



ESG, and the business case for dealing with climate change

Recommendations of the taskforce on climate related financial disclosures (TCFD)

The current non-financial reporting landscape

Environmental, Social and Governance (ESG). Three key words which are going to drive significant changes in corporate reporting. Currently, a plethora of voluntary and diverse reporting frameworks exist, some of which a number of (mainly large) companies have chosen to adopt. However, the reporting is inconsistent due to the differing requirements of those frameworks and, because they are voluntary, there is inconsistency in their application together with a perceived (and real) risk that companies will focus on metrics that portray them in a positive light, leading to suggestions of so-called 'greenwashing'.

Change is coming, with companies under increasing pressure to demonstrate greater commitment to long-term, sustainable value creation which incorporates the wider demands of people and planet. In September 2020, the International Business Council of the World Economic Forum published a white paper which sets out 21 core, and 34 expanded, metrics, drawn where possible from existing standards and disclosures, that could be reflected in mainstream annual reports of companies on a consistent basis across all industries and countries. Elsewhere, on a regional basis, the European Commission is revising its Non-Financial Reporting Directive, and a Project Task Force of the European Financial Reporting Advisory Group (EFRAG) has been working on the potential establishment of an EU non-financial reporting standard setter.

On a wider basis, there are encouraging signs that the world may be moving towards the establishment of a global non-financial reporting standard setter. At the end of September 2020, the IFRS Foundation published a consultation paper, asking for views on its potential role in non-financial reporting standard setting. At the same time, a group of five of the most established non-financial reporting standard setters (CDP, CDSB, GRI, IIRC and SASB) issued a statement of intent, committing to work together. In October 2020, in an open letter, the Chair of the IOSCO Sustainability Task Force expressed support for the IFRS Foundation's and the group of five's initiatives to come together. It was also noted that IOSCO was in a position to help with the process, as was done 20 years ago when it endorsed IFRS for use in cross border offerings and listings.

In early 2021, following a comprehensive outreach programme during the three month consultation period which ended on 31 December 2020, and an initial review of the 576 comment letters received, The Trustees of the IFRS Foundation noted growing and urgent demand to improve the global consistency and comparability in sustainability reporting, and strong support for the IFRS Foundation to play a role in this. A Trustee Steering Committee will oversee the next phases of work, with the intention being for the Trustees to produce a definitive proposal (including a roadmap) by the end of September 2021, and the possible announcement of the establishment of a Sustainability Standards Board at the meeting of the United Nations Climate Change Conference COP 26 to be held in Glasgow in November 2021.

The more immediate focus on climate

As the world looks ahead to emerging from the Covid pandemic, there is increasing focus on another global imperative: climate change. From a straightforward commercial perspective, this should be high on the agenda for all companies, in particular those in more significantly affected industry sectors. In order to attract funding from investors and lenders, businesses will need to demonstrate how their operating models are sustainable in the short, medium and longer term. This is not something for the future; investors are demanding it now. Many governments are also driving change, by developing and implementing policies that are designed to encourage (and in some cases require) businesses to take substantive steps towards the long term goal of a zero carbon economy.

Although, as noted above, a large number of non-financial reporting frameworks exist globally, for climate-related issues many companies are adopting (and in some jurisdictions, such as the UK (in 2021) and New Zealand (in 2023), are being required to adopt), the recommendations of the Taskforce for Climate-Related Financial Disclosures (TCFD). In this publication we set out the current landscape, and summarise the TCFD recommendations and related guidance to help companies get started in reporting how they are working on a transformation which is not optional, but is instead a requirement for them to have a sustainable future.



Henning Dräger

Global ESG Lead

henning.drager@bdo.global

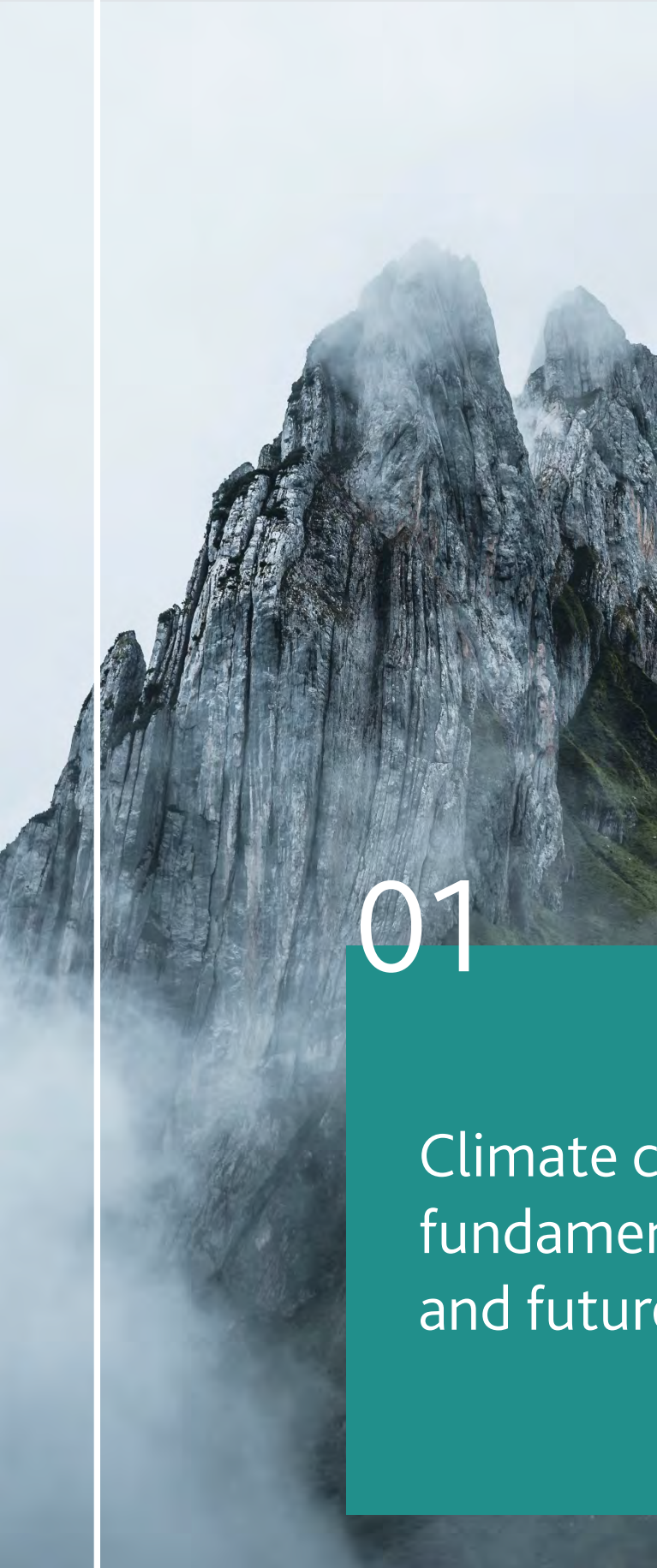


Andrew Buchanan

Global Head of IFRS and Corporate Reporting

abuchanan@bdoifra.com





01

Climate change and its
fundamental link to current
and future business strategy

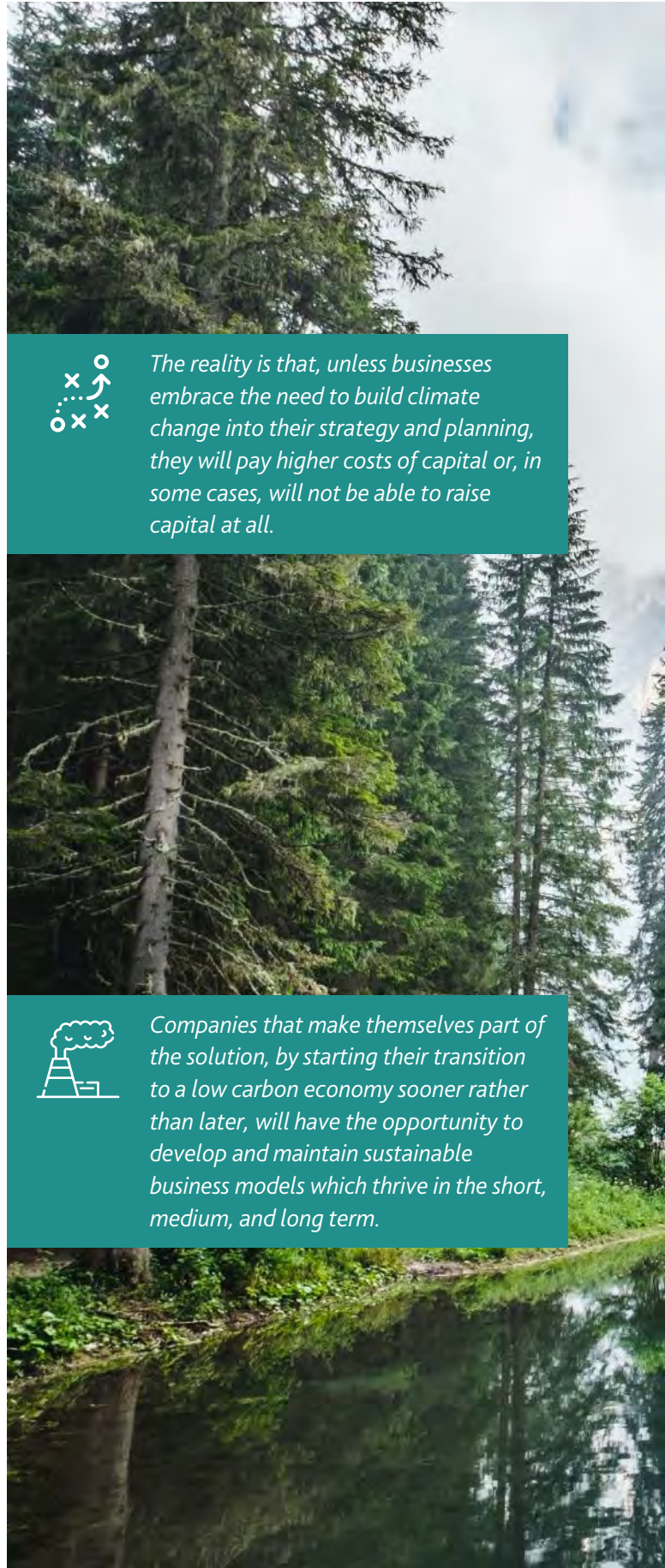
The business imperative

The need for companies to implement fundamental changes to their business models because of climate change has, for some time, been called for by the United Nations, non-financial reporting standard setters, business associations and an increasing number of governments, and more recently has been attracting significant attention from investors. At the World Economic Forum Davos Agenda in January 2021 Larry Fink, the founder and CEO of Blackrock, noted an increasing gap in business valuations between those which take climate change seriously, and those companies that do not. Many other investors are calling for companies to be transparent about the effects of climate on their current and future activities. The reality is that, unless businesses embrace the need to build climate change into their strategy and planning, they will pay higher costs of capital or, in some cases, will not be able to raise capital at all. In some industry sectors, such as natural resources, tourism, transport and agriculture, the need to demonstrate how entities have sustainable business models in the context of climate change is with us already; other industry sectors are not far behind.

Forward looking companies are likely to conclude that it will be better for enterprise (and shareholder) value if climate is brought high on their agenda sooner rather than later. As well as mitigating the level of damage to the environment and economies, it gives more time to plan and invest efficiently in lower carbon technologies. The amounts involved are huge. In February 2021, Mark Carney, former central banker and currently the UN Special Envoy for Climate Action and Finance, was quoted as saying that 'the scale of investment in energy, sustainable energy and sustainable infrastructure needs to double. Every year for the course of the next three decades, \$3.5 trillion a year, for 30 years. It is an enormous investment opportunity'.

A key issue that hinders progress in this area is that the exact timing and severity of physical effects resulting from climate change are often difficult to estimate. The large-scale and long-term nature of the problem makes it uniquely challenging, especially in the context of economic decision making. Accordingly, many companies incorrectly perceive that the implications of climate change will be relevant only at some point in the future and, therefore, not necessarily something to be built into decisions made today.

However, the bottom line is this. Companies that make themselves part of the solution, by starting their transition to a low carbon economy sooner rather than later, will have the opportunity to develop and maintain sustainable business models which thrive in the short, medium, and long term. At the same time, they will create significant value for investors. Those that do not will become increasingly uncompetitive. With investors focussing on how well prepared companies are for climate change and seeking to identify which of them will be on the right and wrong side of climate history, the message is clear.



The reality is that, unless businesses embrace the need to build climate change into their strategy and planning, they will pay higher costs of capital or, in some cases, will not be able to raise capital at all.



Companies that make themselves part of the solution, by starting their transition to a low carbon economy sooner rather than later, will have the opportunity to develop and maintain sustainable business models which thrive in the short, medium, and long term.

Climate change

Climate change has been accelerating in the first part of the 21st century and is driven primarily by increasing emissions of greenhouse gases (including carbon dioxide, methane and nitrous oxide), which trap heat in the Earth's atmosphere and raise its average surface temperature. These increases in temperature are linked to long-term changes in weather patterns, including increased and widespread flooding and wildfires, as well as more intense droughts and hurricanes.

Consistent with calls from the UN Intergovernmental Panel on Climate Change (IPCC), the leading global scientific authority, to cut emissions of greenhouse gases to limit further increases in temperature, in 2015 the Paris Agreement was signed by 196 jurisdictions which entered into a legally binding international treaty on climate change. The undertaking given was to limit further increases in global average temperatures to 2.0°C, and preferably 1.5°C, above pre-industrial levels. Currently, the global increase is approximately 1.0°C in comparison with pre-industrial levels.

In order to achieve this goal in the Paris Agreement, significant reductions in greenhouse gas emissions will be needed. This will require vast improvements in both the level of efficiency in the use of energy, and in the ways in which that energy is produced. Consequently, regardless of industry sector and entity, fundamental changes will be needed to the way in which businesses are run.

As the world emerges from the COVID pandemic, many governments have reaffirmed their commitment both to the Paris Agreement, and to taking the necessary steps to mitigate climate change and reduce global warming. Changes in government policy are likely to include increased and potentially punitive taxes on environmentally inefficient (or significant greenhouse gas emitting) business and consumer activities, and legislation which will force fundamental changes to products and services (including some that we are already seeing, such as prohibitions in some jurisdictions on the sale of cars with internal combustion engines from as early as 2030).



Regardless of industry sector and entity, fundamental changes will be needed to the way in which businesses are run.

The need for climate reporting

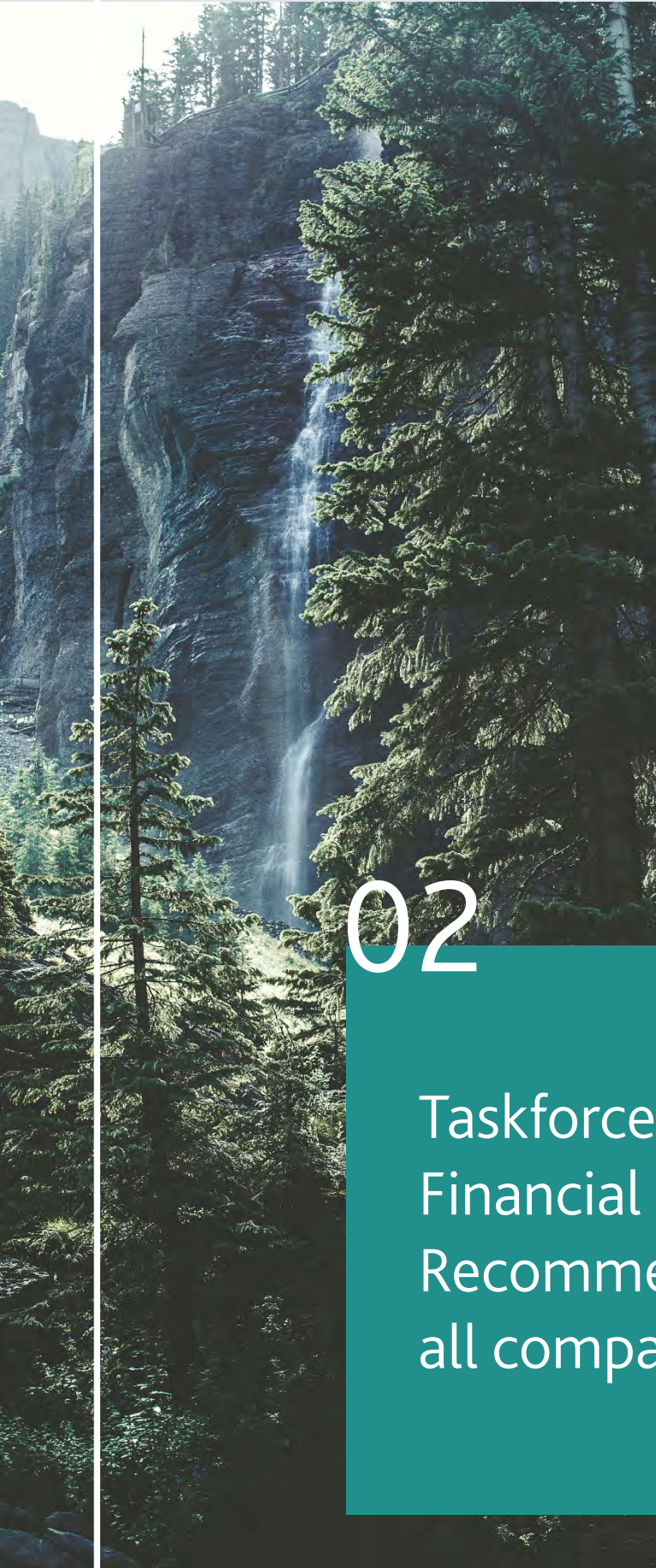
As well as demands from governments and investors, other parties including customers, suppliers and employees are increasingly pushing for companies to disclose better information about how existing and planned business activities and investments affect climate change.

Although 'climate change' is not directly addressed by current International Financial Reporting Standards (IFRS), those Standards do address issues that relate to climate-change risks. In November 2019, the IFRS Foundation published an article written by IASB Board member Nick Anderson, which provided an overview to help investors understand what already existed in IFRS requirements and provide guidance in the application of materiality, and how those relate to climate and other emerging risks. In November 2020, the IFRS Foundation published educational material following requests from stakeholders for further information to highlight how existing requirements in IFRS Standards may require companies to consider climate-related matters when their effect is material to their financial statements. This educational material complements the earlier Nick Anderson article, and is intended to support the consistent application of the requirements of IFRS Standards.

However, consistent with the quote attributed to Peter Drucker 'if you can't measure it, you can't manage it', companies are increasingly under pressure to start measuring and reporting their actual contribution to climate change and the projected related effects on their business models. This includes creating greenhouse gas emission baselines using uniform, consistent and comparable data sets derived from high quality underlying information. In order to track each company's progress, and to support governments in their development of appropriate climate policies (including for specific industries), climate-related targets and metrics and associated performance data need to become an integral part of companies' annual reporting cycles. This includes the related effects on amounts reported in financial statements and disclosures made elsewhere in corporate reports. A significant number of non-financial reporting standards exist, which include climate-related disclosures. However, there is no requirement to adopt any of them and, in practice, there is a perceived (and actual) risk that some companies report only some of the disclosures, potentially because these portray them in a more favourable light, leading to accusations of 'greenwashing'.

Although they are not mandatory, many companies have adopted the recommendations of the Taskforce on Climate-Related Financial Disclosures (TCFD), which are widely regarded as constituting a comprehensive and high quality reporting framework.

In contrast with information presented in accordance with financial reporting standards in financial statements on which an audit (reasonable assurance) opinion is provided, non-financial information is either not subject to assurance, or is reported on through a review (i.e. limited assurance) opinion. In some cases this is provided in accordance with the International Standard on Assurance Engagements (ISAE) 3000. Audit (i.e. reasonable assurance) opinions are rarely, if ever, provided.



02

Taskforce for Climate-Related
Financial Disclosure (TCFD)
Recommendations –
all companies

Background

The Financial Stability Board established the TCFD in 2015 to develop recommendations (the Recommendations) for more effective climate reporting. It was an industry led group, with global membership drawn from large banks, insurance companies, asset managers, pension funds, large non-financial companies, accounting and consulting firms, and credit rating agencies.

The aim of the Recommendations is to promote more informed investment, credit and insurance underwriting decisions, and improve stakeholders' understanding of climate-related risk and opportunities. Better information enables investors to engage with companies to better understand the resilience of their business models, which should assist in a smooth rather than an abrupt transition to a lower carbon economy. Governments and regulators will also be more able to coordinate joint interventions and investments more quickly and on a global scale.

Globally, over 1,500 companies have already adopted the Recommendations with some jurisdictions announcing the introduction of mandatory adoption. In the UK, many listed companies will be required to report in accordance with the Recommendations from 2021, with the scope of companies covered by the regulations extending in 2022 and 2023. In New Zealand, reporting will be required from around 200 financial sector organisations from 2023. The Recommendations have also been mapped across all major non-financial reporting frameworks already in existence, including GRI, CDP, the IIRC, CDSB and the G20/OECD Principles of Corporate Governance. Consequently, even if a company is already reporting information under another existing framework, the Recommendations can be integrated into its existing disclosure systems and practices without conflict.

The Recommendations

The Recommendations were designed to be capable of being adopted by all companies, regardless of sector and geographic location. They describe information that companies should disclose to help investors, lenders and other stakeholders better understand how companies view and manage climate-related risks and opportunities. In addition, companies are encouraged to clearly state their material climate-related risks and opportunities in the short, medium and longer-term.

It is recommended that the disclosures are made in mainstream (i.e. public) annual financial filings, and should be aligned with legal and regulatory requirements which, in most G20 jurisdictions, require material information to be included in financial filings, including material climate-related information. 'Financial filings' are annual reporting packages (or annual reports) in which companies are required to include their audited financial statements in accordance with the corporate, compliance or securities laws of the jurisdictions in which they are established and operate.

However, the Recommendations are not intended to supersede national disclosure requirements, and companies need to continue with those requirements. In addition, if certain elements of the Recommendations are incompatible with national disclosure requirements for financial filings, companies are encouraged to include the disclosures associated with those elements in other official company reports that are issued at least annually. Those reports should be widely distributed and available to investors and other parties, and should be subject to the same or substantially similar internal governance processes as are used for financial reporting.

These are summarised below, together with guidance which is applicable to all industry sectors. In addition, the Recommendations include supplemental guidance for four financial sector industries (banks, insurance companies, asset owners and asset managers) and for non-financial groups and associated industries. These are summarised in sections 3 and 4 of this publication.

Most information included in annual financial filings is subject to an assessment of materiality. However, because climate-related risk is a non-diversifiable risk which affects almost all industry sectors, many investors consider it requires special attention. The Recommendations note that, when they are assessing a company's financial and operating results, many investors want insight into a company's governance and risk management. Consequently, disclosures in the Recommendations about those two areas should be made regardless of their materiality.

For disclosures related to strategy, and metrics and targets, disclosures should be included in annual financial filings when the information is material. Companies in the non-financial groups and associated industries above a certain size (in excess of USD 1 billion in annual revenue) are encouraged to disclose this information in other reports when it is not material. However, the Recommendations caution against a premature conclusion that climate-related risks and opportunities are not material because a company perceives certain of the risks to be long-term in nature.

The recommended disclosures focus on four areas:



Governance



Risk management



Strategy



Metrics and targets



Governance: The organisation's governance around climate-related risks and opportunities

Recommended disclosures

Describe the climate-related risks and opportunities identified by the organisation over the short, medium and longer term.

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

Guidance

- ▶ How, and how often, are the Board / Board committees informed about climate-related issues?
- ▶ When taking strategic and other decisions, do the Board / Board committees consider climate-related issues? This can include annual budgets and business plans, risk management policies, performance objectives and related remuneration incentives, capital expenditure and business acquisitions and disposals.
- ▶ How does the Board oversee and monitor progress against goals and targets for addressing climate-related issues?
- ▶ Have climate-related responsibilities been allocated to management-level individuals or committees? If so:
 - Do these responsibilities include the assessment and/or management of climate-related issues?
 - Do these individuals or committees report to the Board or a Board committee?
- ▶ What are the related organisational structures?
- ▶ How is management informed about climate-related issues?
- ▶ How does management monitor climate-related issues?



Strategy: The actual and potential impacts of climate-related risks and opportunities on the organisation's business, strategy and financial planning

The guidance below refers to short, medium and long-term time horizons. These horizons are not defined, because organisations will be affected in different ways depending on the life of their assets, the profile of the climate-related risks that they face, and the sectors and geographies in which they operate.

Many organisations carry out operational and financial planning over a 1-2 year period, and strategic and capital planning over a 2-5 year period. However, climate-related risks may well have longer term implications for organisations, and so when those risks are being considered it will be appropriate to incorporate appropriate time horizons.

Recommended disclosures	Guidance
Describe the climate-related risks and opportunities identified by the organisation over the short, medium and longer term.	<ul style="list-style-type: none"> ▶ Include the following information: <ul style="list-style-type: none"> – Describe the relevant short, medium and long-term time horizons. Take into account the useful life of assets or infrastructure, and that climate-related issues often manifest themselves over the medium and longer term. – Describe the specific climate-related issues that may arise in each time horizon that could have a material financial effect on the organisation. – Describe the process or processes which have been used to determine which related risks and opportunities could have a material financial effect on the organisation. ▶ Provide a description of risks and opportunities by sector and/or geography, as appropriate for the organisation.
Describe the impact of climate-related risks and opportunities on the business model, strategy and financial planning	<p>Disclosures in this section build on those made for section a), and discuss how climate-related issues which have been identified have affected the organisation's businesses, strategy and financial planning.</p> <p>Consider disclosure of the impacts on businesses and strategy for:</p> <ul style="list-style-type: none"> ▶ Products and services ▶ Supply chain and/or value chain ▶ Investments in research and development ▶ Operations (including types of operation and the location of facilities) <p>Describe how climate-related issues are used as an input to financial planning processes. Include the time period (or periods) used and how the related risks and opportunities are prioritised. The disclosures should provide an overall picture / assessment of the interdependencies among the factors that affect the organisation's ability to create value over time.</p> <p>Consider disclosing the impacts on financial planning in the following areas:</p> <ul style="list-style-type: none"> ▶ Operating costs and revenue ▶ Capital expenditure and capital allocation ▶ Acquisitions or disposals ▶ Access to capital <p>Describe any climate-related scenarios that were used as an input to inform/determine the organisation's strategy and financial planning.</p>
Describe the resilience of the organisation's strategy against different climate-related scenarios e.g. different impacts on infrastructure at higher future temperatures, including a 2°C or lower scenario	<p>Describe the resilience of business strategies to climate-related risks and opportunities. Take into consideration the transition to a lower carbon economy which is consistent with a 2°C or lower scenario. Where it is relevant to an organisation, include scenarios consistent with increased physical (e.g. flood, fire, storm) climate-related risks.</p> <p>Consider including:</p> <ul style="list-style-type: none"> ▶ Where it is believed strategies may be affected by climate-related risks and opportunities ▶ How strategies might change to address those risk and opportunities ▶ The climate-related scenarios which have been considered, and their related time horizons



Risk Management: The processes used by the organisation to assess, manage and report on climate-related risks.

Climate-related risks are divided into physical and transition risks.

Physical risks are interruption of organisational activities due to climate change impacts. They include event-driven, acute risks such as flooding and wildfires preventing access to (and use of) property or more chronic longer-term changes such as diminished or eliminated agricultural yields due to persistent changes in weather patterns.

Transition risks are those which arise from a move towards a lower carbon global economy, which impacts organisations in various ways. The following are examples:



Technology risks: electric and hydrogen powered vehicles increasingly displace traditional internal combustion engines which threaten lagging automobile manufacturers' business models and increase their transition costs.



Political and legal risks: the introduction of progressive CO₂ taxes on higher emission products and activities, such as certain types of manufacturing activity and electricity generation, is likely to drive up operational costs. There is an increased risk of legal action from investors seeking to recover financial losses associated with organisational 'stranded assets' in exposed sectors such as the oil and gas industry due to the inability to transition to lower climate-impact activities.



Reputational risks: As well as climate activists, ESG investors, employees and other stakeholders have increased expectations for organisations to make climate positive commitments, with associated decision making and sustained investments to achieve a transition to a lower carbon economy.



Market risks: consumer preferences and buying patterns are likely to change e.g. a sustained increase in more climate friendly lifestyles.

Recommended disclosures

Describe the organisation's processes for identifying and assessing climate-related risks

Guidance

Describe risk management processes for identifying and assessing climate-related risks. Include in particular a description of how the organisation determines the relative significance of climate-related risks in comparison with other risks.

Describe whether existing and emerging regulatory requirements relating to climate change have been considered (e.g. limits on emissions, restrictions on products or services and additional taxes and levies) as well as any other relevant factors.

Consider disclosing:

- ▶ Processes for assessing the potential size and scope of identified climate-related risks
- ▶ Definitions of terms that have been used, or references to risk classification frameworks which have been used.

continued

Recommended disclosures

Guidance

Describe the organisation's processes for managing climate-related risks

Describe processes for managing climate-related risks. This includes how decisions are taken about the mitigation, transfer, acceptance or control of those risks.

Describe processes for how climate-related risks are prioritised, including how materiality has been determined.

In making the disclosures for this section, the following need to be addressed:

Risks

- ▶ Transition
- ▶ Physical

Opportunities

- ▶ Resource efficiency
- ▶ Energy source
- ▶ Products and services
- ▶ Markets
- ▶ Resilience

See Appendix 1 to this publication for additional detail.

Supplemental guidance for insurance companies

Describe key tools, such as risk models, which are used to manage climate-related risks for product development and pricing.

Describe the range of climate-related events considered, and how the risks relating to the increased frequency and severity of such events are managed.

Supplemental guidance for asset owners

Describe how the investment portfolio is positioned in respect of the transition to a lower-carbon energy supply, production and use. This may include an explanation of how portfolios are actively managed in relation to this risk.

Supplemental guidance for asset managers

Describe how climate-related risks are managed for each product or investment strategy.

Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management

Describe how those risks are integrated into the organisation's overall risk management.





Metrics and Targets: The metrics and targets used to assess, manage and report relevant climate-related risks and opportunities.

Recommended disclosures

Guidance

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

Provide the key metrics used to measure and manage climate-related risks and opportunities (see Appendix). Consider including metric on climate-related risks, including where relevant those associated with water, energy, land use and waste management.

Describe whether and how climate-related performance metrics are incorporated into remuneration policies, where climate-related issues are material.

Where relevant, provide opportunity metrics (such as revenue generated from products and services designed for a lower carbon economy) and any internal carbon prices.

Provide metrics for prior periods to enable trend analysis. Describe methodologies used to calculate or estimate climate-related metrics where this is not clear.

Disclose Scope 1, Scope 2 and, if appropriate Scope 3 greenhouse gas (GHG) emissions and the related risks.

Scope 1 refers to all direct GHG emissions.

Scope 2 refers to indirect GHG emissions from consumption of purchased electricity, heat, or steam.

Scope 3 refers to other indirect emissions not covered in Scope 2 that occur in the value chain of the reporting company, including both upstream and downstream emissions. Scope 3 emissions could include: the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g., transmission and distribution losses), outsourced activities, and waste disposal.

(See Appendix 2.)

Calculate GHG in line with the GHG Protocol (see <https://ghgprotocol.org/>), to enable aggregation and comparability across organisations and jurisdictions. Consider providing related, generally accepted industry specific GHG efficiency ratios, as appropriate.

Describe the targets used by the organisation to manage climate-related risks and opportunities and provide a comparison of performance against each target

Describe key climate-related targets, such as those related to GHG emissions, energy use and water use, in a way that is consistent with anticipated regulatory requirements or market constraints or other goals.

Other goals could include net revenue targets for products and services designed for a lower carbon economy, efficiency or financial targets, financial loss tolerances and GHG emissions avoided through an entire product lifecycle.

Consider including the following in the description of targets:

- ▶ Whether the target is absolute or intensity based
- ▶ Time frames to which the target applies
- ▶ Base year from which performance is measured
- ▶ KPIs used to assess progress against targets

Provide a description of the methodologies used to calculate targets where this is not clear.



03

Taskforce for Climate-Related Financial Disclosure (TCFD)

*Recommendations - supplemental guidance for
Financial Sector Industries*

Additional guidance is provided for the following categories of financial sector industries:



Banks

Banks may accumulate climate-related risk by providing loans to, or trading in the securities of, companies with direct exposure to climate-related risks. In addition, as markets for lower carbon and energy efficient alternatives grow, banks may accumulate exposures from their lending and investment activities.



Insurance companies

Insurance companies need to provide disclosures about how they are evaluating and managing climate-related risks and opportunities in their strategy, risk management, underwriting processes and investment decisions. For investment activities, the supplemental guidance for asset owners is also relevant.



Asset owners

Asset owners are a diverse group, which includes pension plans, insurance and reinsurance companies, endowments and foundations which invest assets either on their own behalf or on behalf of their beneficiaries. Asset owners have various investment horizons (some of which are very long term) that influence their risk tolerance and investment strategies. Whether they invest directly themselves or via asset managers, asset owners bear the major portion of potential transition and physical risks to which their investments are exposed. Similarly, they will benefit from the potential returns associated with the investment opportunities arising from the transition to a lower carbon economy.

Asset owners sit at the top of the investment chain. Disclosure of climate-related risks and opportunities permits an assessment to be made of the asset owner's investment considerations and approach to climate change. This can include how the asset owner sets its investment strategy, makes investment decisions, and manages its existing portfolio.



Asset managers

Asset (or investment) managers invest within guidelines specified by their clients for a given mandate, with investment results principally belonging to the client. Consequently those clients bear the major portion of potential transition and physical risks to which their investments are exposed. Similarly, they will benefit from the potential returns associated with the investment opportunities arising from the transition to a lower carbon economy.

Where an asset manager is a public company, it has two audiences for its climate-related disclosures. One is its shareholders, who need to understand the enterprise level risks and opportunities and how they are managed. The second is its clients, for whom product, investment strategy and client specific disclosures are more relevant.



Strategy: The actual and potential impacts of climate-related risks and opportunities on the organisation's business, strategy and financial planning.

Recommended disclosures

Describe the climate-related risks and opportunities identified by the organisation over the short, medium and longer term.

Describe the impact of climate-related risks and opportunities on the business model, strategy and financial planning

Describe the resilience of the organisation's strategy against different climate-related scenarios e.g. different impacts on infrastructure at higher future temperatures, including a 2°C or lower scenario

Guidance

Supplemental guidance for banks

- ▶ Describe significant concentrations of credit exposure to carbon-related assets.
- ▶ Consider disclosing transition and physical climate-related risks in lending and other financial intermediary business

Supplemental guidance for insurance companies

Describe potential impacts of climate-related risks and opportunities, together with supporting quantitative information where available, for the core business, products and services, including:

- ▶ Information at business division, sector or geography levels
- ▶ How the potential climate-related impacts influence client, cedent or broker selection, and whether specific climate-related products are under development (e.g. insurance of green infrastructure, specialist climate-related risk advisory services, and related client engagement).

Supplemental guidance for asset owners

Describe how climate-related risks and opportunities are factored into relevant investment strategies. This could be for total fund or investment strategy, or by individual investment strategies for various asset classes.

Supplemental guidance for asset managers

Describe how climate-related risks and opportunities are factored into relevant products or investment strategies, and how each of those products or investment strategies might be affected by the transition to a lower carbon economy.

Supplemental guidance for insurance companies

For insurance companies that carry out scenario analysis on their underwriting activities, provide:

- ▶ A description of the climate-related scenarios used, including critical input parameters, assumptions and considerations, and analytical choices. If an insurance company has significant exposure to weather-related risks, consider using a greater than 2°C scenario as well as a 2°C scenario for the physical effects of climate change.

Supplementary guidance for asset owners

If scenario analysis is carried out, consider providing a discussion of how climate-related scenarios are used. For example, this could be part of the inputs to decide whether to invest in specific assets.





Risk Management: The processes used by the organisation to assess, manage and report on climate-related risks.

Recommended disclosures

Describe the organisation's processes for identifying and assessing climate-related risks

Guidance

Supplemental guidance for banks

Consider characterising climate-related risks in the context of credit risk, market risk, liquidity risk and operational risk. Also consider describing any risk classification frameworks used (e.g. the Enhanced Disclosure Task Force's framework for defining 'Top and Emerging Risks').

Supplemental guidance for insurance companies

Describe the processes for identifying and assessing climate-related risks for insurance and reinsurance portfolios by geography, business division or product segments. Include the following risks:

- ▶ Physical risks arising from changes frequencies and magnitude of weather-related events;
- ▶ Transition risk arising from a reduction in insurable interest due to declines in value, changes in energy costs or the implementation of carbon legislation; and
- ▶ Liability risks that could become greater due to possible increases in legislation.

Supplemental guidance for asset owners

Describe, as appropriate, engagement with investee companies designed to encourage better disclosure and practices in respect of climate-related risks, with the aim of improving data availability and the asset owner's ability to assess climate-related risks.

Supplemental guidance for asset managers

Describe, as appropriate, engagement with investee companies designed to encourage better disclosure and practices in respect of climate-related risks, with the aim of improving data availability and the asset manager's ability to assess climate-related risks.

Describe how material climate-related risks are identified and assessed for each product or investment strategy (such as a description of the tools and resources that have been used in the process).

Describe the organisation's processes for managing climate-related risks

Supplemental guidance for insurance companies

Describe key tools, such as risk models, which are used to manage climate-related risks for product development and pricing.

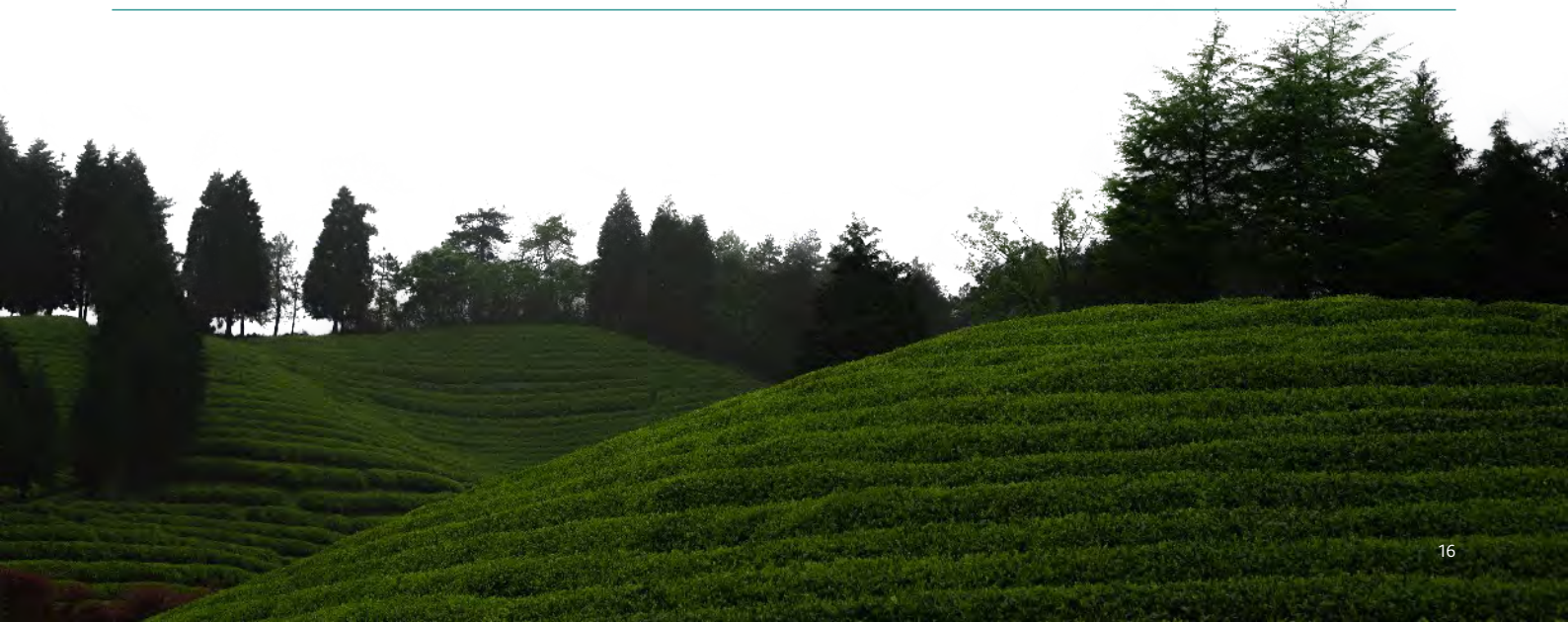
Describe the range of climate-related events considered, and how the risks relating to the increased frequency and severity of such events are managed.

Supplemental guidance for asset owners

Describe how the investment portfolio is positioned in respect of the transition to a lower-carbon energy supply, production and use. This may include an explanation of how portfolios are actively managed in relation to this risk.

Supplemental guidance for asset managers

Describe how climate-related risks are managed for each product or investment strategy.





Metrics and Targets: The metrics and targets used to assess, manage and report relevant climate-related risks and opportunities.

Recommended disclosures

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

Disclose Scope 1, Scope 2 and, if appropriate Scope 3 greenhouse gas (GHG) emissions and the related risks.

Guidance

Supplemental guidance for banks

Provide the metrics used to assess the impact of climate-related (transition and physical) risks on lending and other financial intermediary business in the short, medium and long term. This could include credit exposure, equity and debt holdings or trading positions, analysed by industry, geography, credit quality and maturity.

Provide the amount and percentage of carbon-related assets, and the amount of lending and other financing connected with climate-related opportunities.

Supplemental guidance for insurance companies

Provide aggregated risks exposure to weather-related catastrophes for the property business (ie annual expected losses) by relevant jurisdiction.

Supplemental guidance for asset owners

Describe metrics used to assess climate-related risks and opportunities in each fund or investment strategy. Where relevant, explain how these have changed over time.

Where appropriate, provide metrics which have been considered in actual investment decisions and monitoring.

Supplemental guidance for asset managers

Describe metrics used to assess climate-related risks and opportunities in each product or investment strategy. Where relevant, describe how these have changed over time.

Where appropriate, provide the metrics that have been considered in investment decisions and monitoring.

Supplemental guidance for asset owners

Provide the weighted average carbon intensity for each fund or investment strategy, where the data is available or can reasonably be estimated.

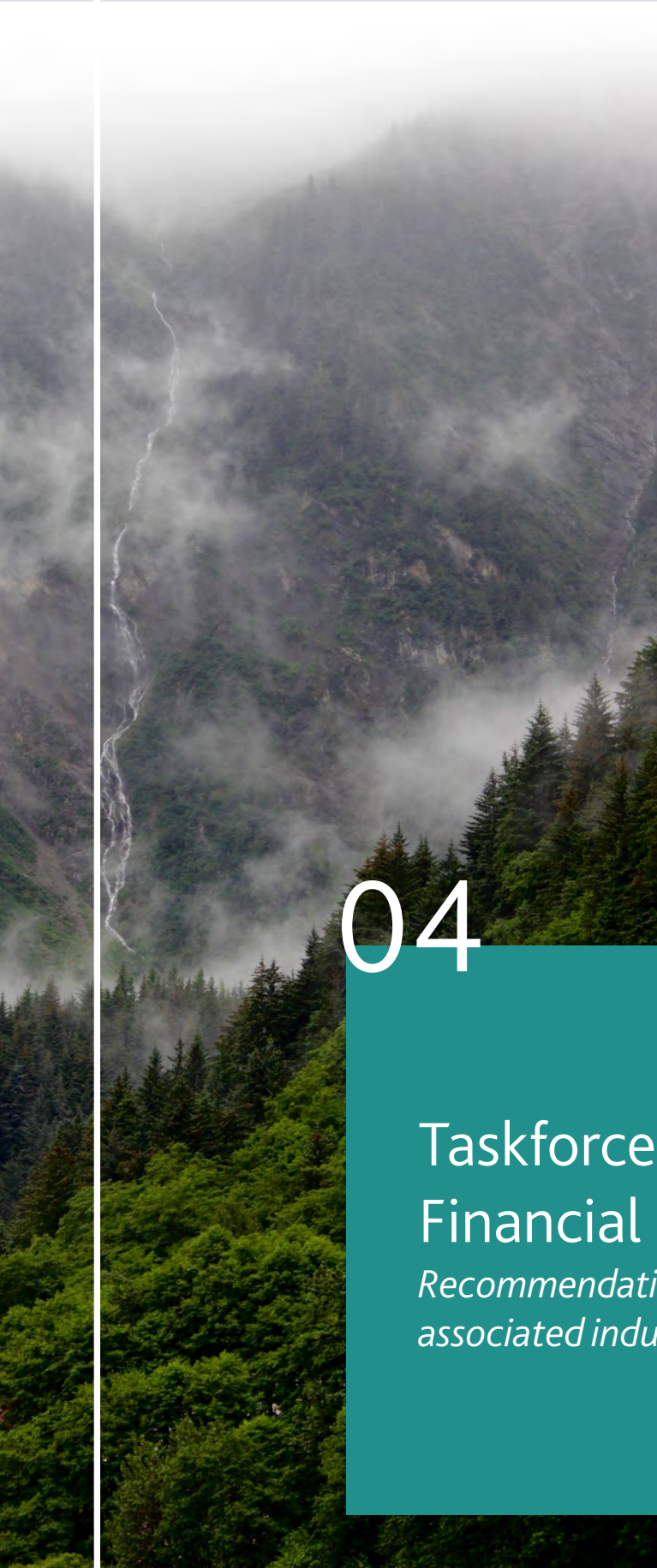
Provide other metrics which are considered useful for decision making, together with a description of the methodology used.

Supplemental guidance for asset managers

Provide the weighted average carbon intensity for each product or investment strategy, where the data is available or can reasonably be estimated.

Provide other metrics which are considered useful for decision making, together with a description of the methodology used.





04

Taskforce for Climate-Related Financial Disclosure (TCFD)

*Recommendations - Non-Financial Groups and
associated industries*

Although every industry could experience financial effects from climate-related risks and opportunities, additional guidance was developed for non-financial industries (and their related supply and distribution chains) that are more likely to be affected than others. Those effects relate to exposures to transition and physical risks around greenhouse gas emissions, energy or water dependencies that are associated with those organisations' operations and products.

These non-financial industries are grouped into the following four key areas, with supplemental guidance being provided for recommended disclosures for strategy, and metrics and targets.



Energy

- ▶ Oil and gas
- ▶ Coal
- ▶ Electric utilities



Transportation

- ▶ Air freight
- ▶ Passenger air transportation
- ▶ Maritime transportation
- ▶ Rail transportation
- ▶ Road transportation
- ▶ Automobiles and components



Materials and buildings

- ▶ Materials and buildings
- ▶ Metals and mining
- ▶ Chemicals
- ▶ Construction materials
- ▶ Capital goods
- ▶ Real estate management and development



Agriculture, food and forest products

- ▶ Beverages
- ▶ Agriculture
- ▶ Packaged foods and meats
- ▶ Paper and forest products

Energy sector (including oil and gas, coal and electric utilities)

Energy is a critical element in the global economy, which is either a primary or necessary input to most economic activities. Many entities in this sector are involved in fossil fuel extraction, processing, production and distribution with others dealing with electrical energy.

Entities in this sector are affected by many climate-related risks and opportunities, including:



Physical impacts: reliance on water supplies, in particular in areas where this is in short supply, and mitigating the effects of severe storms or floods.



Transition impacts: policy requirements, carbon prices, new technology and changes in market demand.

Organisations in this sector typically have significant financial exposure to transition issues around greenhouse gas emissions and, in many cases, the availability of water. Electrical utilities have significant transition risk, because a majority of the current electricity supply involves the use of non-renewable fossil fuel resources. Consequently, they have financial risk due to changes in asset valuations arising from the shift towards a low-carbon energy system. This arises from changes in policies (including government policy), technology and investment changes that will take place over the coming years (short, medium and long term) as a result of the shift to a low carbon energy system.

Hydroelectric and nuclear power generation are also affected, due to their use of large quantities of water. This brings exposure to physical risk which arises from the need for continued water supplies.

Oil, gas and coal extraction face similar transition risk challenges to electric utilities, and they are also reliant on water supplies.

This means that entities in the energy sector are particularly vulnerable to physical, policy and technological changes which affect the demand for fossil fuels, production and usage of energy, emission constraints and the availability of water. Other challenges come from significant differences in regulatory and competitive regimes for electricity in different jurisdictions which bring additional challenges to the assessment of climate-related risks.

Organisations in the energy sector are typically capital intensive, with particularly long term business strategies and capital allocation planning horizons which may be affected by climate-related risks. As a result, transparent disclosures are critical in understanding the effects of climate change on business strategy and financial plans.

Disclosures therefore need to focus on quantitative and qualitative assessments and the potential effects of:



Changes in compliance and operating costs, risks or opportunities (such as older and less efficient facilities, or fossil fuel resources that become uneconomic to exploit)



Exposure to changes in regulations, consumer demands and investor expectations (such as the expansion of renewable energy sources in the overall mix of energy supplies)



Changes in investment strategies (such as the potential for increased investment in renewable energy and operations that involve more efficient water usage).



Transportation

(including air freight, passenger air, maritime transportation, rail transportation, land freight and automobiles)

Transportation is critical to the economy, and is also responsible for significant emissions and demand for energy both in the production phase and in use. There is increasing policy and regulatory pressure for the achievement of emissions targets from use. Increasing constraints on fuel use and emissions will have a significant effect on costs, in particular the need for investment in new technologies and efficiencies.

There are two major sources of financial challenge. Firstly there are increasing governmental policy targets for fuel efficiency and emissions. Secondly, new technology related to low emissions and fuel efficiency such as electric cars is creating a fundamental shift in the investment and competitive landscape. New entrants to the market (such as Tesla) can weaken existing companies, market positions, resulting in lower revenues, higher costs and reduced profit margins. Those two factors are likely to be accentuated by the length of the product cycle for cars, lorries and more particularly for aviation, rail and maritime transport. Investments in long lived assets, including manufacturing facilities, are relevant factors that need to be taken into account when considering climate-related risks and opportunities.

Disclosures in this sector need to focus on the quantitative and qualitative assessments and potential effects of:



Financial risks – potential early write offs of plant and equipment, early phasing out of products, R&D investments, the emergence of new technology and changes in demand for different types of carrier.



Opportunities arising from new technologies to deal with lower emission requirements and increased fuel efficiency requirements, including the use of traditional and alternative fuels.

Materials and buildings

(including metals and mining, chemicals, construction materials, capital goods, and real estate management and development)

Entities in this sector are typically capital intensive, requiring high levels of investment in plant, equipment and buildings that are relatively fixed in location and are dependent on the supply of materials. The effect of this is that there may be reduced flexibility in how entities can adapt to the risks of climate change.

A substantial proportion of activities result in financial exposures related to high greenhouse gas emissions and high energy consumption. Some entities in this sector are also dependent on water supply, and are vulnerable to the effects of physical risks from weather events.

These factors, and the long lifespan of plant and facilities, mean that research, development, demonstration and deployment (R&DDD) are critically important. Associated disclosures are necessary to assess the current and future situation, and risks, or entities in this sector.

Disclosures need to focus on the quantitative and qualitative assessment, and potential effects of:



Stricter constraints on emissions, potentially combined with the pricing of carbon emissions, and the related impacts on costs.



Risks relating to the increased frequency and severity of acute weather events or water scarcity that affect the operating environment, in particular for construction materials and real estate.



Opportunities for products and services that improve efficiency and reduce energy use.

Agriculture, food and forest products

(including beverages, agriculture, packaged foods and meats, and paper and forest products)


Climate-related risks and opportunities for this sector relate principally to greenhouse gas emissions and waste management, driven by existing and changing land use and production practices.


Producers, such as those in agriculture and forestry, may be affected to a significant extent by greenhouse gas and water risks (including changes in weather patterns). This will depend on land use practices, including conservation practices, deforestation or reforestation.


Processors in this sector (food, beverage and paper) will generally be less affected by direct greenhouse gas emissions, and more from indirect emissions arising from their supply and distribution chains. While there will be a similar emphasis on water and waste risks and opportunities to producers, because of dependencies on access to significant water resources, other risks and opportunities around waste include residual materials such as paper, wood and water waste, and animal byproducts.

The assessment of climate-related risks and opportunities involves a number of interactions and trade-offs, including land use, waste, biodiversity and conservation which are complicated by the short-term competing goals around food security. Policies around land use and conservation may place constraints around the use of land and water resources, which may lead to significant asset impairments (for example, if certain land cannot be used to produce food).

Opportunities in this sector largely fall into three categories:

 Increasing efficiency by lowering the level of carbon output or water use per unit of output.

 Reducing the amount of inputs and residual waste for a given level of output.

 Developing new products and services with lower carbon output and water use.

Disclosures need to focus on quantitative and qualitative information that relate to the entity's policy and market risks in relation to greenhouse gas emissions and water use, and opportunities from increased efficiency, including:



Reductions in greenhouse gas emissions and water use, including crop nutrient and management processes, livestock management, agricultural practices and forest management.



Efforts to improve sustainability such as better recycling of outputs and residual waste



Climate-related effects on production (such as extreme weather or flood events)



Changes in business and consumer preferences towards products and services that produce lower emissions and that are less water/waste intensive.

Appendix 1

Examples of Climate-Related Risks and Potential Financial Impacts

Type	Climate-Related Risks	Potential Financial Impacts
Transition Risks	Policy and Legal <ul style="list-style-type: none"> ▶ Increased pricing of GHG emissions ▶ Enhanced emissions-reporting obligations ▶ Mandates on and regulation of existing products and services ▶ Exposure to litigation 	<ul style="list-style-type: none"> ▶ Increased operating costs (e.g., higher compliance costs, increased insurance premiums) ▶ Write-offs, asset impairment, and early retirement of existing assets due to policy changes ▶ Increased costs and/or reduced demand for products and services resulting from fines and judgments
	Technology <ul style="list-style-type: none"> ▶ Substitution of existing products and services with lower emissions options ▶ Unsuccessful investment in new technologies ▶ Costs to transition to lower emissions technology 	<ul style="list-style-type: none"> ▶ Write-offs and early retirement of existing assets ▶ Reduced demand for products and services ▶ Research and development (R&D) expenditures in new and alternative technologies ▶ Capital investments in technology development ▶ Costs to adopt/deploy new practices and processes
	Market <ul style="list-style-type: none"> ▶ Changing customer behaviour ▶ Uncertainty in market signals ▶ Increased cost of raw materials 	<ul style="list-style-type: none"> ▶ Reduced demand for goods and services due to shift in consumer preferences ▶ Increased production costs due to changing input prices (e.g., energy, water) and output requirements (e.g., waste treatment) ▶ Abrupt and unexpected shifts in energy costs ▶ Change in revenue mix and sources, resulting in decreased revenues ▶ Re-pricing of assets (e.g., fossil fuel reserves, land valuations, securities valuations)
	Reputation <ul style="list-style-type: none"> ▶ Shifts in consumer preferences ▶ Stigmatization of sector ▶ Increased stakeholder concern or negative stakeholder feedback 	<ul style="list-style-type: none"> ▶ Reduced revenue from decreased demand for goods/services ▶ Reduced revenue from decreased production capacity (e.g., delayed planning approvals, supply chain interruptions) ▶ Reduced revenue from negative impacts on workforce management and planning (e.g., employee attraction and retention) ▶ Reduction in capital availability
	Acute <ul style="list-style-type: none"> ▶ Increased severity of extreme weather events such as cyclones and floods 	<ul style="list-style-type: none"> ▶ Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions) ▶ Reduced revenue and higher costs from negative impacts on workforce (e.g., health, safety, absenteeism) ▶ Write-offs and early retirement of existing assets (e.g., damage to property and assets in "high-risk" locations) ▶ Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants) ▶ Increased capital costs (e.g., damage to facilities) ▶ Reduced revenues from lower sales/output ▶ Increased insurance premiums and potential for reduced availability of insurance on assets in "high-risk" locations
Chronic <ul style="list-style-type: none"> ▶ Changes in precipitation patterns and extreme variability in weather patterns ▶ Rising mean temperatures ▶ Rising sea levels 		
Physical Risks		

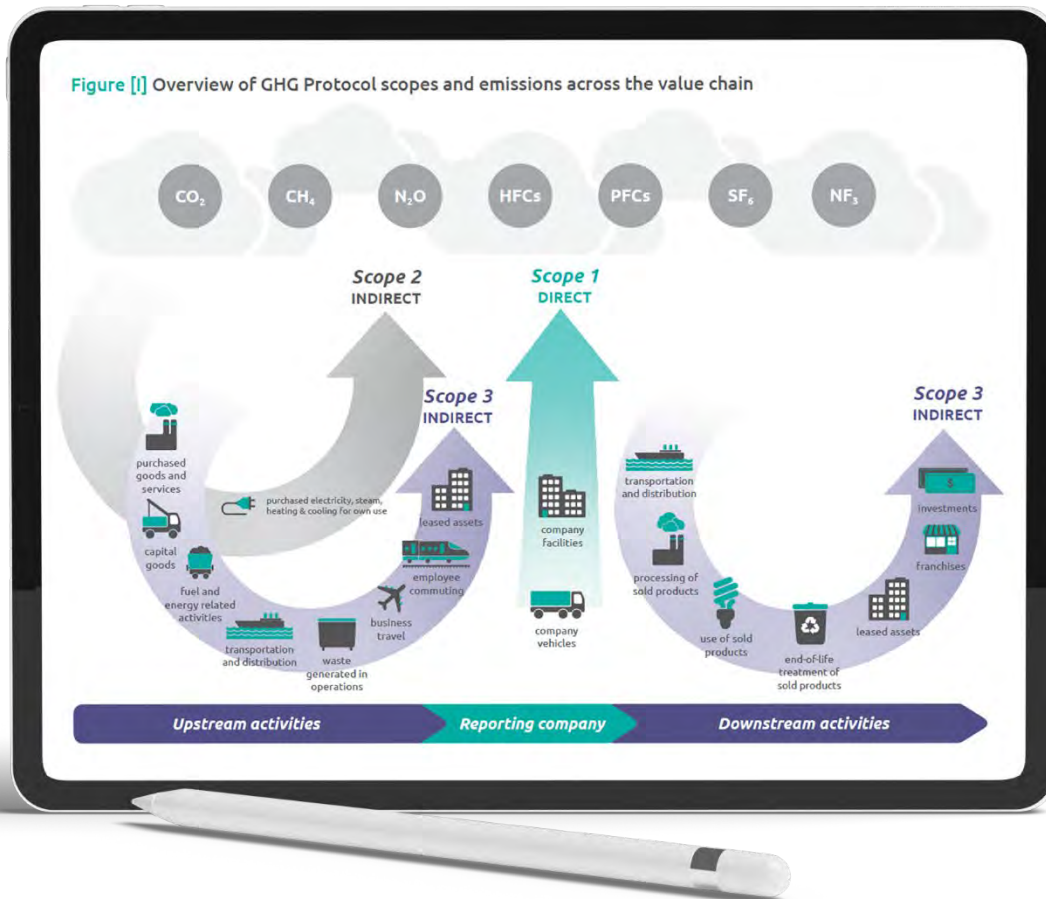
Appendix 1

Examples of Climate-Related Opportunities and Potential Financial Impacts

Type	Climate-Related Risks	Potential Financial Impacts
Resource Efficiency	<ul style="list-style-type: none"> ▶ Use of more efficient modes of transport ▶ Use of more efficient production and distribution processes ▶ Use of recycling ▶ Move to more efficient buildings ▶ Reduced water usage and consumption 	<ul style="list-style-type: none"> ▶ Reduced operating costs (e.g., through efficiency gains and cost reductions) ▶ Increased production capacity, resulting in increased revenues ▶ Increased value of fixed assets (e.g., highly rated energy-efficient buildings) ▶ Benefits to workforce management and planning (e.g., improved health and safety, employee satisfaction) resulting in lower costs
Energy Source	<ul style="list-style-type: none"> ▶ Use of lower-emission sources of energy ▶ Use of supportive policy incentives ▶ Use of new technologies ▶ Participation in carbon market ▶ Shift toward decentralized energy generation 	<ul style="list-style-type: none"> ▶ Reduced operational costs (e.g., through use of lowest cost abatement) ▶ Reduced exposure to future fossil fuel price increases ▶ Reduced exposure to GHG emissions and therefore less sensitivity to changes in cost of carbon ▶ Returns on investment in low-emission technology ▶ Increased capital availability (e.g., as more investors favour lower-emissions producers) ▶ Reputational benefits resulting in increased demand for goods/services
Products and Services	<ul style="list-style-type: none"> ▶ Development and/or expansion of low emission goods and services ▶ Development of climate adaptation and insurance risk solutions ▶ Development of new products or services through R&D and innovation ▶ Ability to diversify business activities ▶ Shift in consumer preferences 	<ul style="list-style-type: none"> ▶ Increased revenue through demand for lower emissions products and services ▶ Increased revenue through new solutions to adaptation needs (e.g., insurance risk transfer products and services) ▶ Better competitive position to reflect shifting consumer preferences, resulting in increased revenues
Markets	<ul style="list-style-type: none"> ▶ Access to new markets ▶ Use of public-sector incentives ▶ Access to new assets and locations needing insurance coverage 	<ul style="list-style-type: none"> ▶ Increased revenues through access to new and emerging markets (e.g., partnerships with governments, development banks) ▶ Increased diversification of financial assets (e.g., green bonds and infrastructure)
Resilience	<ul style="list-style-type: none"> ▶ Participation in renewable energy programs and adoption of energy- efficiency measures ▶ Resource substitutes/diversification 	<ul style="list-style-type: none"> ▶ Increased market valuation through resilience planning (e.g., infrastructure, land, buildings) ▶ Increased reliability of supply chain and ability to operate under various conditions ▶ Increased revenue through new products and services related to ensuring resiliency

Appendix 2

Scope 1, 2 and 3 greenhouse gas emissions across the value chain



Source: GHG Protocol p6

https://www.ghgprotocol.org/sites/default/files/ghgp/standards/Scope3_Calculation_Guidance_0.pdf

TCFD Recommendations overview: <https://www.tcfhub.org/recommendations/>

CDP <https://www.cdp.net/en>

CDSB <https://www.cdsb.net/>

GRI <https://www.globalreporting.org/>

IIRC <https://integratedreporting.org/>

SASB <https://www.sasb.org/>

G20/OECD principles of corporate governance:













<http://www.oecd.org/corporate/principles-corporate-governance/>








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Contacts – corporate reporting




EUROPE

Anne Catherine Farlay	 France	annecatherine.farlay@bdo.fr
Jens Freiberg	 Germany	jens.freiberg@bdo.de
Teresa Morahan	 Ireland	tmorahan@bdo.ie
Ehud Greenberg	 Israel	ehudg@bdo.co.il
Stefano Bianchi	 Italy	stefano.bianchi@bdo.it
Roald Beumer	 Netherlands	roald.beumer@bdo.nl
Reidar Jensen	 Norway	reidar.jensen@bdo.no
Leonid Sidelkovskiy	 Russia	L.Sidelkovskiy@bdo.ru
David Cabaleiro	 Spain	david.cabaleiro@bdo.es
René Füglistner	 Switzerland	rene.fueglistner@bdo.ch
Moses Serfaty	 United Kingdom	moses.serfaty@bdo.co.uk
Anthony Appleton	 United Kingdom	anthony.w.appleton@bdo.co.uk

ASIA PACIFIC

Aletta Boshoff	 Australia	aletta.boshoff@bdo.com.au
Hu Jian Fei	 China	hu.jianfei@bdo.com.cn
Fanny Hsiang	 Hong Kong	fannyhsiang@bdo.com.hk
Pradeep Suresh	 India	pradeepsuresh@bdo.in
Khoon Yeow Tan	 Malaysia	tanky@bdo.my

LATIN AMERICA

Marcello Canetti	 Argentina	mcanetti@bdoargentina.com
Victor Ramirez	 Colombia	vramirez@bdo.com.co
Ernesto Bartesaghi	 Uruguay	ebartesaghi@bdo.com.uy

NORTH AMERICA & CARIBBEAN

Armand Capisciolto

 Canada

acapisciolto@bdo.ca


Wendy Hambleton

 USA

whambleton@bdo.com

MIDDLE EAST

Ayez Qureshi

 Bahrain

Ayez.qureshi@bdo.bh

Antoine Gholam

 Lebanon

agholam@bdo-lb.com

SUB SAHARAN AFRICA

Theunis Schoeman























 South Africa

tschoeman@bdo.co.za









Contacts – ESG

EUROPE



Katarina Podvorskaya	 Belarus	kpodvorskaya@bdo.by
Michaël van Cutsem	 Belgium	michael.vancutsem@bdo.be
Eeva Koivula	 Finland	eeva.koivula@bdo.fi
Audrey Leroy	 France	audrey.leroy@bdo.fr
Nils Borchering	 Germany	nils.borchering@bdo.de
Stuart Philips	 Guernsey	stuart.philips@bdo.gg
Steve Desmond	 Guernsey	Steve.Desmond@bdo.gg
Anat Even-Chen	 Israel	anatec@bdo.co.il
Maya Borkow	 Israel	mayabo@bdo.co.il
Nofar Wallach Lezresko	 Israel	nofarl@bdo.co.il
Carlo Luison	 Italy	Carlo.Luison@bdo.it
Valeria Fazio	 Italy	Valeria.Fazio@bdo.it
Adrianca Mens	 Netherlands	Adrianca.Mens@bdo.nl
Jeroen van Erve	 Netherlands	jeroen.van.erve@bdo.nl
Tina-Irene Amundsen	 Norway	Tine-Irene.Amundsen@bdo.no
Hilde Loseth Modell	 Norway	Hilde.Loseth.Modell@bdo.no
Maria Bonacasa	 Spain	maria.bonacasa@bdo.es
Moritz Reisser	 Switzerland	moritz.reisser@bdo.ch
Fiona Davis	 United Kingdom	Fiona.Davis@bdo.co.uk
Zoe White	 United Kingdom	Zoe.X.White@bdo.co.uk
Michelle Carroll	 United Kingdom	michelle.carroll@bdo.co.uk
Richard Weighell	 United Kingdom	richard.weighell@bdo.co.uk



ASIA PACIFIC

Aletta Boshoff	 Australia	aletta.boshoff@bdo.com.au
Jessica Yang	 China	yangfang2@bdo.com.cn
Ricky Cheng	 Hong Kong	rickycheng@bdo.com.hk
Ashish Gangrade	 India	ashishgangrade@bdo.in
Francis Cyril Singham	 Malaysia	franciscyril@bdo.my
Chin Beng Koh	 Singapore	kohchinbeng@bdo.com.sg



CENTRAL AND LATIN AMERICA

Luana Castilho	 Brazil	luana.castilho@bdo.com.br
Paulina-Roura Izquierdo	 Mexico	paulina.roura@bdomexico.com



NORTH AMERICA & CARIBBEAN

Pierre Taillefer	 Canada	ptaillefer@bdo.ca
Stephen Payne	 Canada	spayne@bdo.ca
Amy Rojik	 USA	arojik@bdo.com
Brandon Landis	 USA	blandis@bdo.com


MIDDLE EAST

Azzan Hamaideh	 Jordan	ahamaideh@bdo.com.jo
Antoine Gholam	 Lebanon	agholam@bdo-lb.com

SUB SAHARAN AFRICA

Pamela Leste De Perindorge	 Mauritius	pamela.leste@bdo.mu
Carla Clamp	 South Africa	CCLamp@bdo.co.za





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