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The Determinants and Informativeness of ‘Voluntary’ Climate and Sustainability Related Financial Disclosures in Australia

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Over Half of CFOs Fear Greenwashing Risk as Sustainability Data Problems Persist: EY Survey

EY's 2024 Global Corporate Reporting Survey, EY surveyed 2,000 finance leaders including CFOs and financial controllers across 30 countries globally, in addition to 815 institutional investors.

https://www.esgtoday.com/over-half-of-cfos-fear-greenwashing-risk-as-sustainability-data-problems-persist-ey-survey/

A dynamic regulatory environment

Formal rules

Legal obligations (& standards)

Regulatory guidance

Regulatory enforcement

+ associated 'private' regulatory initiatives & activities

Voluntary best practice standards

Investor engagement

Strategic litigation

Legal obligations, regulatory guidance & enforcement

Corporations Act 2001 (Cth)

- Financial Report - true and fair representation - signed off by directors and auditors
- Directors Report (& Operating & Financial Review) – material business risks relevant to financial position & prospects
- Penalties for misleading & deceptive disclosure / conduct

Climate-related risks should be reported where financially material:

- AASB/AUASB Practice Statement 2 (Dec, 2018)
- ASIC Regulatory Guide 247 (2019 update)

Regulatory Scrutiny & Enforcement – greenwashing (ASIC & ACCC)

Qantas

Is it really possible to fly 'carbon neutral' with Qantas? A greenwashing complaint to the ACCC hopes to find out

A spokesperson for the airline says it is doing 'what we can with what's available now' after Environmental Defenders Office singles out 'carbon neutral' claim

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Lisa Cox *Environment and climate correspondent*

Wed 16 Oct 2024 01.00 AEDT

Share

The group Climate Integrity has asked the ACCC to investigate Qantas for alleged greenwashing. Photograph: Tim Wimborne/Reuters

Climate campaigners have asked the Australian Competition and Consumer Commission to investigate whether "fly carbon neutral" and other sustainability claims by Qantas are misleading or deceptive.

‘Private’ regulatory activity – disclosure & net zero alignment

Voluntary Standards

- TCFD – scenario analysis to inform risk assessment, metrics and targets

Investor Engagement

- Climate Action 100+ - TCFD (& net zero transition)
- Shareholder resolutions – TCFD (& net zero transition)

Strategic Litigation

- *Abrahams v Commonwealth Bank of Australia* (2017 - settled) – climate risks should be disclosed where financially material
- *ACCR v Santos* (ongoing) – misleading & deceptive – net zero targets lack reasonable basis

Landmark court case sees activist group sue gas giant Santos for allegedly misleading investors

By business reporter **Rachel Clayton**

Courts and Trials

Mon 28 Oct

Gas giant Santos Ltd has been taken to court over its claims of achieving net zero emissions by 2040. *(Supplied: ConocoPhillips)*

Looking forward…

Mandatory climate risk disclosure – amendments to *Corporations Act 2001* (Sept, 2024)

- Large companies (& high emitters) – from 1 Jan, 2025
- AASB S2 *Climate-related Disclosures*

2018-2022 – climate risk disclosure – *quasi-voluntary*

- Baseline for understanding impact of mandatory standards (alongside other private regulatory developments)
- Phased introduction of mandatory standards – many companies will continue to operate in this quasi-voluntary space

Practice Statement 2: AASB-AUASB joint bulletin on climate-related and other emerging risks disclosures

Climate-related risks and other emerging risks are predominantly discussed outside the financial statements

Qualitative external factors and investor expectations may make such risks ‘material’ and warrant disclosures when preparing financial statements

Materiality definition and APS/PS 2 -
entities can no longer treat climate-related risks as merely a matter of corporate social responsibility

Examples of climate change related disclosures in the notes forming part of the financial statements

Notes to and Forming Part of the Financial Statements: AGL (2022)

Impact of climate change related risk

AGL recognises that there is an increased pace of change in the energy industry, community perspectives and associated political landscape.

The scenario analysis undertaken as part of AGL's impairment analysis includes scenarios that are consistent with the TCFD analysis performed. Our assessment shows that a change to the planned closure dates of AGL's coal-fired/thermal generation plants as a result of climate change may have a material impact on the National Electricity Market and may result in a material change to AGL's estimated cash inflows. Similarly, any change to policy in relation to climate change may have a material impact on the National Electricity Market and may result in a material change to AGL's estimated cash inflows.

Notes to and Forming Part of the Financial Statements: BHP (2022)

Climate change

The Group continues to develop its assessment of the potential impacts of climate change and the transition to a low carbon economy. The Group's current climate change strategy focuses on reducing operational greenhouse gas (GHG) emissions, investing in low emissions technologies, supporting emissions reductions in our value chain and promoting product stewardship, managing climate-related risk and opportunity, and working with others to enhance the global policy and market response. Future changes to the Group's climate change strategy or global decarbonisation signposts may impact the Group's significant judgements and key estimates and result in material changes to financial results and the carrying values of certain assets and liabilities in future reporting periods.

During FY2022, the Group completed the merger of the Group's Petroleum business with Woodside and the divestments of the Group's interests in BHP Mitsui Coal Pty Ltd (BMC) and the Cerrejón non-operated energy coal joint venture. In addition, the Group announced that it will retain New South Wales Energy Coal (NSWEC) in its portfolio, seek approvals to continue mining at NSWEC beyond its current mining consent that expires in 2026, and intends to proceed with a managed process to cease mining at the asset by the end of FY2030. While climate change and the transition to a low carbon economy remain key considerations in the Group's significant judgements and estimates, the portfolio updates during FY2022 have reduced the Group's exposure to fossil fuels. Following the updates, the potential risk to the carrying value of the Group's assets and liabilities from long-term price estimates for oil, gas and energy coal is largely limited to the impact of those commodities on the Group's supply chain.

The Group's current climate change strategy is reflected in the Group's significant judgements and key estimates, and therefore the Financial Statements, as follows:

Transition risks

The Group's targets and goals

As part of its response to the Paris Agreement goals, the Group has set a target to reduce its operational GHG emissions (Scope 1 and Scope 2 from our operated assets) by at least 30 per cent from FY2020 levels by FY2030 and a goal to achieve net zero operational GHG emissions by 2050. For the FY2030 target, the FY2020 baseline has been adjusted to reflect the divestment of the Group's Petroleum and BMC operations and will be adjusted for any material future acquisitions and divestments. Approved emissions reduction projects aimed at contributing to the achievement of the Group's operational GHG emissions target and goal have been incorporated into the forecast cash flows of the Group's assets. The use of carbon offsets will be governed by the Group's approach to carbon offsetting, with the Group's offset strategy currently being managed at a consolidated Group level and therefore not currently incorporated into the forecast cash flows of individual assets. Any change to the Group's climate change strategy could impact these forecasts and the Group's significant judgements and key estimates.

Notes to and Forming Part of the Financial Statements: QAN (2022)

Impact of climate change on financial reporting

The Group recognises that human-induced climate change is a significant issue for the aviation industry and is committed to reducing emissions in line with the Paris Climate Agreement to limit warming to well below two degrees Celsius above pre-industrial levels.

In 2019, the Group announced its commitment to achieving net zero emissions by 2050 and capping net emissions at 2019 levels. In March 2022, the Group announced new greenhouse gas emission targets as part of the Climate Action Plan (CAP), including:

– 25 per cent reduction in net emissions from 2019 levels by 2030

– 10 per cent Sustainable Aviation Fuel (SAF) in fuel mix by 2030

– Average of 1.5 per cent fuel efficiency improvements to 2030.

The Qantas Group's long-term strategy acknowledges the potential impact of climate change and resource constraints on the business. Climate-related risks and opportunities are also addressed in the Qantas Group's CAP launched in March 2022.

Notes to and Forming Part of the Financial Statements: COL (2021)

Forecast future cash flows

Forecast future cash flows are based on the Group's latest Board approved internal five-year forecasts and reflect management's best estimate of income, expenses, capital expenditure and cash flows for each asset or CGU. Internal forecasts have considered the ongoing impacts of the COVID-19 pandemic on income and expenses. Changes in selling prices and direct costs are based on past experience and management's expectation of future changes in the markets in which the Group operates.

In addition, consideration has been given to the potential financial impacts of climate change related risks on the carrying value of goodwill through a qualitative review of the Group's climate change risk assessment. This review did not identify any material financial reporting impacts.

When calculating the FVLCOD of an asset or CGU, future forecast cash flows also incorporate reasonably available market participant assumptions such as enhancement capital expenditure.

Discount rates

Estimated future cash flows are discounted to their present value using discount rates that reflect the Group's weighted average cost of capital, adjusted for risks specific to the asset or CGU. The rates have been calculated in conjunction with independent valuation experts.

Notes to and Forming Part of the Financial Statements: NHC (2019)

In undertaking its impairment assessment, the Company has considered the potential impact of climate change risk on the future cash flows contained within the fair value discounted cash flow model. These risks include the potential impact on future coal prices of changes in market supply and demand dynamics over the life of NAC03, and the potential for cost volatility associated with factors such as climate change related regulatory changes and/or market participation by suppliers of services to the Company.

These types of risks are taken into account in a variety of ways which include the use of forecast commodity prices and industry risk measures as an input into the calculation of the discount rate applied against future cash flows. In addition, given the near term timing and expected life of the project, the Company does not consider there to be significant risk of climate change materially impacting project outcomes once current approvals are received.

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Examples of climate change related disclosures in the notes forming part of the financial statements

Notes to and Forming Part of the Financial Statements: AMC (2022)

Certain raw materials used in the Company's production processes are subject to price volatility caused by weather, supply conditions, political and economic variables, and other

Notes to and Forming Part of the Financial Statements: FMG (2020)

Overburden and other mine waste materials are often removed during the initial development of a mine in order to access the mineral deposit. This activity is referred to as development stripping and the directly attributable costs, inclusive of an allocation of relevant overhead expenditure, are capitalised as development costs. Capitalisation of development stripping costs ceases and amortisation of those capitalised costs commences upon commercial extraction of ore.

Amortisation of capitalised development stripping costs is determined on a unit of production basis for each area of interest.

Development stripping costs are considered in combination with other assets of an operation for the purpose of undertaking impairment assessments.

(ii) Production stripping costs

Overburden and other mine waste materials continue to be removed throughout the production phase of the mine. This activity is referred to as production stripping, with the associated costs charged to the income statement, as operating cost, except when all three criteria below are met:

Notes to and Forming Part of the Financial Statements: BMN (2020)

generally arises when the asset is installed or the ground/environment is disturbed at the operation's location. When the liability is initially recognised, the present value of the estimated costs is capitalised by increasing the carrying amount of the related assets to the extent that it was incurred. Additional disturbances which arise due to further development/construction at the mine are recognised as additions or charges to the corresponding assets and rehabilitation liability when they occur.

Notes to and Forming Part of the Financial Statements: RIO (2020)

global action on climate. Despite a low growth environment, global warming is on a path to reach or even exceed 3ºC by 2100. Carbon prices remain low – in the range US$0-30/t$CO_2$e.

Notes to and Forming Part of the Financial Statements: CBA (2019)

transition to net zero emissions by 2050 we:
* Develop scenario analyses to understand the impacts of both transition and physical climate-related risks on our business and the implications for strategic and tactical portfolio decisions; and
* Have developed policy frameworks which consider Environmental, Social and Governance (ESG) issues, including climate change impacts in assessing our relationships with customers and suppliers

Notes to and Forming Part of the Financial Statements: QAN (2020)

our emissions by capping emissions at 2020 levels and achieving net-zero emissions by 2050, while also investing in the development of sustainable aviation fuels. The Qantas

Notes to and Forming Part of the Financial Statements: LYC (2018)

servicing of financial obligations. This excludes the potential impact of extreme circumstances that cannot reasonably be predicted, such as natural disasters.

Notes to and Forming Part of the Financial Statements: TAH (2020)

Tabcorp notes the recent developments in Victoria, including the declaration of a 'state of disaster' with effect from 2 August 2020. The relevant restrictions resulted in the temporary closure of Victorian licensed venues (hotels and clubs) and TAB agencies, which offer Tabcorp's Wagering and Media, Keno and Gaming Services products. At the reporting date a definitive assessment of the future effects of these restrictions, and COVID-19 more generally, on the Group cannot be made.

Notes to and Forming Part of the Financial Statements: NUF (2019)

Drought conditions in Australia have continued through 2019 impacting the ANZ business and has resulted in a reduction to production activity and temporary closure of all formulation lines at the Laverton manufacturing plant giving rise to idle capacity charges.

Examples of sustainability related disclosures in the notes forming part of the financial statements

Notes to and Forming Part of the Financial Statements: ABC (2022)

The Group regularly assesses its assumptions to reflect the market it operates within, the sustainability targets it sets and the commitments made to investors and other stakeholders.

The estimates and assumptions, notably those relating to assets and goodwill impairments, useful lives of assets, capital expenditure and research and development, recovery of deferred tax assets, provisions and contingent liabilities, insurance costs and defined benefit pension plans have been based on the available information and regulations in place as at 31 December 2022, and are aligned with the Group's sustainability targets.

Notes to and Forming Part of the Financial Statements: AGL (2022)

Bank loans

In June 2018, AGL extended its existing $410 million term loan facility to mature in June 2025. As at 30 June 2022, this facility was fully utilised.

In September 2019 AGL executed a A$600 million 5-year syndicated Sustainability Linked Loan. At the end of FY22, this facility was fully utilised. The rest of $2,152 million of bank debt comprises of bilateral facilities. During FY22, $275 million of bilateral debt facilities matured and no new debt was raised. All commitments related to the respective demerging entities were conditional upon the success of the demerger and did not proceed.

Notes to and Forming Part of the Financial Statements: BSL (2020)

Climate related risks	• BlueScope gives regard to climate change and other sustainability risks when determining the carrying value of each CGU. • The Group has climate change action plans, greenhouse gas emission reduction targets for its steelmaking sites, environmental management, water stewardship and other sustainability initiatives. The Company reports these in its annual Sustainability Report (available on the Company's web site). Operating and capital expenditure associated with these initiatives are, to the extent necessary, taken into account when determining the recoverable amount of each CGU. • Where applicable a cost of carbon, net of assistance, in jurisdictions where legislation has been enacted in particular in New Zealand, is taken into account based on a continuation of legislation as it is currently enacted and external forecasts.

Notes to and Forming Part of the Financial Statements: SUL (2019)

Currently the Code is voluntary. Super Retail Group supports the concept of voluntary tax transparency as an important measure for all large companies to provide assurance to the Australian community that their tax obligations are being appropriately met. We know that Super Retail Group's success is dependent on the wellbeing of the economies and communities where our businesses operate and our conservative approach to tax strategy is one of the many ways we act to ensure sustainability of our operations. We are pleased to disclose our taxes paid in Australia and to detail our approach to tax planning for the first time.

Notes to and Forming Part of the Financial Statements: CBA (2022)

- **Environmental & Social Risk:** from the physical impacts of climate change or not understanding or meeting community or regulatory expectations in relation to environmental and social issues.
- **Reputation Risk**: Business practices, behaviours or events negatively impact the Group's reputation.
- **Investment Allocation and Delivery Risk**: Expected outcomes not achieved or missed strategic opportunities due to variations in the delivery (scope, timing and quality) of change initiatives.

- Group External Engagement and Communication Policy
- Group Policy on Publicly Issued Documents and Marketing Materials
- Group Delivery Framework and Policy

Key Management Committee:

- Executive Leadership Team (ELT)
- ELT Environmental & Social Committee
- Asset and Liability Committee (ALCO)

- Dividend decision and management processes;
- Capital monitoring, reporting and forecasting;
- Internal Capital Adequacy Assessment Process (ICAAP);
- Group, portfolio and risk type stress testing; and
- Ratings agency interactions.

Capability and Culture Risk

- Talent acquisition processes;
- Leadership development initiatives;
- Organisational culture development initiatives;
- Performance and remuneration processes;
- Inclusion & Diversity initiatives;
- Capability development and training; and
- Accountability frameworks.

Environmental and Social Risk

Notes to and Forming Part of the Financial Statements: AGL (2022)

2022	$m	equipment $m	assets $m	$m	$m
Balance at 1 July 2021, net of accumulated depreciation and impairment	6,025	4	180	74	6,283
Additions	483	-	4	-	487
Impairment loss recognised in profit or loss	(237)	-	(9)	-	(246)
Change in estimate related to provision for environmental rehabilitation	(231)	-	-	-	(231)
Disposals	(7)	-	-	(2)	(9)
Reclassified from held for sale	211	-	-	12	223
Depreciation expense	(482)	(1)	(11)	-	(494)
Balance at 30 June 2022 net of accumulated depreciation and impairment	5,762	3	164	84	6,013

Notes to and Forming Part of the Financial Statements: BWX (2021)

On 17 May 2021, BWX entered into an agreement to acquire 100% of Flora and Fauna (F&F), a leading online retailer focused on vegan, ethical and sustainable products, with completion date set at 1 July 2021. The purchase consideration is estimated to be approximately $30 million, payable based on multiples of F&F's FY21 revenue performance. There are no non-cash or deferred consideration.

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Examples of climate change related disclosures in the independent audit reports

Auditor's Report: ADT (2022)

Climate change

Our work on the assessment of potential impacts on climate-related risks on the Group's operations and financial statements included:

Making enquiries of management and their external consultants to understand the actions they have taken to identify climate-related risks and their potential impacts on the financial statements and adequately disclose climate-related risks within the annual report.

Performing qualitative risk assessments taking into consideration the sector in which the Group operates and how climate change affects this particular sector.

Reviewing minutes of Board and Audit Committee meeting and other papers related to climate change and performed a risk assessment as to how this impacts the Group's financial statements and our audit.

Auditor's Report: STO (2022)

Impact of Sustainability and Climate-Related Risks

In undertaking our impairment procedures, we incorporated consideration of sustainability and climate change-related risks by:

- Carrying out sensitivity analysis of recoverable amounts across a range of key inputs which have been formulated to incorporate uncertainty risk associated with climate change, such as the inclusion of premiums in discount rates and alternative oil price forecasts which contemplate varied climate change-related assumptions and scenarios.

Auditor's Report: RIO (2021)

We reported to the Audit Committee that based on the risk identified and our procedures performed, we found the company's conclusion that there is no impairment of its investments in subsidiaries to be acceptable.

4. THE IMPACT OF CLIMATE CHANGE ON OUR AUDIT

In planning our audit, we considered the potential impacts of climate change on the Group's business and its financial statements, based on our knowledge of the Group's operations and their stated strategy with respect to climate change.

The context of climate change for the Group

Auditor's Report: ANZ (2020)

In addition to controls testing, our procedures included:

- Re-performing credit assessments of a sample of wholesale loans controlled by the Group's specialist workout and recovery team assessed as higher risk or impaired, and a sample of other loans, focusing on larger exposures assessed by the Group as showing signs of deterioration, or in areas of emerging risk (assessed against external market conditions and in particular considering the impacts of COVID-19 and climate change). For each loan sampled, we challenged the Group's CCR and Security Indicator (SI), taking into account our assessment of the customer's financial position and, where relevant, the risk of stranded assets, and our overall assessment of loan recoverability, the valuation of security, and the impact on the credit allowance. To do this, we used the information on the Group's loan file, discussed the facts and circumstances of the case with the loan officer, and performed our own assessment of recoverability. Exercising our judgment, our procedures included using our understanding of relevant industries and the macroeconomic environment and comparing data and assumptions used by the Group in recoverability assessments to externally sourced evidence, such as commodity prices, publicly available audited financial statements and comparable external valuations of collateral held. Where relevant we assessed the forecast timing of future cash flows in the context of underlying valuations and approved business plans and challenged key assumptions in the valuations;

Auditor's Report: TCL (2019)

impairment indicator assessment.

Other information

The directors of Transurban Holdings Limited, Transurban Infrastructure Management Limited (as the responsible entity of Transurban Holding Trust) and Transurban International Limited (collectively referred to as "the directors") are responsible for the other information. The other information comprises the information included in the Group's Corporate Report for the year ended 30 June 2019, but does not include the financial report and our auditor's report thereon. Prior to the date of this auditor's report, the other information we obtained included the Corporate Report, FY19 Results Presentation, FY19 Sustainability Data and Climate Change Disclosures, FY19 UN Sustainable Development Goals Progress Report, Corporate Governance Statement and Security Holder Information. We expect the remaining other information to be made available to us after the date of this auditor's report.

Auditor's Report: FMG (2018)

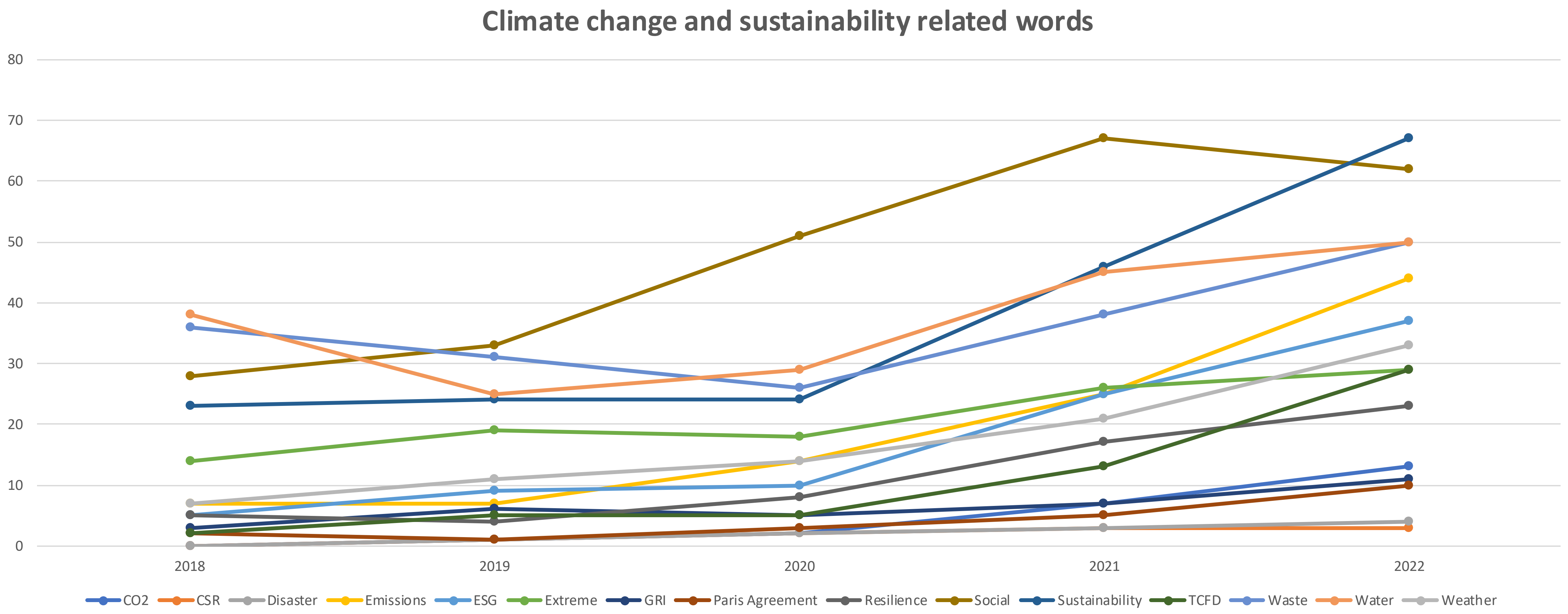
Other information

The directors are responsible for the other information. The other information comprises the information included in the Group's annual report for the year ended 30 June 2018, including the Overview, Operating and Financial Review, Ore Reserves and Mineral Resources, Corporate Social Responsibility, Corporate Governance, Fortescue's response to climate change, Directors' Report, Remuneration and Nomination Committee Chair message and Corporate Directory, but does not include the financial report and our auditor's report thereon.

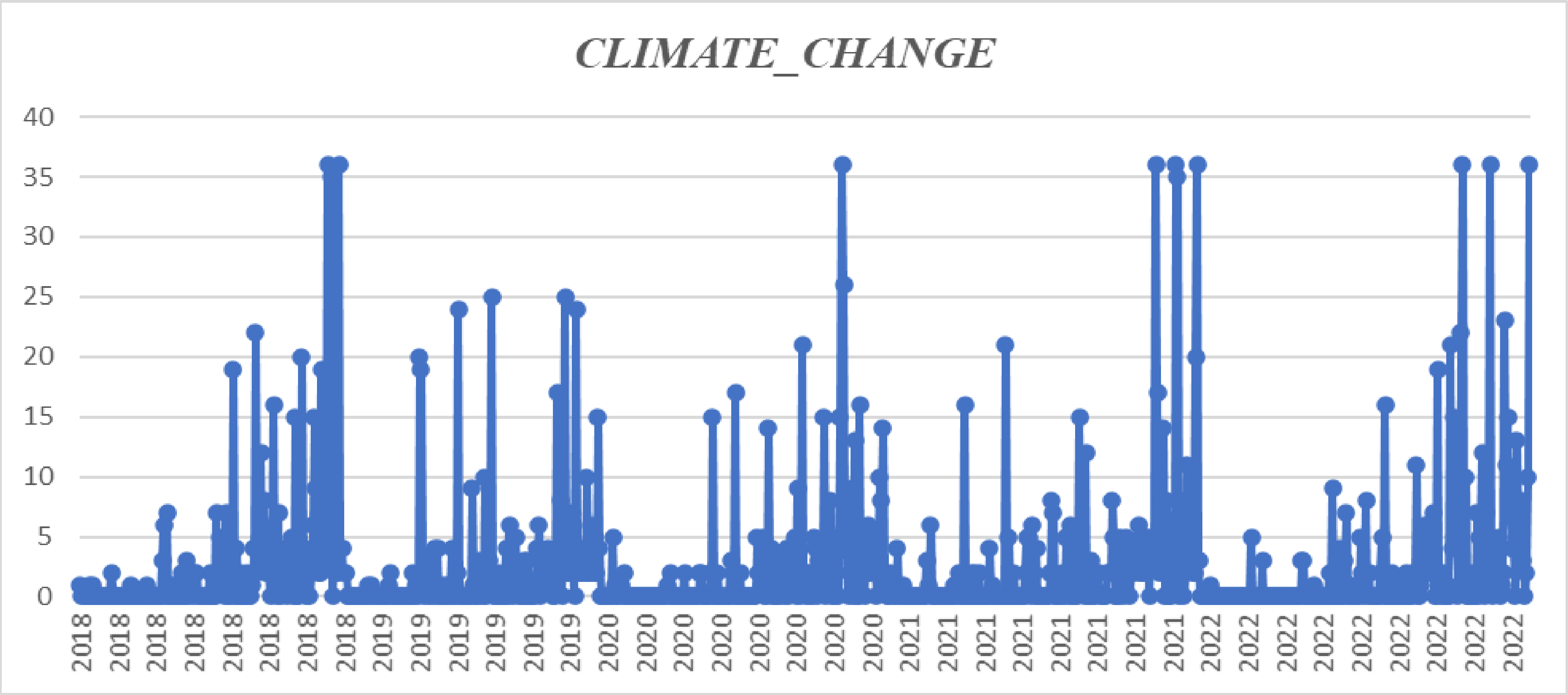
Measure of *CLIMATE_CHANGE* and *SUSTAINABILITY related information:* Disclosure level is a proxy for effort (good), and impact (bad)

CLIMATE_CHANGE	Measure of **intensity** of climate change disclosures in the financial statements and notes forming part of financial statements based on keywords related to climate change. The absolute frequency of phrases was discussed in a context similar to the initial key phrase: climate change. We compute a total disclosure score for each firm based on the number of times these keywords related to climate change and associated risks are mentioned in the financial statements and notes forming part of financial statements with relative importance to the context of disclosure location. We use a language model to identify noun chunks from the texts related to climate change using 24 unique or related words/terms. We also develop a simple measure of climate change using the mention of the term "climate change" in the financial statements and notes forming part of financial statements, and independent audit reports. Following is the list of unique words/terms (excluding similar) used in the study for constructing the measure: bioenergy, carbon dioxide (CO2), carbon footprint, carbon neutrality, carbon offsetting, climate change, climate resilience, decarbonization, deforestation, droughts, emissions, energy efficiency, environmental policy, extreme weather events, floods, fossil fuels, global warming, greenhouse gases (GHG), heatwaves, net zero emissions, renewable energy, risk, solar power, wildfires, wind energy.
SUSTAINABILITY	Measure of **intensity** of sustainability disclosures in the financial statements and notes forming part of financial statements based on keywords related to sustainability. Absolute frequency of phrases discussed in a similar context as the initial key phrases: environment and sustainability. We compute a total disclosure score for each firm based on the number of times these keywords related to the concept of environment and sustainability and associated risks are mentioned in the financial statements and notes forming part of financial statements with relative importance to the context of disclosure location. We use language model to identify noun chunks from the texts related to environment and sustainability using 58 unique or related words/terms. Following is the list of unique words/terms (excluding similar) used in the study for constructing the measure: biodiversity, carbon offset, carbon pricing, circular economy, clean energy, clean water community development, composting, conservation, corporate governance, corporate social responsibility (CSR), cultural preservation, deforestation, diversity and inclusion, eco-efficiency, ecosystem, ecosystem services, environmental policy, equity, ESG (environmental, social, and governance), ethical consumption, fair trade, green certification, green economy, green finance, green jobs, green technology, habitat preservation, human rights, labour rights, organic farming, pollution, poverty reduction, public health, recycling, regenerative design, renewable energy, resilience, resource efficiency, social enterprise, social equity, social impact, social justice, soil health, stakeholder engagement, sustainability reporting, sustainable agriculture, sustainable development goals (SDGs), sustainable investment, sustainable livelihoods, sustainable, procurement, triple bottom line, waste reduction, water conservation, well-being, adaptation, sustainability.

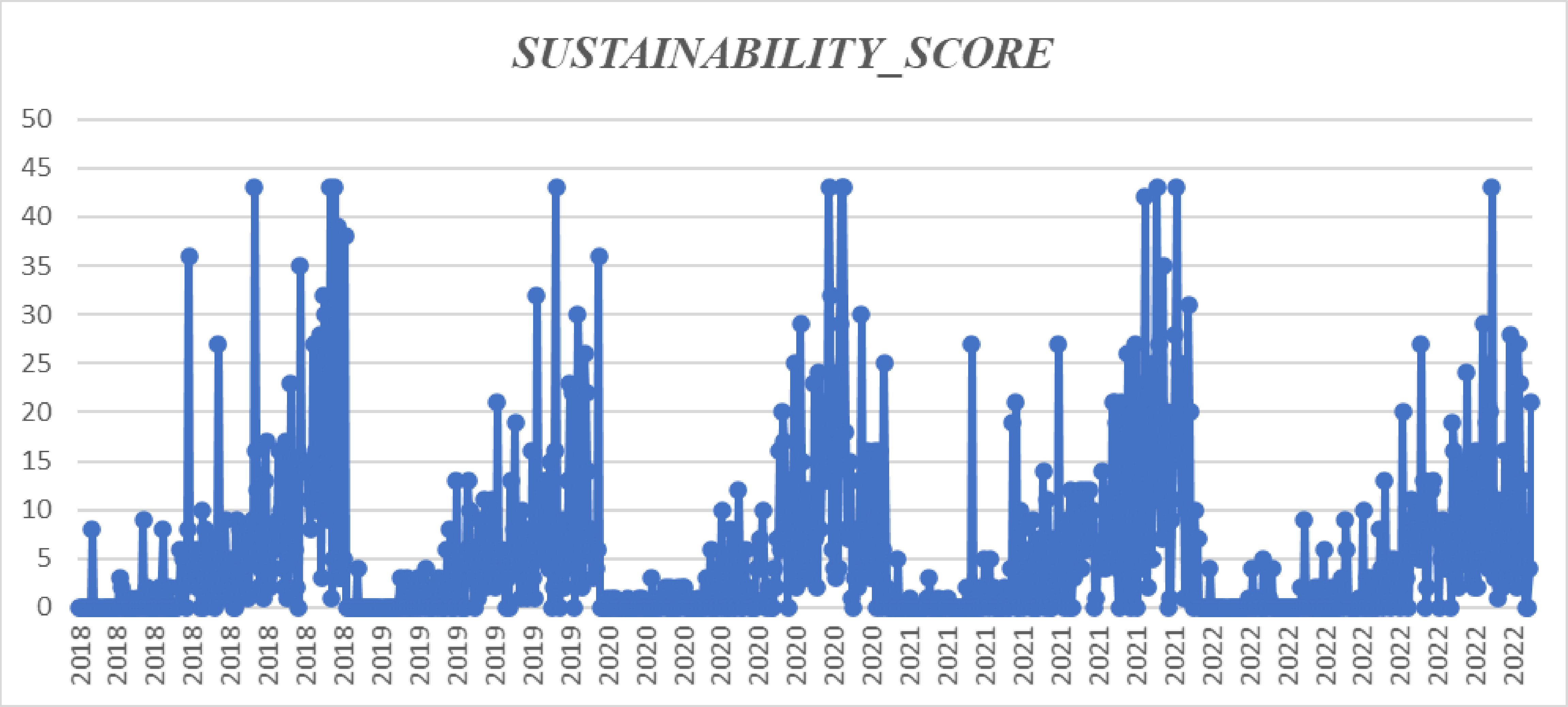
Example of commonly disclosed keywords by ASX listed firms (S&P300) in the notes forming part of the financial statements



Scattered yearly distribution of climate change related keywords by individual firms



Scattered yearly distribution of sustainability related keywords by individual firms



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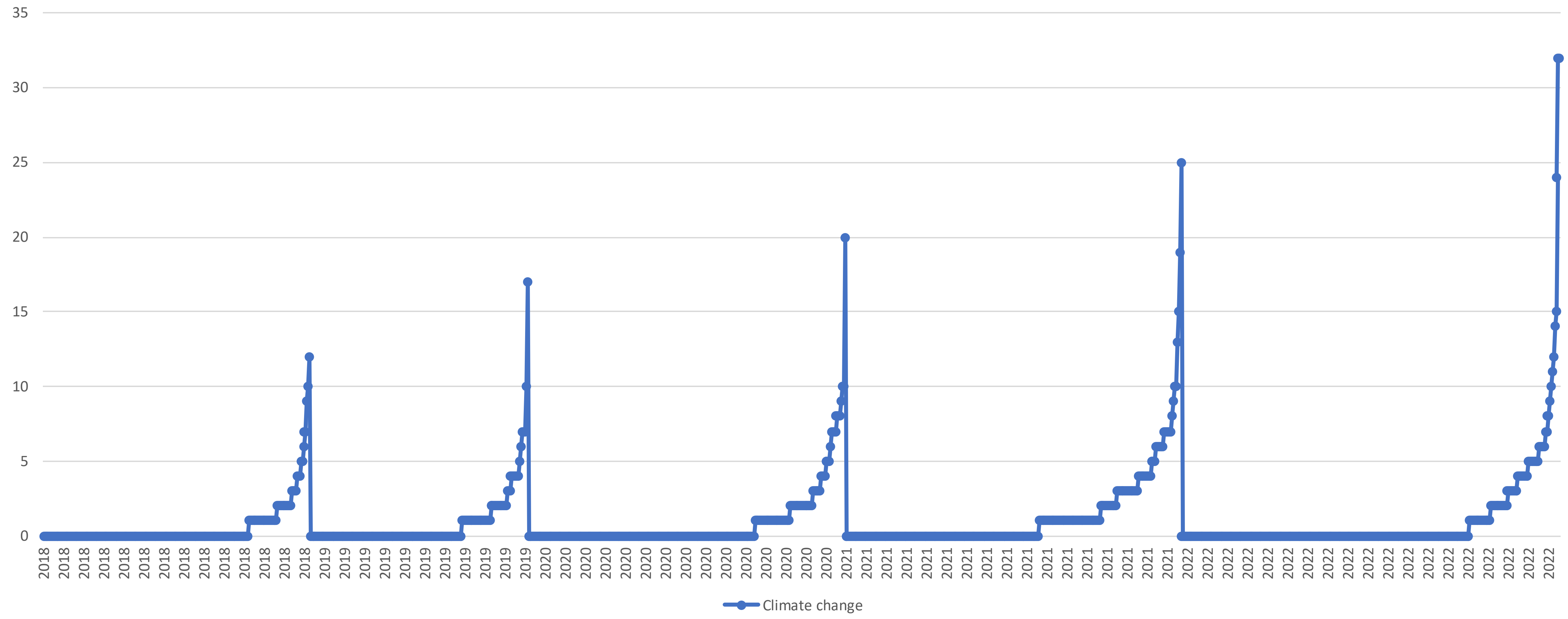
Disclosure of keyword “*CLIMATE CHANGE*” in the financial statement and notes forming part of the financial statements



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Hypotheses

H1: Climate change and sustainability related financial disclosures (CSRFD) are positively associated with accumulated depreciation and amortization.
H2: Climate change and sustainability related financial disclosures (CSRFD) are positively associated with audit fees.

H3: Climate change and sustainability related financial disclosures (CSRFD)increase the value relevance of financial information.

H4: Climate change and sustainability related financial disclosures (CSRFD) are positively associated with valuation.

Institutional setting, sample and main findings

- Sample of S&P/ASX300 - Australian listed companies
- Sample period 2018 to 2022
- Textual analysis of financial statements and notes to financial statements
  - Keywords related to climate change and sustainability
  - Intensity of disclosures suggests more effort by companies and greater recognition of impact

Main findings

- Climate change and sustainability scores are positively associated with accumulated depreciation and amortization
- Disclosures of climate change and sustainability are positively associated with audit fees
- Disclosures of climate change is positively associated with share price and increases value relevance of EPS
- Disclosures of climate change and sustainability are positively associated with Tobin's Q

Descriptive statistics

Panel A: descriptive statistics on all variables for the full sample

Variable	N	Mean	Q1	Median	Q3
CLIMATE_CHANGE	886	2.521	0.000	0.000	2.000
SUSTAINABILITY	886	5.418	0.000	2.000	7.000
ACCU_DEP&AMOR	796	0.092	0.001	0.002	0.116
LOGAUDITFEE	663	5.534	5.150	5.555	5.862
SHARE_PRICE	886	6.660	0.090	1.570	5.780
TOBINS'Q	796	1.552	0.960	0.860	1.950

Disclosure of term “climate change” in annual reports, financial statements and notes forming part of financial statements, and independent audit reports by financial year

	ML-readable financial statements and notes	Disclosure in annual report		Disclosure in financial statements		Disclosure in notes forming part of financial statements		Disclosure in independent audit reports	
Year	N	N	%	N	%	N	%	N	%
2018	237	95	40.08	1	0.42	3	1.27	1	0.42
2019	242	96	39.67	1	0.41	12	4.96	1	0.41
2020	253	107	42.29	3	1.19	17	6.72	3	1.19
2021	274	189	68.98	5	1.82	33	12.04	3	1.09
2022	281	225	80.07	12	4.27	57	20.28	16	5.69
Total	1,287	712	55.32	22	1.71	122	9.48	24	1.86

Determinants of climate change and sustainability related financial disclosures

Variables	Dependent variable *CLIMATE_CHANGE*	*SUSTAINABILITY*
CONSTANT	0.265***	0.275***
	(3.50)	(3.61)
HIGH_CLIMATE_RISK	**-0.426*** **	**-0.108**
	(-3.74)	**(-0.95)**
CORPGOV_SCORE	0.007	-0.084
	(0.11)	(-1.36)
SOCIAL_SCORE	-0.109	0.095
	(-1.07)	(0.93)
ENVRN_SCORE	0.123	-0.013
	(1.22)	(-0.13)
ECON_SCORE	0.004	0.042
	(0.06)	(0.64)
INVENTORY	-0.089	-0.602*
	(-0.27)	(-1.80)
RECEIVABLE	0.468*	0.513*
	(1.76)	(1.92)
ROA	0.081	0.074
	(1.03)	(0.93)
SIZE	**0.090*** **	**0.050*** **
	(8.08)	**(4.47)**
LEVERAGE	-0.087	0.053
	(-0.97)	(0.58)
BIG4	0.062	0.017
	(1.59)	(0.45)
MARKET_TO_BOOK	**0.019*** **	**0.006**
	(4.70)	**(1.43)**
FOREX_OP	0.017	-0.002
	(0.40)	(-0.04)
LIQUIDITY	-0.006	0.004
	(-1.59)	(1.02)
EXT_ITEMS	-0.069	-0.085
	(-0.69)	(-0.84)
BUSY	-0.116***	0.067
	(-2.59)	(1.48)
OP_INCOME	-0.154**	-0.107
	(-2.09)	(-1.45)
LOSS	-0.051	-0.064
	(-0.91)	(-1.14)
Industry fixed effect	Yes	Yes
Year fixed effect	Yes	Yes
N	796	796
R^2	0.319	0.304

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Results of regression estimates for accumulated depreciation and amortisation and climate change, sustainability and risk related financial disclosures for the test of H1

Dependent variable =	*ACCU_DEP&AMOR*		
Variables	(1)	(2)	(3)
CONSTANT	0.059**	0.071***	0.059**
	(2.33)	(2.81)	(2.34)
CLIMATE_CHANGE	**0.005*** **		**0.004*** **
	(4.46)		**(3.47)**
SUSTAINABILITY		**0.002*** **	**0.001**
		(3.00)	**(1.12)**
	(1.46)	(1.21)	(1.40)
Control variables	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
N	796	796	796
R^2	0.495	0.487	0.496

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Results of regression estimates for audit fees and climate change, sustainability and risk related financial disclosures for the test of H2

Dependent variable =	*LOGAUDITFEE*		
Variables	(1)	(2)	(3)
CONSTANT	5.277***	5.306***	5.279***
	(68.52)	(70.81)	(69.83)
CLIMATE_CHANGE	**0.014*** **		**0.007** **
	(4.89)		**(2.22)**
SUSTAINABILITY		**0.014*** **	**0.011*** **
		(6.56)	**(4.85)**
Control variables	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
N	663	663	663
R^2	0.624	0.635	0.638

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Results of regression estimates for value-relevance of climate change, sustainability and risk related financial disclosures for the test of H3

Dependent variable	= *SHARE_PRICE*		
Variables	(1)	(2)	(3)
CONSTANT	4.943***	5.275***	4.881***
	(5.28)	(5.70)	(5.20)
CLIMATE_CHANGE	**0.153****		**0.189****
	(2.19)		**(2.32)**
SUSTAINABILITY		**0.018**	**-0.048**
		(0.37)	**(-0.86)**
EPS	10.404***	10.390***	10.486***
	(11.67)	(11.57)	(11.69)
BVPS	1.058***	1.092***	1.056***
	(11.47)	(11.98)	(11.44)
Industry fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
N	886	886	886
R^2	0.492	0.489	0.492

Results of regression estimates for incremental value-relevance of climate change, sustainability and risk related financial disclosures for the test of H3

Dependent variable = *SHARE_PRICE*			
Variables	(1)	(2)	(3)
CONSTANT	2.309	2.261	3.621
	(0.75)	(0.72)	(1.19)
CLIMATE_CHANGE	-0.212***		-0.236***
	(-2.81)		(-2.69)
SUSTAINABILITY		-0.147***	-0.040
		(-2.81)	(-0.68)
EPS	9.850***	11.357***	9.557***
	(11.82)	(12.42)	(10.35)
BVPS	0.715***	0.518***	0.487***
	(7.52)	(5.06)	(4.70)
EPS*CLIMATE_CHANGE	**0.555*** **		**0.634*** **
	(5.15)		**(5.68)**
BVPS*CLIMATE_CHANGE	**-0.005**		**-0.017**
	(-0.52)		**(-1.62)**
EPS*SUSTAINABILITY		**0.077**	**-0.017**
		(1.26)	**(-0.28)**
BVPS*SUSTAINABILITY		**0.027*** **	**0.028*** **
		(4.70)	**(4.85)**
Industry fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
N	886	886	886
R^2	0.680	0.660	0.694

Results of regression estimates for TOBINS'Q and climate change, sustainability and risk related financial disclosures for the test of H4

Dependent variable	= *TOBINS'Q*		
Variables	(1)	(2)	(3)
CONSTANT	2.32***7	2.720***	2.326***
	(3.38)	(3.96)	(3.38)
CLIMATE_CHANGE	**0.114*** **		**0.116*** **
	(4.11)		**(3.75)**
SUSTAINABILITY		**0.034***	**-0.005**
		(1.68)	**(-0.20)**
Control variables	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
N	886	886	886
R^2	0.680	0.660	0.694

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Additional tests and disclosure analyses

- Disclosure of “climate change” in the financial statement and notes forming part of the financial statements
- Total keywords scaled by the size of annual report: number of words in the annual report
- Analysis based on disclosure of “risk”
- Disclosures in the independent audit reports
- Climate related risks versus opportunities
- Firm fixed effect

Key findings, implications and recommendations

- **Key findings:**
  - Quantity and quality of CSRFD increased over the years but remain highly varied and inadequate
  - Heterogenous and qualitative nature of climate and sustainability-related disclosures
  - Results mostly disappear with firm fixed effect
  - Requiring SEC item 7A equivalent disclosures based on scenarios – connecting financial and climate change/sustainability information

- **Recommendations for standard-setters and regulators:**
  - Need for mandatory standards on climate change and sustainability: S1 and S2
  - Industry and sector-specific illustrations could improve consistency, comparability, and quality of disclosures
  - Establish a central independent agency that provides credible and relevant climate and sustainability-related scenarios and outcomes that could be adopted by reporting entities
  - Requiring SEC item 7A equivalent disclosures based on scenarios – connecting financial and climate change/sustainability information

SEC Item 7A (BHP Billiton Ltd) based on risks

Key Underlying EBITDA sensitivities

Approximate impact[1] on FY24 Underlying EBITDA of changes of:	US$ m
US$1/t on iron ore price[2]	233
US$1/t on steelmaking coal price	10
US¢1/lb on copper price[2]	37
US$1/t on energy coal price[2,3]	14
US¢1/lb on nickel price	1.2
AUD (US¢1/A$) operations[4]	166
CLP (US¢0.10/CLP) operations[4]	25

1. EBITDA sensitivities: assumes total volume exposed to price; determined on the basis of BHP's existing portfolio.
2. EBITDA sensitivities: excludes impact of equity accounted investments.
3. EBITDA sensitivities: includes domestic sales.
4. EBITDA sensitivities: based on average exchange rate for the period applied to exposed revenue and operating costs.

BHP 2024 annual report and Operational and Financial Review (OFR 6.9)

Relevant BHP Group risk factors (refer to OFR 8 for more information)	Climate-related risk	Potential influence of climate-related issues on BHP Group risk factors over time[1]		
		Short-term (0 to 2 years)	Medium-term (2 to 5 years)	Long-term (5 to at least 30 years)
Transition risk				
Operational events	• Technological solutions to reduce GHG emissions	Low	Low to medium	High
Significant social or environmental impacts	• Engaging in or association with activities with actual or perceived adverse climate-related impacts • Failure to meet evolving stakeholder expectations	Low	Low to medium	High
Low-carbon transition	• Political, regulatory or judicial developments • Low to zero GHG emission technologies or changes in customer preferences altering demand for our products • Perceptions of climate-related financial risk reducing access to capital and/or insurance for BHP or our customers or suppliers • Reputational damage and litigation • Adverse market, legal or regulatory responses	Low	Low	High
Adopting technologies and maintaining digital security	• Technological solutions to reduce GHG emissions	Low	Low	High
Optimising growth and portfolio returns	• Failure to achieve expected commercial objectives due to climate-related impacts	Low	Low	High
Accessing key markets	• Legal or regulatory changes, with respect to carbon-intensive industries and exports	Low	Low	High
Inadequate business resilience	• Geopolitical, global economic, regional or local developments or adverse events	Low	Low	High
Physical risk				
Operational events	• Extreme weather and other climate-related events that may impact production	Low	Low	Medium
Significant social or environmental impacts	• Failure to adequately identify or to appropriately manage physical climate-related risks	Low	Low to medium	Medium
Inadequate business resilience	• Acute and chronic physical climate-related impacts, event-driven and longer-term changes in climate patterns	Low	Low	Medium

Price source	CY2030 Price (real, US$/tonne)	CY2050 Price (real, US$/tonne)
Wood Mackenzie Net Zero (1.5°C) Scenario (June 2024)	180	143

BHP 2024 annual report and Operational and Financial Review OFR 6.9

Climate modelling

We commissioned WTW (one of our insurance advisors) to develop a climate dataset covering our operated assets and some key value chain locations, to develop a more holistic understanding of the potential parameters of our physical climate-related risk exposure and how it may change over time.

This climate dataset is based on the publicly available Shared Socioeconomic Pathways (SSP) scenarios used by the Intergovernmental Panel on Climate Change, and includes latest generation (Coupled Model Intercomparison Project Phase 6 (CMIP6)) and CMIP5 climate models, applied to our operated assets. The dataset covers more than 20 climate-related hazards potentially relevant to our global operations, such as average temperature, extreme precipitation, and cyclones, which can represent physical climate-related risks. Alongside this we apply local observational climate data and other sources of climate projections. This approach allows us to develop a localised view of potential impacts, including changes in rainfall patterns, average and maximum temperatures and sea level rise.

The climate dataset includes a baseline (CY2001 to CY2020) and projections for three future time horizons (CY2026 to CY2045, CY2046 to CY2065, CY2066 to CY2085) for the following Intergovernmental Panel on Climate Change SSP-based GHG emission scenarios:[1]

- Low-case: Estimated average global temperature increase of 1.8°C by CY2100 (SSP1-2.6)
- Mid-case: Estimated average global temperature increase of 2.7°C by CY2100 (SSP2-4.5)
- High-case: Estimated average global temperature increase of 4.4°C by CY2100 (SSP5-8.5)

The table 'Potential physical climate-related risks at our operated assets and in their value chains' on this page shows the physical climate-related risks that our studies to date indicate could have potential impact for our operated assets (including via impacts in our value chain). The first stage of our analysis looks at our operated assets that are currently producing (excluding NSWEC and former OZ Minerals sites) and our Jansen potash project. We plan to include currently producing former OZ Minerals sites and to expand and adapt our approach to incorporate our legacy assets and NSWEC in FY2025.

Illustration: Equivalent of Item 7A (Wine producer – operating in UNSW): Connecting financial and climate change information based on materiality

Approximate impact on the following items based on scenarios	Scenario 1 – increase in temperature by 0.5 degree (Short-term)	Scenario 2 – increase in temperature by 1 degree (Short-term)	Scenario 1 – increase in temperature by 0.5 degree (Medium-term)	Scenario 2 – increase in temperature by 1 degree (Medium-term)
Income statement				
Revenue	Nil	Nil	1% lower	2% lower
EBITDA	Nil	2% lower	1% lower	5% lower
Balance sheet				
Current assets	Nil	Nil	2% lower	5% lower
Non current assets	1% lower	2% lower	5% lower	10% lower

Illustration: Equivalent of Item 7A (Wine producer – operating in UNSW): Connecting financial and climate change information based on materiality

Approximate impact on the following items based on scenarios	Scenario 1 – increase in bush fires by 5% (Short-term)	Scenario 2 – increase in bush fires by 10% (Short-term)	Scenario 1 – increase in bush fires by 5% (Medium-term)	Scenario 2 – increase in bush fires by 10% (Medium-term)
Income statement				
Revenue	1% lower	5% lower	2% lower	5% lower
EBITDA	5% lower	10% lower	5% lower	15% lower
Balance sheet				
Current assets	2% lower	5% lower	2% lower	5% lower
Non current assets	5% lower	10% lower	5% lower	15% lower

Questions and comments