different categories under transition risks, we believe policy risk is the most quantifiable with the highest level of certainty, as this mostly depends on countries' NDCs and will be reflected in carbon pricing.



The Paris Agreement calls for each country to outline and communicate their post-2020 climate actions, known as their NDCs. Parties are requested to submit the next round of NDCs (new NDCs or updated NDCs) by 2020 and every five years thereafter, regardless of their respective implementation time frames. Together, these climate actions determine whether the world achieves the long-term goals of the Paris Agreement. As NDCs are official commitments announced by nations, we believe they signal the direction and pace of the actions and will be priced in the capital markets.

In this case, we investigated three scenarios that are categorised based on NDCs and the Paris Agreement.

Low scenario

Full implementation of only country NDCs, based on research by OECD and IEA.

Medium scenario

Achievement of the Paris Agreement target, but with action delayed in the short term. In this scenario, countries with NDCs that are not aligned to the 2-degrees Celsius goal in the short term are assumed to increase their climate mitigation efforts in the medium and long term. This scenario draws on research by OECD and IEA along with assessments of the sufficiency of countries' NDCs by Ecofys, Climate Analytics and New Climate Team.

High scenario

Policies are implemented to reduce emissions in line with the Paris Agreement (the goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels), based on research by OECD and IEA.

We refer to a third-party data vendor for a dataset of possible future carbon prices that can be used to stress test a company's current ability to absorb future costs. Our data vendor uses patented data to derive company-level analysis and it models the effects of climate costs passed through to consumers on equity value impact. Impact is measured through three dimensions: exposure, sensitivity and adaptive capacity. For exposure, it is more related to geography as different nations have their own determination and mechanism for decarbonisation. For sensitivity, it is measured based on companies' emissions intensity and sensitivity to carbon pricing and shocks. For adaptive capacity, companies' ability to shift away from high carbon suppliers and be able to pass on the costs are incorporated, while the readiness of available alternatives is also considered.

As we believe the low scenario is the most realistic in the short term and the medium scenario is likely to happen in the long term, we decided to use these two scenarios for further impact analysis.

Conducting impact analysis

As most of our investments are in public equities and fixed income, spanning Asian and Global markets, the representative universe is made up of 60% Fixed Income and 40% Equities to reflect our firm-wide holdings as of 31 December 2021. We used the low scenario for the short-term (by 2025) analysis and medium scenario for the long-term (by 2050) analysis. We identified eight industries with the highest transition risks, namely electric utilities (power generation), chemicals, mining, airlines, coal, iron/steel, building materials (cement) and oil & gas services. These industries comprise 5.4% of firmwide holdings as of 31 December 2021.

We analysed these eight high transition risk industries to understand the risks they are facing.



Electric (Power Generation)

Emissions from electricity generation vary by type of fuel/energy source and by type and efficiency of electric power plants. It is estimated that between 2019 and 2050, electricity generation will more than double in Asia. Coal-fired power generation remains Asia's dominant power type, estimated at 56% of the region's generation mix as of end-2021. Asian countries are facing great challenges in energy structure transformation. Solar, wind, hydro and biomass will play more important roles in electricity generation to reach carbon neutral.



Chemicals

Largest industrial consumer of both oil and gas driven by demand for a vast array of chemical products such as high-value chemicals (plastics), ammonia and methanol.



Mining

Involves heavy machinery that run on diesel to operate: 40-50% of CO2 emissions come from diesel used in mobile equipment and 30-35% from non-renewable electricity.



Airlines

Most flights are powered by jet gasoline which is converted to CO2 when burned. Unlike other modes of transport, it is difficult to be electrified.



Coal

The burning of coal is responsible for 46% of carbon dioxide emissions worldwide and accounts for 72% of total greenhouse gas (GHG) emissions from the electricity sector.



Iron/ Steel

New steel made from iron ore is produced in a blast furnace-basic oxygen furnace (BF-BOF), powered by coal, and can also be recycled via the electric arc furnace (EAF) route. The production of high-quality new steel requires iron ore which requires coking coal as a source of heating energy.



Building Materials (Cement)

Contributes to 8% of global emissions. Clinker, the key constituent of cement, emits the largest amount of CO2 in cement production.



Oil & Gas Services

They provide support services, manufacture equipment, or are contract drillers for oil and natural gas exploration and production companies. Gas flaring, methane emissions and emissions from well construction are sources of GHG emissions.

Limitation of the analysis

Based on the nature of the scenario analysis, the exercise is hypothetical and subject to uncertainties and limitations. It relies on a snapshot of external drivers and is a simplified model which focuses only on the most important and quantifiable parts. For example, the scenario analysis was conducted prior to the Russia and Ukraine conflict. In the aftermath, many countries are reconsidering the relationship and balance between energy security and energy transition, and are adjusting their plans for energy structure reform. We will take similar issues into consideration in the future and will continue to evolve our scenario analysis with the use of more mature methodologies and tools.