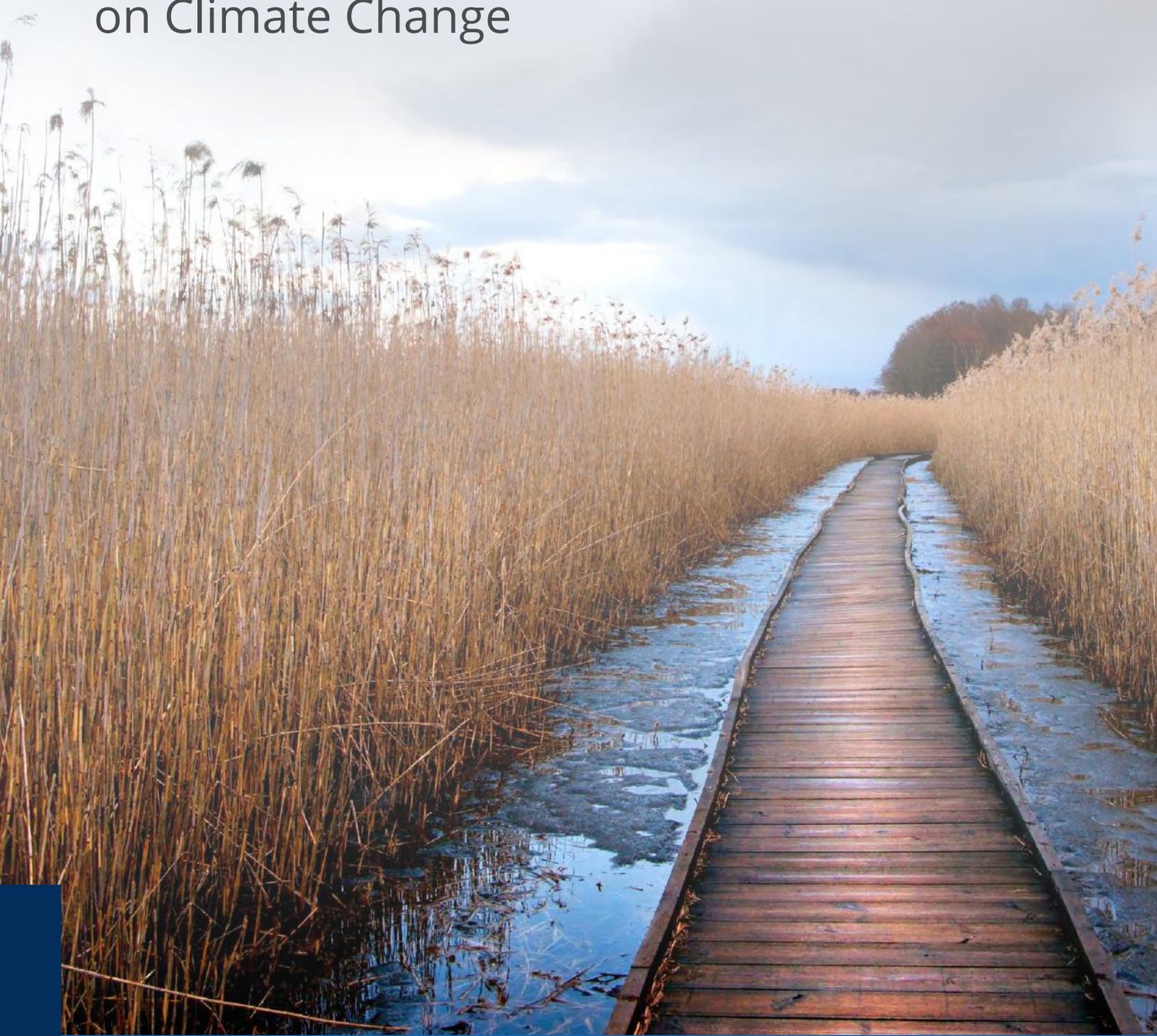

TRANSPARENCY IN TRANSITION

A Guide to Investor Disclosure on Climate Change



Investor Group on
Climate Change

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ON
CLIMATE
CHANGE



The Investor Group on Climate Change (IGCC) is a collaboration of Australian and New Zealand institutional investors and advisors, managing over \$1 trillion in assets under management and focusing on the impact that climate change has on the financial value of investments. IGCC aims to encourage government policies and investment practices that address the risks and opportunities of climate change. www.igcc.org.au

The Asia Investor Group on Climate Change (AIGCC) is an initiative to create awareness among Asia's asset owners and financial institutions about the risks and opportunities associated with climate change and low carbon investing. AIGCC provides capacity for investors to share best practice and to collaborate on investment activity, credit analysis, risk management, engagement and policy. AIGCC represents the Asian perspective in the evolving global discussions on climate change and the transition to a greener economy. www.aigcc.net

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Detailed input was provided in consultation with the members of the Asia Investor Group on Climate Change (AIGCC), with additional feedback provided by the Institutional Investors Group on Climate Change (IIGCC) and the Ceres Investor Network on Climate Risk (INCR). This report forms part of a program of work on investor disclosure being undertaken by these groups under the Global Investor Coalition on Climate Change. globalinvestorcoalition.org

We would like to thank the members of the IGCC Disclosure Working Group, and in particular the Working Group Chair Pablo Berrutti from Colonial First State Global Asset Management (CFSGAM), for their valuable time and insights in developing this guide.



EXECUTIVE SUMMARY

Institutional investors are concerned with the increasing impacts of climate change on the companies, assets and economies into which they invest, and the flow through impacts for current and future investment returns. This is being reflected in the investment decisions, products, strategies and corporate engagement programs being undertaken and implemented by an increasing number of investors.

We have also seen increasing demand for the investment community to disclose the financial risks and opportunities arising from climate change and what they are doing to manage them by reducing their indirect contribution to climate change and facilitating the transition to a low carbon economy.

To date, investor disclosure on climate change practice has been built on the foundations of a number of Responsible Investment, Environment, Social and Governance (ESG) and Integrated Reporting frameworks, seeking to align environmental outcomes with financially material risks and opportunities. More recently, this has included the highly influential recommendations of the Financial Stability Board (FSB) Task Force on Climate-related Financial Disclosures (TCFD) ¹.

This **Guide to Investor Disclosure** has been prepared for investors by investors, to help improve transparency and better inform a variety of stakeholders on the way climate change risks and opportunities are being tackled by the institutional investment community.

It sets out a practical framework for implementing and improving investor disclosure, organised around core principles, effective narrative and the selection of appropriate metrics. It is aligned with and supports ongoing work finalising the TCFD's recommendations for Asset Owners and Asset Managers, while also looking more broadly at the challenges of investor disclosure on climate change risks and opportunities. It also forms part of an ongoing program of work on investor disclosure being undertaken by the investor groups under the Global Investor Coalition on Climate Change (GIC).

The principles are designed to help focus the perspective, approach and attributes of good quality investor disclosure. The guidance on narrative reporting aims to ensure stakeholders have the information they need to appropriately assess the practices of the investor by providing important context on governance, strategy and priorities. The guidance on metrics sets out the evolution, benefits and limitations of existing climate metrics to ensure that investors present a balanced and material picture of performance.

Framework for good quality investor disclosure on climate change



The guide provides a pragmatic discussion of the tools, frameworks and reporting approaches being used by investors today. It includes unique, real world insights by investors themselves, on the challenges of different metrics and methodologies, as well as examples of current and emerging best practice. It aims to demonstrate the current state of investor practice and emerging approaches on how to meet the recommendations of new disclosure frameworks such as the TCFD.

Finally, the guide details four key high level pathways for disclosure, to enable organisations to benchmark themselves against the different stages of evolving industry practice. These are labelled Baseline, Intermediate, Advanced and Future Vision to reflect the cumulative stages in the evolution of investor disclosure. These pathways are not intended to be prescriptive, but to provide investors with guidance on how to put together effective climate change disclosure.

The guide is intended to assist the issuers and users of investor disclosure, be they other investors, regulators or beneficiaries, to assess the quality of disclosure provided by institutional investors on climate change. In doing so, the guide seeks to encourage dialogue on this evolving area of disclosure.

While it is important to remember that disclosure is not the end game in and of itself, it is a critical tool enabling investors and the wider community to better understand, manage and address the impacts of climate change. *Transparency in Transition* is intended to help strengthen investor practice in disclosure on climate change and to contribute to the global dialogue on the unfolding economic transition towards a net zero emissions economy.

Pathways to good quality investor disclosure on climate change

Baseline

Narrative:

- Statement of organisational (corporate) position on climate change
- Recognition of climate science as an investment issue/relevance
- Developing investment beliefs as they relate to climate change
- Relationship of climate change to investment process and policies
- Key priorities and actions

Metrics:

- Voting and engagement activities at portfolio level
- Developing carbon footprint (portfolio level, absolute and versus the benchmark) including analysis/discussion of major contributors to footprint, individual company effects and sector allocation effects
- Identification of most exposed assets/sectors

Intermediate

Narrative:

- Long-term vision to reduce exposure to brown assets and increase exposure to green assets
- Link to government policies and forward carbon price trajectories
- Specific engagement and investment actions and outcomes

Metrics:

- Voting and engagement outcomes at stock level
- Carbon footprinting (enhancement) + Scope 1, 2 & 3 sliced & diced
- Avoided emissions
- Green/brown measures (sector specific, distinguish between climate solutions & climate problems)
- Case studies of high carbon and low carbon company portfolios

Advanced

Narrative:

- Scenario analysis and 1.5-2 degree alignment are key tools to utilise
- Goal to shift asset mix to better position for a low carbon, energy efficient world
- Adaptation risks and opportunities seen as important for 'real' assets

Metrics:

- Portfolio wide scenario analysis to examine the risks and opportunities at the asset class and sector level
- Transition risk to 1.5-2 degree alignment
- Full measurement and disclosure of green/brown disclosure using bespoke research on the investment portfolio
- Reduction in GHG emissions, water usage, waste management

Future Vision

Narrative:

- Future proof and transition portfolio for a 1.5-2 degree outcome
- Bold and focused engagement with policy makers

Metrics:

- Asset allocation shifts that are consistent with 1.5-2 degree scenario
- Complete bottom up transition alignment with 1.5-2 degree outcome including impact on credit ratings/cash flow projections at company/security level
- Future share of green/brown using proxies such as R&D, reserves, life of asset, capex
- Full physical risk vulnerability assessment of assets as low/medium/high and remedial actions implemented

1 ABOUT THIS GUIDE

There is a global economic transition underway aimed at reducing the emissions intensity of economic activity to stabilise global warming at less than 2°C below pre-industrial levels, and move towards a net zero emissions economy by the second half of the century².

As managers of retirement savings and pooled investments, long-term institutional investors are concerned with the increasing impacts of climate change on the global economy and the flow through impacts for current and future investment returns.

At the same time, there is increasing demand from the wider community for the investment community, and a range of stakeholders, to disclose the financial risks and opportunities arising from climate change and what investors are doing to manage them – including by reducing their indirect contribution to climate change and facilitating the transition to a low carbon economy. This includes the influential recommendations of the FSB Task Force on Climate-related Financial Disclosures (TCFD)³.

This demand is supported by increasing standards for asset stewardship globally and the evolution of fiduciary duty towards the explicit consideration of significant environmental, social and governance risks.

This guide has been prepared for institutional investors, by investors, to help improve transparency and better inform a variety of stakeholders about the way they are responding to, and managing, climate change risks and opportunities.

It was developed through a process of review and consultation and aims to serve as a practical guide for interpreting and implementing emerging disclosure frameworks, tools, metrics and reporting approaches with the ultimate goal of increasing the quality of investor disclosure on climate change. It forms part of an ongoing program of work on investor disclosure being undertaken by the investor groups under the Global Investor Coalition on Climate Change (GIC), including Australasian members of both IGCC and AIGCC.

2 THE PURPOSE AND AUDIENCE FOR CLIMATE DISCLOSURE

Climate disclosure should inform a wide audience of different stakeholders on how the investor is managing climate change, including beneficiaries, clients, regulators, policy-makers, investee companies, service providers and NGOs. It should also act as a means to engage internally and set the agenda within the investor's own organisation to build consensus, employee engagement, knowledge and integration of the issue across its activities.

To date, investor disclosure on climate change practice has been built on the foundations of a number of Responsible Investment (RI), Environment, Social and Governance (ESG) and Integrated Reporting (IR) frameworks, seeking to align environmental outcomes with financially material risks and opportunities. More recently, this has included the highly influential recommendations of the FSB Task Force on Climate-related Financial Disclosures (TCFD).

While investor disclosure is primarily targeted at an external audience, it should reflect internal processes and reporting. This requires strong endorsement and support from internal stakeholders, such as investment teams, investment committees, the Board, communication teams, financial planners and member relations.

Target audiences will differ for Asset Owners and Asset Managers depending on a range of factors including the nature of the organisation, investment horizon, asset classes invested in, to name a few. Consequently, best practice disclosure will also be tailored disclosure.

For example, Asset Owners will need to be more aware of the total portfolio risk and communicate how it relates to the members or beneficiaries of the Fund, which involves portfolio level oversight and monitoring of its underlying investments and service providers to a wide and general (mostly non-investment) audience.

Asset Managers, on the other hand, may need to provide more detailed stock or asset specific data and metrics to provide sufficient information for their end-investors (particularly institutional investors such as Asset Owners) to demonstrate the nature and degree of different climate related risks and the extent to which these are being managed.



Aligning with the Task Force on Climate-related Financial Disclosures

For many companies, including institutional investors, the practical reality of climate change reporting and disclosure usually involves balancing a number of integrated financial and non financial dimensions of disclosure into a balanced approach to integrated annual reporting. To date, this has drawn upon a number of regulatory, voluntary and industry developed Responsible Investment, ESG and Integrated Reporting disclosure frameworks.

In December 2015, as policy talks were moving towards finalisation of the Paris Agreement, a major new initiative was launched under the oversight of the G20 with the potential to profoundly reshape corporate disclosure on climate change – the Financial Stability Board Task Force on Climate-related Financial Disclosures (FSB TCFD).

Chaired by Michael Bloomberg, the 31 members of the TCFD include capital providers, corporate reporters and business, accounting firms and rating agencies. The intent of the TCFD is to undertake an assessment of the current state of climate-related risk disclosures and to design a set of voluntary recommendations to help shape best practices for disclosure going forward. These will apply to investors, as well as corporate reporters.

Following a lengthy and wide ranging consultative process across all major markets and jurisdictions, in late 2016 the TCFD released their draft Recommendations, setting out a framework for disclosure within financial reporting. The Task Force has structured its recommendations around four key areas of disclosure: governance, strategy,

risk management, and metrics and targets. This is supported by additional guidance for all sectors, as well as supplementary guidance for non-financial sectors (energy, transport, buildings and materials, agriculture, food and forest products) and financial sectors (banks, insurers, asset owners, asset managers).

In addition, one of the TCFD's key recommendations relates to reporting the potential impacts of climate-related risks and opportunities on an organisation's businesses, strategies, and financial planning under different potential future states (scenarios), including a 2°C scenario. While there is clearly more work to be done on developing a robust approach to scenario analysis, the strong emphasis on scenario analysis is helpful for investors as both reporters and report users.

With the finalisation of the TCFD recommendations in mid-2017, a number of organisations will be developing more prescriptive guides to reporting against the recommended TCFD framework and, in some cases, looking at avenues for integrating the recommendations into new or existing mandatory financial disclosure requirements, including for investors. This guide aims to assist institutional investors in understanding the practical aspects of current and emerging approaches to disclosure in alignment with both existing integrated reporting frameworks and the TCFD. While some elements will mirror the TCFD, there are also other useful areas of investor disclosure practice currently being applied which have been referenced.



TCFD Draft Disclosure Recommendations

The TCFD organised its recommendations for all sectors, including Asset Owners and Asset Managers, into four categories: Governance, Strategy, Risk Management, and Metrics and Targets. The following chart summarises the TCFD's recommended disclosures in each of these categories:

Governance	Strategy	Risk Management	Metrics and Targets
<p>Disclose the organisation's governance around climate-related risks and opportunities</p>	<p>Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning</p>	<p>Disclose how the organisation identifies, assesses and manages climate-related risks</p>	<p>Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities</p>
Recommended Disclosures	Recommended Disclosures	Recommended Disclosures	Recommended Disclosures
<p>a) Describe the board's oversight of climate-related risks and opportunities.</p>	<p>a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term.</p>	<p>a) Describe the organisation's processes for identifying and assessing climate-related risks.</p>	<p>a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.</p>
<p>b) Describe management's role in assessing and managing climate-related risks and opportunities.</p>	<p>b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning.</p>	<p>b) Describe the organization's processes for managing climate-related risks.</p>	<p>b) Disclose Scope 1, Scope 2 and if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.</p>
	<p>c) Describe the potential impact of different scenarios, including 2°C scenario on the organisation's businesses, strategy and financial planning.</p>	<p>c) Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management.</p>	<p>c) Describe targets used by the organisations to manage climate-related risks and opportunities and performance against targets.</p>

3 STRUCTURE FOR CLIMATE DISCLOSURE

The framing and presentation of climate disclosure information can be challenging for institutional investors. To begin, it is helpful to think about three key areas (discussed in further detail in this Guide):



These general principles for good disclosure provide the overall framing for disclosure, to better support the identification of key organisational, investment and climate implications, impacts and response. The climate narrative and the selection of the appropriate climate metrics can be tested against the principles and key issues to ensure an effective and complete approach to disclosure. There is also substantial overlap and consistency between key elements identified by investors for this framework (for example Governance, Risks and Opportunities, Actions and Priorities, and Metrics) and the TCFD recommendations outlined above.

It is important to note that flexibility will always need to be maintained, allowing individual investors to embed climate disclosure into financial and other forms of integrated or ESG reporting, as appropriate for the needs of their stakeholders.

4 GENERAL PRINCIPLES FOR GOOD DISCLOSURE

The following key principles underpin good investor disclosure.

IMPACT

This principle acknowledges that the focus of disclosure should be on the relationship between investment and climate impact - that is, both on how climate-related factors affect the portfolio and how the portfolio's investments impact the climate.

Disclosure should include an assessment of the likely impact of climate change, policy responses to it and market or technology transition on the portfolio. It should also assess and disclose the impact that the organisation's actions are expected to have on their investments and on climate change factors (such as greenhouse gas emissions, for example), impacts on both risk and return and social and environmental benefits and harms. It should address both climate-related risks and opportunities for the fund.

This should include some focus on the impact of the investor's climate change response, be it through decisions to (or not to) divest, integrate climate risk into the investment process, engage with companies, or invest in specific climate related opportunities.

Reporting on impact is beneficial not only for those institutions that have an explicit ethical mandate, but also for mainstream investors, as it demonstrates how their actions are having a positive and beneficial effect in responding to the climate change challenge. This reporting, such as disclosure of climate-friendly investments via the GIC's Low Carbon Investment Registry⁴, can help investors engage in ongoing, broader conversations about the need to measure and report the positive social and environmental outcomes of investments and consider divestment or engagement with portfolio companies⁵.

Tools like the 1.5-2°C portfolio alignment framework and scenario analysis can help to test alignment with policy goals and to support the shifts in capital that are needed to facilitate those outcomes.



AGENCY

This principle is focused on the investor perspective on why accountability, action and reporting on climate change disclosure is important.

Investor disclosure acknowledges that institutional investors, as allocators of large pools of financial capital and key economic agents, have an important and active role to play in identifying and responding to the risks and opportunities related to climate change, as part of their fiduciary duty to their members, clients and beneficiaries.

A commitment to improve visibility and accountability will help to demonstrate the actions that investors are taking, their commitment to address the issue and a desire to improve the framework for reporting the outcomes of these actions over time.

Disclosure could include the articulation of clear, communicable and measurable targets and goals, where appropriate, that the investor seeks to achieve over time.

This principle is strongly aligned with principles of fiduciary duty and asset stewardship and underpins the need for corporate and policy engagement by investors in relation to climate change, as well as actions to protect and enhance their portfolio's positioning in relation to climate change.

BEST ENDEAVOURS

This principle highlights the approach investors should take to disclosure, providing the best disclosure feasible for the investor given their resources, capabilities and where they are on their climate journey.

Disclosure must be as full and frank as possible, while recognising that climate change disclosures are imperfect and evolving. Investor disclosure should set out, where relevant, why it has chosen the path that it has, any relevant limitations with current disclosure (such as data limitations, capacity limitations and/or onerous costs) and any further commitments for working towards improving transparency and disclosure in the future (both at an organisational level and in collaboration with others).

Data availability and corporate reporting are key factors in enabling or inhibiting further investor disclosure, as acknowledged in the recent TCFD report⁶. Transparency on these limitations and how the organisations sees things evolving over time reduces the risk of greenwashing or unintentionally misleading readers.

The cost implications of preparing climate disclosure, in the context of available resources, staff and other priorities, are a legitimate factor to be considered, and the impact of these factors will vary with the size and type of the investment organisation. The best way to address costs/benefit issues is to stay focused on what information is genuinely informative and relevant to the investment organisation's end beneficiaries and other key stakeholders, which will commonly also be the information needed by the organisation's investment professionals and management to effectively manage the issue.

STRATEGIC

The disclosure of strategic information is one of the core attributes of good disclosure.

Investor disclosure needs to explain why the organisation believes climate change is important, and its strategy for responding to the resulting risks and opportunities. This includes the organisation's core beliefs and operating assumptions with respect to climate change, the key actions that it is currently taking and how these actions align with investment strategy. It is also important to cover the organisation's expectations for how its policies and practices might evolve in the future and how it manages uncertainty⁷.

Disclosure should outline the consideration given to transition risk and opportunity, global and/or national climate change policy measures, technology transformation, as well as the financial implications of the physical impacts of climate change.

This should include how the organisation's interpretation of fiduciary duty⁸ encompasses the

need to respond to climate change in meeting its core function and investment objective.

This could be captured by reference to the organisation's investment beliefs and may include an explicit climate change policy or clear integration of climate change within the organisation's Responsible Investment or ESG policy. In either case the broad, systemic and long-term impacts of climate change should be clearly addressed.

The FSB TCFD Recommendations provide a useful framework for disclosure on Strategy which can be referenced with regard to ensuring strategic disclosure, namely to "Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning". That framework is broken down into three basic elements: describing risks and opportunities over the short, medium and long term; describing the impacts of those risks and opportunities; and describing the impact of different scenarios, including a 2°C degree scenario, on the company.

MATERIAL

The disclosure of material information is one of the core attributes of good disclosure.

Disclosure should focus on material issues. While 'materiality' will vary depending on the organisation's circumstances and the interests of its key stakeholders, the disclosure must nonetheless make clear how an assessment of climate change risks and opportunities and the actions it is taking with respect to climate change directly or indirectly enhance the investment organisation's long-term financial performance and resilience.

Disclosure should be forward looking, recognising the growing evidence on the implications of climate change for economic growth and development and what this means for investment performance. This could include, for example, reference to the Mercer studies looking at the implications of climate change for portfolio risk and return, the World Economic Forum's global risk assessments⁹ and research on the risks of stranded assets¹⁰.

In addition to material investment implications, material implications for the climate should also be considered. For example, a decision to invest in renewable energy assets could be a material disclosure even if the financial implications are relatively small in the short-term. However, this should be balanced against the principle of being 'strategic' to avoid accusations of cherry picking.

INFORMATIVE

Reporting that is genuinely informative to the target audience is one of the core attributes of good disclosure.

Disclosure must be accessible, clear, concise, avoid vague statements, boilerplate disclosures and 'green washing'. Relevant and specific actions that the organisation is taking, or plans to take, in the future should be clearly articulated.

Investors should avoid information overload and putting too much detail into a report that confuses the target audience and doesn't really improve understanding on the organisation's activities.

The principle of informative disclosure includes considering how an organisation integrates climate change related disclosure with its regular reporting and communications. Ensuring climate change related disclosure is provided in the form it is needed for effective decision making is a core element of this principle.

COMPARABLE

The disclosure of comparable information is one of the core attributes of good disclosure.

Disclosure needs to be consistent and comparable among similar investors and investment types, including within an asset class or sector, across asset classes and at the portfolio level – both at the national and international level.

Comparability is a foundation principle of many disclosure frameworks. For example, the TCFD has stipulated the need for comparability among companies within a sector, industry or portfolio. We support reporting aligned with the

TCFD's framework to promote consistency and comparability. Other initiatives such as the Global Reporting Initiative, the Integrated International Reporting Council, the Global Investment Performance Standards and the International Corporate Governance Network also stipulate consistency and comparability as part of their guiding disclosure principles.

Comparability is not mirroring or taking a 'one size fits all' approach. It recognises the differences between different types of investors and discourages boilerplate and generic disclosures. This guide seeks to encourage consistency across the industry through the establishment and use of a framework, metrics, indicators and narrative which can be used by investors in a comparable way where they are relevant (see materiality and informative principles).

The need for consistency applies to investors' measurement and monitoring over time to allow stakeholders to assess and gain insight into outcomes and trends.

Certain measures, like carbon footprinting, may result in different outcomes depending on the research provider used. Clear disclosure of the provider, proportion of data which has been estimated and other limitations should be made to aid comparison between investors.

While the specific metrics may change and evolve, and as the industry standards and metrics improve, investors can still build a core set of fundamental disclosure metrics but must clearly explain any changes as they evolve over time.

General Principles for Good Disclosure



5 CLIMATE NARRATIVE

Good narrative is an essential component of good disclosure and provides essential context for the organisation's strategy and supporting metrics or indicators subsequently used.

Climate disclosure should describe an organisation's deliberations, beliefs, processes, actions and future plans in response to climate change. It should serve as a representation of an investor's 'house view', including how climate change fits with the organisation's core investment principles and other responsible investment or ESG activities.

Components of climate narrative

Organisational context: The core beliefs and policies of the organisation and how they relate to climate change should be explained in common sense, basic language to stakeholders. This might be supplemented by more legalistic 'official' policy documents with hyperlinks, but the text itself needs to be accessible and avoid generic, legalistic, boilerplate statements.

Governance: The narrative should explain governance systems and processes providing oversight of the organisation's climate change response, how material issues are identified and prioritised, how activities are coordinated up and down the organisation and the internal reporting and measurement mechanisms for tracking progress against clearly defined time horizons.

This might include a statement by the CIO or CEO (or both) to demonstrate the high level priority the organisation assigns to climate change issues.

A description of the programs implemented or steps taken to build internal capacity for identifying climate change risks and opportunities or processes for training or assessing issues and impacts to support good governance would also be appropriate.

Journey: The narrative should help to provide context on the current status and progress of an investment organisation's ongoing journey in its consideration of climate change issues, potentially through a timeline of major milestones.

This will help to explain limitations and data gaps and provide a sense of organisational movement and evolution in its processes. It should also explain what motivated the organisation to take action and focus on the issue in the first place.



Explanation of risks and opportunities: Good disclosure will need to explain what might be quite complicated metrics and data points to a wide audience. A succinct and clear assessment of the climate risks and opportunities that climate change and related factors present to the organisation is critical, and helps to contextualise the data and highlight the most important or material aspects of performance or impact.

Risks and opportunities can relate to issues including physical impacts, direct carbon regulation, market transition risks and stranded assets, litigation and fiduciary issues, and reputational risks. The TCFD provides a useful definitional framework for the key dimensions of transition risks (policy and legal, technology, market and reputational risks) and physical risks (chronic and acute physical risks), as well as major climate-related opportunities, which is increasingly being applied. There may also be other risks and opportunities associated with the activities of asset owners and managers such as the design and marketing of investment products and options which have significant green or brown characteristics.

An explanation of what the reported metrics mean or performance dimensions they apply to, key assumptions used, scenarios applied and any shortcomings in data or gaps in disclosure is appropriate.

This might include the use of case studies to demonstrate actions and outcomes, as well as some of the other metrics as included in this guide.

Actions and priorities: The narrative should explain what actions the organisation is taking, its priorities in regard to assessing and responding to the risks and opportunities presented by climate change, why it chose the approach it did, how the processes work in practice and how it hopes this will improve the way climate change is addressed. This is consistent with the TCFD's Risk Management recommendations.

It could include specifying any metrics, targets, goals and milestones.

The use of case studies can demonstrate actions and outcomes. Investors should be careful not to select examples that were easy wins but also the

more difficult ones, and perhaps also those that are still work in progress (this could be case studies of the good, bad and ugly for example, to highlight the challenges that arise and also link the case studies with the principle of best endeavours and staying informative/avoid greenwash).

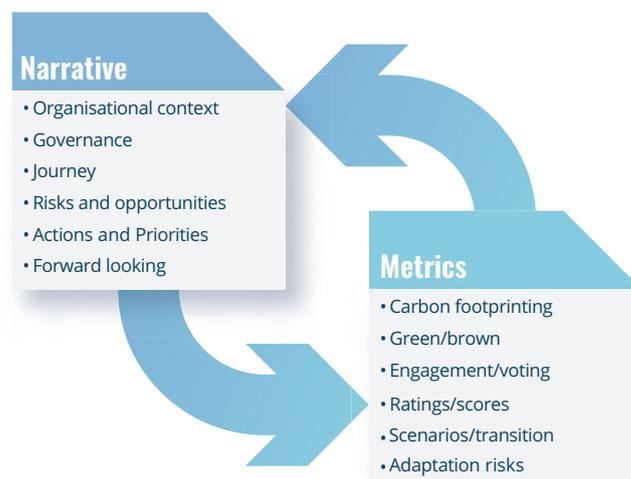
Forward looking: The narrative should provide a strong sense of where the organisation is going next, its priorities, the challenges and how it is tackling these, what the readers can expect over the coming years.

This would ideally set out a timeframe for actions in the short, medium and long-term and also closely reflect the organisation's goals, any targets it might have set or aims to achieve, the challenges it could face over time and how it will reflect these in its response and ongoing updates.

It will also be important to make the assumptions explicit about the future possible outcomes for the climate. For example, if the investor is aligning with an International Energy Agency (IEA) scenario for carbon reduction, or if it cross references to the Intergovernmental Panel on Climate Change (IPCC) report, or other sources of information that need to be made explicit where they are relevant.

The forward looking component will also be integral to the 'journey' and telling the story of the organisation's plan and evolving practices over time.

The Building Blocks - narrative and metrics



Responsible Investment and Stewardship at First State Investments

First State Investments (FSI), known in Australia as Colonial First State Global Asset Management, has had a long-term focus on responsible investment and stewardship, including through transparency and disclosure. In their 2016 Responsible Investment Annual Report, FSI set out comprehensive commentary on their approach to investor disclosure on climate change, plans for expanding disclosure and reporting on key measures over the next two years.

FSI recognises that climate change will impact on different asset classes in different ways, so in addition to organisational information FSI's investment teams each made a climate change statement for how they are managing the risks and opportunities of climate change within their portfolios. This disclosure provides a practical insight into the necessary differences which exist between investment strategies. It also allows clients to clearly identify the steps being taken for their particular investments.

FSI also discloses their active equity teams' exposure to companies with a significant proportion of revenues reliant on fossil fuels. The full methodology for calculating exposure is also included within the overall report.

For example, the Global Listed Infrastructure Securities team statement says:

A company's carbon exposure is taken account of in various ways. For example, our quality score includes an environmental assessment of each company that takes account of the carbon intensity of that company. This means that companies with higher levels of carbon exposure are naturally discounted more than those with cleaner generation portfolios.

We also take account of carbon risk within our financial models, to the extent that it has direct implications for the earnings potential of a business. For example, due to the evolution of shale gas in the US, coupled with the reduced cost curves and tax incentives for renewables, we have seen the amount of coal used decline rapidly. Since the volume of coal hauled is explicitly modeled within our freight rail volume numbers, we adjust those accordingly to take account of the structural change that we have seen in the market.

	Predominantly Gas	Other Fossil Fuels	Non-Fossil Fuel
Number of companies	7	5	39
Number of companies (%)	13.73%	9.80%	76.47%
Percentage of FUM	10.27%	11.41%	78.33%

FSI also provides a detailed overview of the various global partnerships focused on climate change risks and opportunities which they are engaged in, including the nature of their participation across different regions.

www.cfsgam.com.au/au/insto/responsible_investment/

6 CLIMATE METRICS

Narrative and metrics should be seen as two mutually reinforcing elements used together to deliver on the disclosure principles. Narrative and metrics should inform and evidence each other. As investors plan what they will disclose, reference to the principles will help determine when and to what degree the different narrative and metrics are required to achieve good quality disclosure.

There are various tools, data and methodologies for measurement of climate risk, opportunity and impact that are available or under development. The options discussed in this section have been identified following review of a range of frameworks and standards summarised in Appendix A, with some specific metrics summarised in Appendix B.

Each of these metrics currently have their own theoretical and practical limitations. Nevertheless, selection and use of appropriate metrics from these options is needed for effective disclosure, with appropriate recognition of the limitations and positive features of each approach.

Carbon footprinting

For many organisations, carbon footprinting has been a useful place to start the consideration of metrics for internal management and external disclosure on climate change. The footprint can be expressed as the absolute level of emissions or 'carbon intensity', measuring CO₂ equivalent emissions of the portfolio per \$m of market capitalization, or relative to revenue, EBITDA or other measures. This can cover both Scope 1 and 2 emissions. It can initially cover one or more asset classes (e.g., public equities) where available data is adequate to calculate estimated emissions.

Factors that support carbon footprinting

- It is based on a long history of corporate carbon footprinting and there is a reasonably established group of data providers¹¹.
- It has gained attention and traction amongst some investors following the PRI's Montreal Pledge¹², with over 120 investors representing over US\$10 trillion in assets under management signing up to the pledge, committing to measure and publicly disclose the carbon footprint of their investment portfolios on an annual basis.
- It can be quite simple and easy to report to a wide group of stakeholders.
- There is a reasonable set of Scope 1 (direct) emissions and Scope 2 (e.g. emissions associated with generation of electricity they use) emissions data to enable investors to undertake current, historical as well as forward projections.



- It provides the possibility to measure and report GHG emissions and carbon intensity in absolute terms and relative terms against a benchmark, typically the benchmark that the portfolio is being measured against.
- It provides the ability to isolate the contribution to an investment portfolio's carbon exposure at the stock and sector level (and for asset owners at the asset manager level), which could be used to help inform an investment organisation's response to reduce GHG emissions – such as considerations around divestment and reinvestment in lower carbon assets, engagement with the high carbon companies/issuers and/or engagement with asset managers about the exposure to the high carbon contributors within the portfolio.
- It provides the possibility to set targets to reduce GHG emissions and to measure and report outcomes over time, such as in accordance with the Portfolio Decarbonization Coalition (PDC)¹³ which has made efforts to advance an action-based network of knowledge sharing and stakeholder dialogue to foster the process of decarbonizing investment portfolios.

The limitations of carbon footprinting

- Strategy – While providing valuable baseline information, on its own, footprinting does not provide information about a company's strategy on climate change and should therefore be viewed as an input into evaluating a company's position (as an input into engagement and other investment decisions) rather than an end in itself.
- No direct link to risk or materiality – The carbon footprint does not by itself provide an indication of the potential investment performance of assets in the portfolio. This would require additional analysis around future carbon price scenarios, the strategic response of the management of the underlying asset, assumptions around commodity and asset prices, impacts on asset values and cash flow predictions, analysis of a company's position versus its competitors, the policy environment that it operates in, the impact of technological developments, and so on.
- Intensity metric can mask actual carbon efficiency – Carbon intensity can be calculated in a number of ways, eg carbon emissions per unit of revenue or per total market capitalisation. CO₂ emissions can also be priced based on offsetting cost. Each approach introduces biases which mask the actual carbon efficiency of some types of companies/sectors depending on profit margins, commodity prices, and other factors.
- Company data incomplete – Only 83% of the Global 500 (FTSE Global Equity Index Series) reported their carbon emissions to CDP in the last survey conducted. While different providers draw from a variety of data sources, companies which do not report their data have to be estimated and different providers will have different sources of data and risk tolerance in extrapolating them. Reported data may itself be unreliable. Scope 3 emissions which include emissions associated with a company's products or supply chain are also still largely unreported and methodologies for calculation and allocation are still developing.
- Key transition risks not captured - Indirect emissions which may result in transition or stranded asset risks are not captured.
- Avoided emissions - Does not currently take into account 'avoided emissions', for example companies that produce 'green' products can appear highly carbon intensive (e.g. manufacturers of wind turbines, efficient engines or glass and polysilicon for PV solar), while playing a positive role in supporting emission reductions and clean energy transition¹⁴.
- Trends and time horizons – Carbon footprint methodologies are designed to capture the carbon intensity of a portfolio at a given point in time, while not capturing emissions trends. Significant changes can be expected as a result of changing sector and company exposure, market movements, and companies disposing their holdings of high-carbon assets.
- Limited asset classes – As it currently stands, the GHG emissions data is limited to listed public entities, with the carbon footprint analysis typically conducted on an investor's listed equity holdings at a point in time. Depending on the asset mix of an investor (which varies a lot by country) this could mean that more than 50% of the assets are not currently captured by carbon footprinting.

Carbon Footprinting and the 7 Principles of Good Disclosure



IMPACT: Footprinting could be used to measure and report on outcomes in terms of reducing GHG emissions over time.



AGENCY: Footprinting is a first step in assessing a portfolio's exposure, it may have its shortcomings but investors need to use what tools are available and take follow up actions through engagement and analysis to bolster the data.



BEST ENDEAVOURS: The data limitations and constraints would need to be made explicit as part of any report that utilises carbon footprinting to ensure that the end stakeholder understands its limits.



STRATEGIC: Measuring, reporting and setting a goal to reduce GHG emissions over time could align with the strategic goals of an investment institution.



COMPARABLE: Footprinting methodology is becoming more standardised to allow comparability, investors should make explicit the data sources used and calculation methodology.



MATERIAL: Footprinting could be used as an input into further consideration and analysis of the potential materiality of an investment portfolio's exposure to GHG emissions. For example by focusing on sectors for whom emissions intensity is most material.



INFORMATIVE: Footprinting would provide a simple and comparable set of metrics for stakeholders and would also help them to better understand the stock and sector level exposure to GHG emissions.

Australian Ethical Investment – Investing for a Safe Climate

Australian Ethical Investment communicates broadly about climate through different channels and for different audiences. It has published a dedicated and comprehensive report *Investing for a Safe Climate* setting out their approach to climate change disclosure and managing the impact of their investment portfolio. The results are updated annually in their Sustainability Report.

Australian Ethical has made a number of public commitments. In 2014, they became the first Australian superannuation fund to join the Portfolio Decarbonisation Coalition launched by the United Nations Environment Program Finance Initiative. They have made a commitment to reduce the net emissions of their entire investment portfolio to zero by 2050. This is based on the level of action required to limit warming to below 2 degrees. They have also committed to the Montreal Pledge and Science Based Targets Initiative.

Australian Ethical has adopted a number of approaches to disclose the carbon impact of their portfolio, in line with these public commitments. They have reported their carbon footprint in their Annual & Sustainability report for the past three years based on Trucost data, gradually expanding from Australian equity holdings to international shares, with a goal of including fixed income in the future. According to the carbon footprint method, Australian Ethical's portfolio is 167.8 tonnes of CO₂-e / AUDm revenue. This is approximately 40% less carbon intensive than the index benchmark. Australian Ethical also set out their views on the challenges of carbon footprinting for investor disclosure.

They also integrate climate reporting into their regular communication with stakeholders through blogs, social media, fund reports and their member magazine.

Funds at Australian Ethical are actively screened internally to account for ESG factors including emissions. The report sets out the approach and correlates selection decisions to emissions outcomes. Australian Ethical also discuss the rationale and implications of different investment decisions, and discloses the largest contributors to their overall emissions footprint.

Australian Ethical has worked with EY to actively identify companies which are contributing positively to emission reductions, beyond just the carbon footprint analysis. For example, REC Silicon was identified by Trucost as one of the 10 biggest contributors to Australian Ethical's emissions footprint. However, further work with EY indicates that this investment is actually reducing emissions through its production of silicon for solar panels.

Investing for a Safe Climate includes additional information on the positive and negative screening approaches adopted by Australian Ethical, lists corporate engagement and policy and advocacy activities, client queries by issue, activity on transition risk and physical risk and application of the 2 Degrees Alignment model developed by 2° Investing Initiative to their utilities portfolio.

Australian Ethical received the inaugural '2° Invest Award – the International Award on Investor Climate Related Disclosures'. These awards were launched in 2016 by the French Minister of Environment, Energy and the Sea. The awards aim to incentivise best practice in climate disclosure, aligned with the Energy Transition for Green Growth Law. This significant French law promotes transparency of climate related risk management and investor alignment with limiting warming to 2°C and supporting green growth.

www.australianethical.com.au/news/how-we-invest-for-climate-change/

Exposure to green/brown assets

Measurement of exposure to green (low carbon/climate positive) versus brown (high carbon/climate negative) assets is another option for investors to consider including in their reporting framework. Green/brown metrics are sector-specific indicators distinguishing between climate solutions and carbon intensive activities that typically include exposure to different technologies or business lines, as well as sector-specific energy or emissions intensity/efficiency metrics.

Factors that support green/brown asset disclosure

- It is potentially a simple and easy to digest piece of information to communicate to a wide audience.
- It is possible to clearly measure and report exposure to fossil fuels by type of energy and asset, including exposure to reserves, and to articulate any negative screening or divestment policy that might have been adopted, or another approach/perspective on how this is being managed such as through engagement and/or shifts in asset allocation.
- It could include an estimate of assets at risk (potentially stranded) under future carbon price or transition scenarios and explain how this is being managed.
- It fits within the broader policy narrative of reducing exposure to high carbon industries and increasing exposure to low carbon, more energy efficient industries over time, so could potentially enhance investor engagement and alignment with the actions by both companies and policy makers.
- It will likely have greater alignment and insight into the material exposure of a portfolio as it focuses on both climate risk as well as opportunities.
- In project finance, the metrics could be used to set minimum green targets or to screen brown projects.
- In fixed income, the metrics could be used to segment businesses by sector or to reflect the growing universe of green labeled bonds.

- In equities, green/brown indicators could be used to label companies green or brown based on their share of revenue from a certain technology.
- In listed property and infrastructure, the metrics could be used to aggregate the exposure to green and brown assets and identify ways to improve the carbon efficiency of these assets where possible.
- The data could be used to facilitate engagement with underlying managers and investee entities across all asset classes, including unlisted assets such as private equity and infrastructure on an asset-by-asset basis.
- The Climate Bonds Initiative taxonomy provides a solid starting point for defining 'green' investments.

The limitations of green/brown asset disclosure

- It is a relatively new concept with a limited number of proprietary data providers available ¹⁵.
- It could be an expensive exercise for investors to do completely, depending on the scope and scale of the analysis they wish to undertake (especially for unlisted assets on an asset-by-asset basis).
- It is largely limited to specific sectors (such as energy), making portfolio analysis more challenging. This could undermine the ability to aggregate and compare data over time and across investors.
- The definition of what constitutes green versus brown assets is not yet well defined or agreed upon, meaning that the metrics could be difficult to explain and also difficult to compare. For example, it could be disputed as to whether natural gas, large hydro or nuclear power are green or brown.
- Industry and sector classification of green/brown data are usually based on revenue and not related to climate change. There are alternative systems, such as SASB, which classify which sustainability issues most likely to pose material risks in each industry, but these represent a broad assessment of sustainability indicators and are not specifically tailored to measure and report on green/brown exposure.

Green/Brown Metrics and the 7 Principles of Good Disclosure



IMPACT: As the green/brown definitions and metrics emerge over time then they could be a useful anchor for investors to demonstrate a shift in the portfolio's exposure away from brown and towards greener assets.



AGENCY: Aggregating green/brown assets would better align investor disclosure with transition needs to achieve 1.5-2 degree outcome.



BEST ENDEAVOURS: Investors who chose to adopt these measures on a sector by sector basis would need to explain why they have chosen that path and make clear the limitations and assumptions.



STRATEGIC: Measuring, reporting and setting a goal to reduce exposure to brown assets and increase exposure to green assets over time could align with the strategic goals of an investment institution to better manage and report its exposure to the risks and opportunities around climate change.



COMPARABLE: Developing and reporting standardised metrics around green/brown assets would facilitate comparability; this is an area that requires greater focus to solidify the definitions.



MATERIAL: Green/brown metrics could be used at the sector level (most notably utilities, energy and autos) as an input into further consideration and analysis.



INFORMATIVE: Green/brown metrics are not yet well defined or comparable and as such could be difficult to communicate to a wider audience. As an interim step investors could disclose exposure to fossil fuel reserves.

The FTSE Russell Green Revenues Index Series

The FTSE Green Revenues Index Series, calculated by FTSE Russell, the global index and data provider, is designed to obtain increased exposure to companies engaged in the transition to a green economy based on FTSE Russell's Green Revenues (LCE) data model.

The Green Revenues (LCE) data model is designed to measure the revenue exposure of public companies engaged in the transition to the green economy, allowing investors to design, build and analyse portfolios, baskets or indexes with this measure in mind.

Using a comprehensive Low Carbon Economy Industrial Classification System™ (LCE ICS™), the data model captures a new measure of green revenue exposure – the shifts in the revenue mix of companies with green goods, products and services. To date, over 13,400 public companies across 48 developed and emerging markets have been analysed and classified using LCE ICS™, while over 2,400 companies have been identified as engaging in green activities from one or more 60 LCE subsectors.

The indices are designed to capture changes in the revenue mix of companies as their business models shift to the delivery of goods, products and services that allow the world to adapt to, mitigate or remediate the impacts of climate change, resource depletion and environmental erosion.

www.ftse.com/products/indices/green-revenues



Engagement and voting

It is important for investors to send a strong and consistent message to companies about their expectations regarding their strategic and operational response to climate change. Information on an investor's engagement on climate change issues can be an important part of climate disclosure.

This can be individual or collaborative engagement, including through organisations such as Blackrock, Regnan, ACSI, PRI, Aviva, BMO Reo and Hermes EOS for example, and many of these organisations provide detailed reports on engagement outcomes as a result of their engagement activities. Engagement can include dialogues, shareholder proposals, investor letters and other forms of communication with investee companies about climate-related risks and opportunities.

Some asset managers have also started to collate ESG engagement metrics as they relate to their investment portfolios and include this in their reporting to institutional investors. In addition, investors and proxy voting advisors are increasingly focusing on climate change and are able to aggregate the voting statistics on resolutions that relate to climate change across the different regions and jurisdictions¹⁶.

More broadly, asset owners and managers which invest across the economy have a vital interest in good climate policy and have a credible and distinctive perspective to contribute to constructive policy debate. Relevant policy engagement activities may include policy submissions to government, private lobbying and public advocacy. Policy engagement may be pursued independently or through investor groups, as well as in collaboration with industry or civil society groups.

Factors that support the inclusion of information on company engagement

- Investors can link and report the outcomes of their voting activities on climate resolutions with their engagement efforts, such as through the 'Aiming for A' coalition efforts that build on the CDP 'A rating' reporting framework, to undertake engagements with some of the world's largest extractives and utilities companies, focused on "strategic resilience for 2035 and beyond."

- Investors can publicly report on specific case studies and metrics reported by companies to demonstrate the rationale and impact of its engagement activities in terms of shifting company behavior.
- Investors can publicly report on the aggregate statistics, including the number of engagements, the approach taken to engagement, the issues that were at the core of engagement, the outcomes (if any), proportion of engagements contributing to change and the next steps.
- Company engagement activities are not always visible to the wider community or external stakeholders. This could help increase understanding of the role that investors play in seeking to influence corporate responses to climate change (as well as policy engagement more broadly).

The limitations of including information on company engagement

- Aggregation and comparability would be challenging and time consuming for some asset owners, as not all of them use specialist engagement providers and very few asset managers provide this level of data in their reporting.
- It could be challenging for mainstream asset managers to disentangle their conversations about financial performance, climate change and other ESG issues with investee companies, since they may take place as part of a holistic assessment. Also many of these private ongoing dialogues are confidential.
- There are no widely adopted or agreed metrics to report engagement outcomes (although this remains an area of emerging practice).
- It could initially result in a piecemeal and fragmented inclusion of information that might encourage or unknowingly lead to greenwashing by cherry picking 'good' engagement stories and outcomes at the company level. Depending on how these are reported, it may also jeopardize future engagement activity both with the subject of the current engagement and with others.
- It can be difficult to attribute the change specifically to investor engagement, particularly for high profile issues likely to be raised by multiple investors and other stakeholders.

Engagement Metrics and the 7 Principles of Good Disclosure



IMPACT: The outcomes of specific engagement actions and how the companies responded could demonstrate positive impact over the short, medium and long term.



AGENCY: Reporting on corporate engagement outcomes could help to clarify what information is most needed and used by investors to improve the reporting function on both sides.



BEST ENDEAVOURS: Investors who choose to report on company specific engagement activities would need to clarify the rationale for reporting those examples and provide appropriate context on engagements overall. This could include disclosing data on the total number of engagements, proportion of engagements demonstrating progress or potentially highlight the laggards for balance and to avoid perceived greenwashing.



STRATEGIC: Building a connection between engagement and voting on climate change that reinforce and utilise the investor's strategy and reporting frameworks could strengthen the effectiveness of engagement outcomes.



COMPARABLE: Voting statistics are comparable but this is not yet possible for engagement, most likely to be a case study approach until some 'engagement effectiveness' metrics are formulated and utilised.



MATERIAL: This will be difficult to assess as it is likely that there will be a skew towards talking up the 'green' and good stories and not reporting on the areas of potential risk. This may be offset by also reporting the proportion of 'successful' engagements.



INFORMATIVE: Including engagement case studies could be helpful to demonstrate the process and tools being utilised but without further data may risk being perceived as being piecemeal, fragmented and not comparable (greenwash risk).

Cathay Financial Holdings

Cathay Financial Holdings (FHC) is the largest financial holdings company in Taiwan and a major provider of integrated financial services. Cathay have focused on disclosing the approach they are taking to develop innovative green finance products, integrate environmental management into their operational response and grow collaborative partnerships to increase awareness of climate change issues.

For example, on their approach to green finance, Cathay states:

Energy intelligence indicates that energy investments must increase to US\$2,000 billion to prevent global warming from exceeding 2°C, suggesting that breakthroughs in financial innovations and technologies are important for low-carbon transformation. In COP21 Paris, financial institutions also indicated that successful climate financing requires information transparency, investment incentives and reasonable market price. When the criteria remain underdeveloped, Cathay FHC still wishes to work with the financial industry in Taiwan, collectively promoting greening of this land.

SUPPORTING THE DEVELOPMENT OF GREEN INDUSTRIES	REDUCING RISK OF GREEN PRODUCTS	LINKING CUSTOMERS' POWER
<ul style="list-style-type: none"> • Low-carbon investment registry • Cathay United Bank's solar energy forms • Wind power loans • Supporting Promising Startups 	<ul style="list-style-type: none"> • Green vehicle insurance • Bicycle insurance 	<ul style="list-style-type: none"> • Cathay Global Ecology Fund • Digital Finance

www.cathayholdings.com

Ratings and specialist research providers

Investor climate disclosure can use ESG ratings and 'climate scoring' from specialist research providers.

The factors that support the use of rating agencies ESG/climate scores

- It would help to build a way to report and link climate change issues to the wider ESG goals of the investment organisation, particularly for those service providers who are able to provide a breakdown on the climate contribution to the overall ESG score.
- It is an efficient source of climate data that aggregates all sectors of the listed equity universe in one place.
- The scores can be tracked and monitored over time to see if they improve (on average) or change in any way.
- The score can be attributed to the greatest laggards and leaders, which will help inform stakeholders why certain engagement efforts have been pursued.
- Climate scoring combines qualitative and quantitative dimensions to the assessment, which would help feed into the narrative of an investor's reporting framework.

The limitations of using rating agencies ESG/climate scores

- There are a limited number of data providers that are able to strip out the climate score from the overall ESG score, reducing the options in terms of available providers¹⁷.
- It could be an expensive approach, depending on the depth and breadth of the coverage required.
- It can be based on a proprietary model that can be opaque and difficult to understand and explain to a wider audience.
- It is mostly limited to listed assets, with the greatest focus on equities and listed property funds – infrastructure is under development.
- Asset-by-asset assessment of unlisted assets would need to be undertaken on a bespoke basis which, at present, could be expensive and time consuming.
- It is difficult to compare with others who might use alternative approaches or methodologies.
- There is still little empirical evidence or link of the scores with financial outcomes.



Ratings and ESG/Climate Scores and the 7 Principles of Good Disclosure



IMPACT: A higher climate score is one metric that could demonstrate impact, although it will be hard to interpret this against real world barometers which might require more specific measures such as reduced exposure to fossil fuels, lower GHG emissions, higher energy efficiency outcomes (for example).



AGENCY: Important that investors have a plan to utilise or 'do something' with the scores and don't just report them on their own (i.e. will it support engagement efforts, will it lead to a shift in assets, etc.)



BEST ENDEAVOURS: Explain the rationale and process by which a service provider was selected and the perceived strengths and weaknesses of the approach they use as part of the scoring system.



STRATEGIC: Investors could aim to have a minimum climate score or to see the score improve over time as part of its strategic goals or direction.



COMPARABLE: There are challenges here given the range of data providers and methodologies for listed equities, there is greater potential for comparability in property and infrastructure as the GRESB methodology is more standardised and transparent.



MATERIAL: Investors will need to disclose how they have interpreted the scores and what it means for the financial performance of the portfolio.



INFORMATIVE: Climate scores could be difficult to explain and interpret the meaning of the score to the wider audience, as the models are proprietary and can be opaque.

Transition risk and scenario analysis

Transition risk and scenario analysis tools can be an important part of an investor's reporting framework on climate change. Tools assessing portfolio alignment with specific paths to 1.5-2 degree outcomes are already in use or under development for key industries. More general portfolio scenario analysis/asset allocation tools are also available.

The application of scenario analysis was a key recommendation of the TCFD report, including additional guidance for asset managers. The TCFD have also published a useful explanation of the benefits for organisations of applying a scenario analysis approach, including key considerations and component attributes, while recognising that further work will need to be undertaken to strengthen broadly accepted methodologies, outputs, tools and resources to increase take up.

Good disclosure against scenarios which avoid 'false precision' will address multiple scenarios, including low probability, high consequence scenarios and will provide a range of possible outcomes and discuss how the investor is managing the resultant uncertainty.

Factors that support scenario analysis

- There is a lot of uncertainty around climate change in terms of the timing and magnitude of the expected impacts. Scenario analysis is a widely used tool amongst scientists, policy makers and corporate leaders for many issues, and can help investors incorporate climate uncertainty and consider the issues from a more holistic perspective.
- There are some publicly available sources of information on scenarios that could be utilised in a consistent manner, including the IPCC and the IEA analysis that goes into detail at the country and sector level on the impacts of climate change¹⁸. Alternately, the Science-based Targets program can be referenced¹⁹.
- There are some examples of scenario analysis by corporations that investors could draw upon.

- There is a greater focus on systemic risks and tools to better manage these at the global level amongst regulators and industry groups, resulting in stress testing and tail risk analysis becoming a more common part of an investor's toolkit. Climate change could be readily built into this expanding framework as another large and systemic risk to be considered.
- Portfolio alignment methodologies would allow investors and their stakeholders to better understand what shifts would need to take place to be in alignment with a 1.5-2 degree outcome and how the portfolio might need to change over time to support (and reflect) that future potential outcome.
- Consideration of climate change through a scenario framework, including increasing the number of investor derived scenarios assessed, would also help to build understanding about decision making processes (amongst external stakeholders in particular) by illustrating the complexity and the trigger points for taking action.
- Likewise, a scenario analysis framework would also encourage a stronger focus on climate risks as a financially material risk of systemic proportions and therefore integral to the core risk management framework of an investment institution.
- Scenarios could be used to identify stranded asset trigger points, for example which assets will likely become 'stranded' under future carbon price assumptions.

The limitations of scenario analysis

- Methodologies for climate scenario analysis for investment portfolios are at an early stage of development with no generally accepted framework or methodology and few available examples.
- Scenario analysis is new to many institutional investors, and can be challenging and resource intensive.

- A lot of work needs to be done in translating scenarios, such as the IPCC and IEA scenarios, into meaningful investment impacts at the asset class and regional level. This has been done by Mercer and more recently Oxford University and is available on a bespoke basis.
- Transition and alignment scenarios are still developing although the 2°C Investing Initiative (2ii) has offered free portfolio alignment checks for key sectors as well as open source access to the work they are developing.
- Reporting scenarios or 1.5-2 degree transition analyses could create confusion amongst stakeholders as scenarios are not forecasts of the future but represent future possible outcomes. As such, pressure to 'pick one scenario' and optimise could emerge as part of the discussion with wider stakeholders and it could be difficult to explain why that is not the best approach for an individual investor. For this reason most investors use scenarios as an internal decision making tool rather than a communications tool.
- Related to the above, there will need to be a great deal of internal learning and discussions about how to respond to the results of scenario analysis and decide whether any action is needed.
- Stranded asset trigger point scenarios would be highly sensitive to the assumptions around carbon pricing and the utilisation of new and emerging technologies.

Transition Risk, Scenario Analysis and the 7 Principles of Good Disclosure



IMPACT: Shifts in asset allocation away from highly sensitive/more at risk assets and into assets that are more likely to benefit from the low carbon transition can help to demonstrate positive impact to stakeholders.



AGENCY: Important that investors have a plan to utilise or 'do something' with the results and don't just report them on their own (i.e. will it support a shift in asset allocation, result in divestment, increased focus on engagement.)



BEST ENDEAVOURS: Explain why the scenarios were conducted as they were, the associated costs, the limitations of such analysis and why the investment organisation has responded as it has done.



STRATEGIC: Reporting the high level findings and outcomes to stakeholders would position climate change as an integral systemic risk to consider, alongside other risks such as ageing population, Brexit, China slowdown, etc.



COMPARABLE: Not yet possible as the methodologies for scenario analysis are not open access and are likely to evolve, although the 2ii transition alignment is open access technology and hence could become an industry standard. The ideal would be to embed these technologies into portfolio risk tools like Barra to promote standardisation.



MATERIAL: Scenario analysis will have a direct bearing on how investors respond and communicate to their stakeholders about where the greatest risks and opportunities are in relation to climate change.



INFORMATIVE: Scenarios might be confusing for a non-investment audience and as such need to be carefully interpreted and presented to provide insight into the analysis and the investment response.

Adaptation impacts

Investor disclosure should include reporting on the physical impact risks associated with climate change, particularly in relation to 'real' assets such as property, infrastructure and agriculture – but also for corporations whose plant, equipment and operations, or those of key suppliers, might be at risk of extreme weather events. Climate change is already impacting on agriculture and food supply, infrastructure, precipitation and water supply in ways that are only partially understood. This places some existing infrastructure, business models and assets at risk, and also produces new investment opportunities in adaptation solutions and resilient infrastructure.

The factors that support adaptation analysis

- There is strong empirical evidence on physical climate impacts to draw from across the scientific community that is currently not being integrated into investment processes in a comprehensive way. Efforts to address adaptation in investment management and reporting would help to bring the science closer to investment decisions²¹.
- There is significant potential for adaptation risks to impact on asset valuations.
- Drawing from sources such as the IPCC, UNFCCC, OECD and World Bank as well as country level reports particular to an investor's domicile, investors can begin to identify the sectors and types of assets in climate vulnerable locations within their portfolio²².
- The TCFD Report provides additional guidance on unpacking the issues and differentiating between acute and chronic physical risks.
- CDP includes some questions for companies on adaptation in their surveys, which could be used as a guide for investors to engage with companies and other investee entities²³.
- There are some examples to draw upon where investors have undertaken a comprehensive assessment of the physical impact risk of their

infrastructure and property assets, engaging relevant expertise related to the asset class in question^{24,25}.

- Evidence of potential vulnerability of assets to climate change effects would raise questions around the appropriate response – should investors sell the assets, upgrade (including consideration of the costs), relocate, engage with government for protection or resilience measures to be introduced, engage with corporations to take precautionary measures, and so on.

The limitations of including adaptation analysis

- The lack of data providers available to aggregate physical impact risks into a readily digestible format for investors could make analysis on a case by case basis a labour intensive and costly exercise²⁶.
- There is a high degree of uncertainty around the timing and scale of physical impact risks associated with climate change, with some impacts forecast for 50-100 year time horizons rather than shorter time periods. This would necessitate the application of consistent scenario analysis for specific localities, but even that may not overcome the challenges of developing meaningful adaptation analyses over a 50-100 year time horizon.
- Some changes are expected to be abrupt once tipping points are crossed as opposed to incremental. These changes are very difficult to model or account for, with an argument that while the worst case scenario is most relevant to stakeholders, it is not necessarily the most actionable by the investor.

Adaptation Analysis and the 7 Principles of Good Disclosure



IMPACT: Potential social benefits of taking precautionary action and engagement to protect assets (saving jobs, lives).



AGENCY: Crucial component of proactively managing the physical impact risks of the assets held in the portfolio (particularly the illiquid assets).



BEST ENDEAVOURS: Not all assets held can undergo an extensive adaptation analysis given the costs involved. Focus on those with potentially the greatest impact on the fund's performance.



STRATEGIC: Taking a long-term view by looking at the resilience of the portfolio assets to climate effects.



COMPARABLE: Not yet possible as the methodologies are not developed, would need to be on an asset by asset basis and assessed against the specific risks within the relevant region/geography.



MATERIAL: It could directly identify risks to asset values and flag the need for precautionary action.



INFORMATIVE: It would inform stakeholders about assets at risk but could also be confusing in terms of explaining the response that investors take.

7 INVESTOR DISCLOSURE PATHWAYS

Given (1) the complexity of the climate challenge; (2) the uncertainty of government and business responses; and (3) the ongoing development of existing and new climate reporting metrics, investor disclosure is generally at an early stage and is expected to evolve over time. It is crucial that internal investment teams are closely involved in this evolution, by looking at the appropriate disclosure metrics, considering the risk/return implications and the best tools to utilise as part of the climate change investment strategy.

The end communication of these deliberations and outcomes can be developed on a solid, investment driven platform that has involved the investment teams and fostered a considered, in-house dialogue and debate around the issues. This can, in turn, facilitate progression through to more 'advanced' responses to climate change such as the utilisation of scenario analysis, consideration of the implications for asset allocation and investment in low carbon, energy efficient opportunities.

Below are suggested cumulative stages for the evolution of an investor's disclosure, recognising that the means of most effective approach to disclosure will need to be kept under review in light of the complexities, uncertainties and developments outlined above:

1. **Baseline:** The minimum level of disclosure that an investor should aim to provide, based on what is available and possible to implement today.
2. **Intermediate:** Baseline actions plus a higher level of reporting that an investor can disclose based on what is available and feasible to implement today.
3. **Advanced:** Intermediate actions plus the absolute most that an investor could disclose today based on what can be developed with additional bespoke work from specialist providers.
4. **Future vision:** The ultimate direction of where the metrics and reporting framework will evolve in the future.

Baseline

Narrative:

- Statement of organisational (corporate) position on climate change
- Recognition of climate science as an investment issue/relevance
- Developing investment beliefs as they relate to climate change
- Relationship of climate change to investment process and policies
- Key priorities and actions

Metrics:

- Voting and engagement activities at portfolio level
- Developing carbon footprint (portfolio level, absolute and versus the benchmark) including analysis/discussion of major contributors to footprint, individual company effects and sector allocation effects
- Identification of most exposed assets/sectors

Intermediate

Narrative:

- Long-term vision to reduce exposure to brown assets and increase exposure to green assets
- Link to government policies and forward carbon price trajectories
- Specific engagement and investment actions and outcomes

Metrics:

- Voting and engagement outcomes at stock level
- Carbon footprinting (enhancement) + Scope 1, 2 & 3 sliced & diced
- Avoided emissions
- Green/brown measures (sector specific, distinguish between climate solutions & climate problems)
- Case studies of high carbon and low carbon company portfolios

Advanced

Narrative:

- Scenario analysis and 1.5-2 degree alignment are key tools to utilise
- Goal to shift asset mix to better position for a low carbon, energy efficient world
- Adaptation risks and opportunities seen as important for 'real' assets

Metrics:

- Portfolio wide scenario analysis to examine the risks and opportunities at the asset class and sector level
- Transition risk to 1.5-2 degree alignment
- Full measurement and disclosure of green/brown disclosure using bespoke research on the investment portfolio
- Reduction in GHG emissions, water usage, waste management

Future Vision

Narrative:

- Future proof and transition portfolio for a 1.5-2 degree outcome
- Bold and focused engagement with policy makers

Metrics:

- Asset allocation shifts that are consistent with 1.5-2 degree scenario
- Complete bottom up transition alignment with 1.5-2 degree outcome including impact on credit ratings/cash flow projections at company/security level
- Future share of green/brown using proxies such as R&D, reserves, life of asset, capex
- Full physical risk vulnerability assessment of assets as low/medium/high and remedial actions implemented

8 CONCLUSION

In developing this guidance document, IGCC and AIGCC have sought to present and discuss the real world challenges that investors are tackling as they seek to implement new pathways for investor disclosure on climate change. While the challenges are manifold, it is also clear from this guide that there is no shortage of effort being applied to resolving today's barriers to continue strengthening investor disclosure.

There are now a number of useful reporting frameworks and tools in the marketplace which are being tested and applied in today's investor reporting. The recommendations of the FSB Task Force on Climate-related Financial Disclosures will provide a useful framework for the evolution of corporate and investor disclosure in the years to come.

Laying the groundwork by following core principles for good disclosure is key. Investor reporting should aim to deliver the focus, perspective, approach and key attributes of effective investor disclosure discussed in this guide.

Building a strategic narrative which best illustrates how investor organisations view climate change from a strategic and organisational perspective is the bedrock of good disclosure. A full and frank discussion of today's financial position – and of tomorrow's scenarios – is essential context for the investor journey.

Metrics and data-based approaches are also rapidly evolving as the investment community seeks to better understand which metrics best capture the underlying risks and clearly articulate the role their organisations are playing to support the transition to a net zero emission economy.

And finally, recognising that disclosure will continue to evolve, means that any organisation will always need to monitor the current and future state of play for investor disclosure by benchmarking their practice against evolving best practice for peer investment organisations.

Through consultation and deliberation, the investors who participated in the development of this guide have provided their real world insights on the practical challenges of investor disclosure, as they see them. This is part of an ongoing conversation which will continue – and we welcome your feedback on the approaches set out in this document.



Appendix A

Literature reviewed in formulating the Guide

Literature
The International <IR> Framework Integrated Reporting (IRR)
Reporting Guidelines and Financial Services Sector Supplement (RG & FSSS), GRI
CDP – questionnaire and guidance document
Global Investment Performance Standards Handbook, GIPS Executive Committee
ICGN Guidance on Integrated Business Reporting (ICGN)
ASX Corporate Governance Guidelines, ASX Corporate Governance Council
Sustainability Accounting Standards Board (SASB)
General accounting principles (ACCA)
Phase I Report of the Task Force on Climate-Related Financial Disclosures (TCFD)
Carbon Compass – Investor Guide to Carbon Footprinting, Kepler Cheuvreux
Greenhouse Gas Protocol Technical Guidance For Calculating Scope 3 Emissions: Corporate Value Chain Accounting & Reporting Standard Chapter 15: Investments, GHG Protocol
Climate Strategies And Metrics: Exploring Options For Institutional Investors, WRI , UNEP-FI AND 2° Investing Initiative: Portfolio Carbon Initiative
AA1000 AccountAbility Principles Standard ; AA1000 AccountAbility Assurance Standard; AA1000 Stakeholder Engagement Standard, AccountAbility
Draft Recommendations of the Task Force on Climate-related Financial Disclosure (TCFD)

Appendix B

The table below summarises some of the specific metrics that relate to those discussed in this paper.

Climate Change Reporting Metrics	
CARBON FOOTPRINTING²⁷	
Absolute carbon footprint	t CO ₂ e
Normalised by portfolio market value	t CO ₂ e/USDm invested
Normalised by sales	t CO ₂ e/USDm sales
Weighted average carbon intensity	t CO ₂ e/USDm sales
GREEN/BROWN METRICS²⁸	
Point in time	Share of green/brown products or services as % of earnings, revenue or profit
Forward looking	Future share of green/brown using proxies such as R&D, reserves, life of asset, capex
IMPACT METRICS	
Avoided emissions	Emissions that are avoided outside a company's Scope 1, 2 or 3 due to its products or services.
Renewable energy	MWh
Energy efficiency	MWh/output
Water	Water saved/treated (litres)
Materials/waste	Material recovered/waste treated (tonnes)
COMPANY ENGAGEMENT METRICS	
Strategy	Company develops a strategic plan/response to climate change
Reporting	Company reports GHG emissions and completes CDP questionnaire
Emissions	Company reduced GHG emissions
Energy efficiency	Company improves energy efficiency
Renewable energy	Company utilises RE sources
Water	Company reduces water usage
Materials/waste	Company reduces material usage/waste

RATINGS AND RESEARCH METRICS	
Climate score	Improve average climate score across portfolio holdings over time
SCENARIO ANALYSIS ²⁹	
Climate scenarios	Regional, asset class, sector and stock level sensitivity to climate scenarios
Transition alignment	Sector and stock level portfolio alignment with 1.5-2 degree outcome
ADAPTATION METRICS	
Asset specific analysis	Vulnerability of large and at risk assets to climate change physical impacts
Climate vulnerability scoring	Asset or company climate vulnerability ratings rolled up to a portfolio level and weighted average basis, or by hotspot analysis.

Source: Compiled by Dr. Danyelle Guyatt, Collaborare Advisory, based on the IGCC Disclosure Working Group's literature review and other sources as cited

References

- 1 More information at www.fsb-tcf.org
- 2 The Paris Agreement states “well below 2°C and continue all efforts to limit the rise in temperatures to 1.5°C”.
- 3 More information at www.fsb-tcf.org
- 4 <http://globalinvestorcoalition.org/low-carbon-investment-registry/>
- 5 See for example the PRI Academic Network Workshop (2015) From Awareness to Impact, Mechanisms of Change in Responsible Investment. Available at: https://www.unpri.org/download_report/6141
- 6 The FSB TCFD Supplementary Guidance for Asset Owners states “The Task Force views the reporting of GHG emissions associated with investments as a first step and expects disclosure of this information to prompt important advancements in the development of decision-useful, climate related risk metrics. The Task Force recognises that some asset owners may be able to report such information for only a portion of their investments given data availability and methodological issues”. P.35, Implementing the Recommendations of the Task Force on Climate-related Financial Disclosure. 2016. https://www.fsb-tcf.org/wp-content/uploads/2016/12/16_1220_TCFD-Annex-Letter.pdf
- 7 Some of the issues around setting an organisation’s beliefs, policies and investment processes to reflect climate change is further discussed in the Global Investor Coalition (GIC) 2015 Climate Change Investment Solutions: A Guide for Asset Owners. Available here: <http://www.igcc.org.au/Resources/Documents/Climate-Change-Investment-Solutions-GuideFINAL.pdf>.
- 8 Sources: UNEP Finance Initiative (2005). A legal framework for the integration of environmental, social and governance issues into institutional investment. Available at www.unepfi.org/fileadmin/documents/freshfields_legal_resp_20051123.pdf

In South Africa, Regulation 28 of the Pensions Act was amended in 2011 to include specific reference to ESG issues. In the UK the Law Commission was requested to look into this issue following the Kay Review on short-termism and in 2015, the commission noted that ESG issues should be taken into account as part of the consideration of financially material factors, and that the obligation is to focus on long-term returns/risk (i.e. not short-term).

Also see Hawley et al (2014) for an extensive discussion of these issues across a range of jurisdictions, as well as an overview in Lake, R. (2015) Financial Reform, Institutional Investors and Sustainable Development, A report commissioned as part of the UNEP FI Inquiry into the Design of a Sustainable Financial System.
- 9 <http://reports.weforum.org/global-risks-2017/>. Mercer (2011; 2015) Climate Change Asset Allocation Implications, various reports
- 10 Various research reports produced by IEA, the Carbon Tracker Initiative and the University of Oxford’s Stranded Assets Programme have studied the risk of fossil fuel assets becoming ‘stranded’ in a strong climate change mitigation scenario. The FSB Taskforce on Climate Related Financial Disclosure is also looking at this issue and will make a recommendation in December 2016 about what climate metrics need to be reported to enable the financial system to better measure and manage its potential exposure to such risks. Source: <https://www.fsb-tcf.org>
- 11 Some of the carbon footprinting data providers include Trucost, Sustainalytics, Ecofys, MSCI, South Pole, Carbon 4, Grizzly RI, UIGEO-EIRIS, Cross Asset Footprint
- 12 <http://montrealpledge.org>
- 13 <http://unepfi.org/pdc/>. PDC now convenes 25 investors overseeing the decarbonization of \$600bn in commitments out of \$3.2 trillion in assets under management.
- 14 Impax Asset Management has provided an interesting discussion of the challenges of carbon footprint methodologies in capturing the full spectrum of carbon asset risk. See Carbon Risk for Investors: Building a “Smart Carbon” portfolio. <http://www.impaxam.com/media-centre/white-papers/carbon-risk-investors-building-smart-carbon-portfolio>
- 15 At the time of writing, MSCI ESG was reportedly developing a portfolio wide green/brown analytical framework that could be utilised by investors, but this was not yet launched. South Pole and Trucost have developed metrics on the fraction of revenues derived from coal. In addition, ESG research providers such as Wood Mackenzie on the oil, gas, & coal sector, ThomsonReuters and Infrastructure Journal on project finance, and GlobalData for the power sector. Some data is publicly available; for example, the U.S. Energy Information Administration makes its data available for free. Source: Zii (2015) Climate Strategies and Metrics: Exploring Options for Institutional Investors. Available at http://www.unepfi.org/fileadmin/documents/climate_strategies_metrics.pdf
- 16 <http://investorsonclimatechange.org/portfolio/aiming-for-a/>
- 17 Examples of providers of climate scores include

- MSCI, FTSE Russel, OEKOM, Trucost, Inrate, Vigeo-EIRIS, and South Pole – for listed equities. For listed property, GRESB is well developed and is also being extended to listed infrastructure funds.
- 18 Ceres has also produced a “A Framework for 2 Degrees Scenario Analysis: A Guide for Oil and Gas Companies and Investors for Navigating the Energy Transition. <https://ceres.org/resources/reports/a-framework-for-2-degree-scenario-analysis>
- 19 <http://sciencebasedtargets.org/>
- 20 Zii (2016) Investor Climate Disclosure: Stitching Together Best Practices. Available here: http://2degrees-investing.org/IMG/pdf/160615-cdaward_scoringsyst_v.okconsult.pdf
- 21 IGCC has produced a guide for investors to assist in adaptation investment, From Risk to Return: Investing in Climate Change Adaptation. http://www.igcc.org.au/resources/Pictures/Adaptation_FINAL.pdf
- 22 See for example: Agrawala, S. et al. (2011), “Private Sector Engagement in Adaptation to Climate Change: Approaches to Managing Climate Risks”, OECD Environment Working Papers, No. 39, OECD Publishing. <http://dx.doi.org/10.1787/5kg221jkf1g7-en>; ClimateWise (2008), ‘Managing the Unavoidable: Understanding the investment implications of adapting to climate change’, A joint paper prepared by Henderson Global Investors, USS, Railpen, Insight Investment.
- 23 Examples of questions to ask companies to reduce climate vulnerability:
- 1) How do companies evaluate climate change adaptation risks? e.g. physical risks, supply chain and raw material risks, reputational risks, financial risks, product demand risks, regulatory risks, and litigation risks.
 - 2) Do companies describe adaptation strategies as part of their overall climate strategy?
 - 3) What are the potential financial implications of any identified physical climate impacts?
 - 4) What are the adaptation practices - management processes, methods and costs?
 - 5) Do companies engage with policy makers on adaptation? i.e. Are they involved in positive or negative campaigns for policy action?
- Source: Adapted from CDP (2012) Insights into climate change adaptation by UK companies
- 24 For example, AustralianSuper commissioned an engineering firm to complete an in-depth risk assessment of its six largest infrastructure assets to climate change impacts. The study identified
- the components of the asset responsible for the generation of investment returns and modelled each component using a variety of climate change scenarios and data supplied by CSIRO. Another example is PRUPIM who reviewed its flood risk assessment process. The rating of every UK property was cross-referenced against the Environment Agencies’ flood risk databases to ensure that its managers understood the flood risk levels for each asset. Where a property was determined to have an elevated flood risk, this triggered engagement with property and facility managers to ensure they were both aware of the risk level and understood potential mitigation measures. Source: Climate Change Investor Solutions (2015) A Guide For Asset Owners, GIC.
- 25 Additional guidance on steps investors can take is set out in the IGCC Report ‘Investing Through the Adaptation Lens’. 2015. www.igcc.org.au/publications
- 26 Data providers who consider adaptation risks for investors and companies that are emerging or are already available include Spot Risks; Maplecroft; Cicero.
- 27 Source: Kepler Cheuvrex (2015) Energy Transition and Climate Change report, Table 4, page 30.
- 28 Taxonomy and definitions of green versus brown is still evolving, industry best practice tends to refer to the CBI Taxonomy, also used by the Low Carbon Investment Registry. Investors such as Kepler Cheuvrex are going further to develop additional metrics and definitions. See “Reporting on Impact” report by Samuel Mary.
- 29 Mercer (2011; 2015) Climate Change Asset Allocation Implications, various reports



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