

OZ Minerals' 2022 TCFD disclosures

2022 reporting

In 2022, we adopted a new format for our Sustainability Reporting, reflecting contextual changes including stakeholder expectations and our macroenvironment. Our [2022 Sustainability Review](#) focuses on our 2022 performance and activities, such as our Stakeholder Value Creation Metrics, Strategic Aspirations, and material sustainability topics, including risks (opportunities and threats) at OZ Minerals. The Review is accompanied by broader disclosures regarding material sustainability topics, including climate change and emissions aligned to the TCFD¹ (this document), and supporting performance data available in the [Sustainability section of our website](#).

Our Work in 2022

Our Assets continued to develop their Decarbonisation Plans in 2022 to implement and deliver against our Decarbonisation Roadmap. At Carrapateena and Prominent Hill, progress was made on construction of the electric material handling systems (the hoisting shaft at Prominent Hill and the extension of the underground conveyor system at Carrapateena). At these Assets planning continued for trials of electric vehicles and equipment supported by dedicated roles. We also undertook a detailed physical climate risk assessment of the Basis of Design for our Carrapateena Expansion Project, building on the risk assessments completed in recent years. Our Brazil team developed a greenhouse gas inventory, building on scope 1 and 2 data already captured to include scope 3 emissions². The Brazil team also developed a Decarbonisation Plan for their operating context (see Metrics & Targets). In 2022 we announced final investment decision (FID) to proceed with our West Musgrave Project (WMP) which will be one of the lowest emissions intensity nickel mines globally³.

Our Company Strategy was updated to focus on Modern Minerals expanding our prior "copper focus", positioning us to capitalise on the growing demand for the modern minerals that are integral to the multi-decade electrification and decarbonisation transition. We also matured our approach to risk (opportunities and threats), with climate change listed as a Company Context Risk (see Risk Management).

In 2023, our attention will turn to the construction of WMP, continuing construction of the electric material handling systems at our two South Australian assets, continuing to implement trials of zero emissions equipment at our Assets, and executing our Offsets Plan and Scope 3 Reduction Plan which we developed in 2022.

Governance

The Board Sustainability Committee, which met three times in 2022, maintains oversight of material sustainability risks, including climate change and emissions. The Committee received updates regarding climate change related developments at all meetings, including, in December, a detailed update on progress against our Decarbonisation Roadmap commitments was provided (see Metrics & Targets), including updated emissions forecasts and the risk (threat) of potential exposure under changing government policy settings.

Climate-related risks (threats and opportunities) are managed via our Risk Management Framework ([see page 30 – Risk section of Annual Report](#)), including our Process and [Performance Standards \(see page 59 of Annual Report\)](#). Key management roles accountable for climate-related risks include our

¹ Recommendations of the Task Force for Climate-related Financial Disclosures

² Brazil greenhouse gas inventory was prepared in alignment with Programa Brasileiro GHG Protocol and Greenhouse Gas Protocol requirements.

³ Assessed on a combined scope 1 and 2 emissions basis using data obtained from CRU

Finance and Governance, Corporate Affairs, and Operations Executives, as well as asset General Managers.

Strategy

We released an update to our Company Strategy in August 2022 which incorporated the decarbonisation and electrification transition opportunities into our future business growth. This built on the review of our Strategy against a 1.5°C scenario undertaken in 2021 ([see page 86 of our 2021 Annual and Sustainability Report](#)). We have a pathway to more than double our copper equivalent production from 140,000 tonnes to over 340,000 tonnes per year⁴ and bring nickel into our portfolio via West Musgrave. This occurs as demand for these modern minerals is set to escalate during this decade.

Decarbonising our business is central to our Strategy. In addition to our [Decarbonisation Roadmap](#), we updated our [Strategic Aspirations](#) in 2022, including an aspiration to reach zero emissions. Together, our Strategy provides medium and long-term direction to demonstrate how we are decarbonising our operations to support mining modern minerals as we position ourselves for the electrification era.

Transition climate-related risks

We are positioned optimally to capitalise on the opportunities of growing demand for the minerals we produce in the electrification and decarbonisation era. At the same time, we recognise the increasing expectations to produce responsibly and transparently. Key transition risks, for OZ Minerals are:

- Significantly increased demand for copper and nickel with the electrification era (opportunity)
- Potential price premiums and greater market access as a producer of low emissions product (opportunity) – medium-term
- Exposure to greenhouse gas regulation and carbon pricing (threat) – near-medium term
- Delivery of progress consistent with our Decarbonisation Roadmap and commitments (threat) – medium term
- Changed public sentiment toward heavy industry, including mining (threat) – near-medium term

These transition risks are captured in our risk register via our *Climate Change* and *Societal Expectations* Context Risks (see Risk Management).

Physical climate-related risks

In recent years, we have undertaken assessments of physical climate-related risks at our three operating Assets and West Musgrave. Assessment of physical risks was informed by scenario analysis using Intergovernmental Panel on Climate Change (IPCC) RCP8.5 and RCP4.5 and SSP3-7.0 and SSP5-8.5 scenarios from Assessment Reports five (AR5) and six (AR6) respectively. IPCC RCP 8.5 was chosen for the assessment of physical risk as the scenario yields plausible outcomes at the top-end of a climate change climate (worst-case). These scenarios were complemented by downscaled climate change projections prepared by the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australian Government Department of Agriculture, Water and the Environment and the Bureau of Meteorology accessed from the Climate Change in Australia website (Australian Assets), as well as federal and state government information (Australian and Brazilian Assets).

Physical climate-related risks (threats) identified for OZ Minerals' Assets include:

Extreme rainfall events

- operational disruption and damage to infrastructure
- obstruction or delay of access to site and survey areas
- mud-rush or inrush and/or landslides
- impacts to tailings storage facilities

Increased temperatures

- increased ventilation and refrigeration requirements

⁴ [OZ Minerals set to ride electrification growth wave, ASX release 26 August 2022](#)

- more prevalent incidents of workforce heat exposure and thermal discomfort
- increased energy consumption and cost
- increased incidence of fire in the surrounding landscape disrupting site access

Reduced annual rainfall

- increased power cost or supply disruption due to decreased grid hydroelectric generation (Brazil assets only)
- increased dust suppression requirements
- reduced groundwater recharge and decreased underground mine pumping requirements (opportunity, Brazil Assets only)

Refer to disclosures in 2020 and 2021 Annual and Sustainability Reports for further detail.

Building on the risk assessments we conducted across our operating assets in 2020 and 2021 ([see 2020 and 2021 Annual and Sustainability Reports](#)), in 2022 we undertook a detailed assessment of physical climate risk to inform our Carrapateena Expansion Basis of Design as part of integrating climate risk in asset planning. The assessment included evaluation of potential risks to exploration activities, inbound and outbound logistics, mining and processing, and post closure and tailings for Carrapateena post expansion.

Consistent with previous physical climate-related risk assessments, this assessment was based on IPCC RCP 8.5 high emissions scenario. This scenario was complemented by projections from the Climate Change in Australia website⁵. The assessment was undertaken in alignment with ISO14091:2021 *Adaptation to climate change — Guidelines on vulnerability, impacts and risk assessment* and ISO31000:2018 *Risk Management*.

The risk assessment concluded Carrapateena Expansion's Basis of Design is resilient to physical climate change risks under an IPCC RCP 8.5 scenario with adequate controls in place. No material risks were identified on either a financial or non-financial basis, based on residual risk ratings as per the OZ Minerals Risk Management Specification. Of the 13 temperature and rainfall climate variables included in the assessment, extreme rainfall events (mean days per year above 99.9th percentile) are associated with physical climate risks with the most significant potential impact on the Carrapateena Expansion. That said, the residual rating for all risks was Low, except for the risk of overtopping or failure of the Tailings Storage Facility, which received a residual risk rating of High.

Risk Management

In 2022, we revised our approach to risk management to identify major enterprise risks for the Company, known as *Context Risks* ([see page 30 of 2022 Annual and Sustainability Review](#)). These are complemented by *Performance Risks* which have the potential to affect operational performance at our Assets.

Climate change, encompassing high-level physical and transition risk (opportunities and threats), is identified as a Context Risk, owned by the Corporate Affairs Executive. Management of this risk occurs across both Corporate and Assets. Transition climate-related risks ([see Strategy section](#)) are managed by key Corporate roles including sustainability and strategy, as well as dedicated Asset roles overseeing implementation of decarbonisation initiatives and technology trials to reduce operational emissions consistent with our Decarbonisation Roadmap. We apply an internal carbon price in asset valuations and investment decisions, including the West Musgrave Project Final Investment Decision (FID) made in September 2022.

Specific physical climate-related risks have been identified as potential threats to our operational performance (see Strategy) and are captured by our Assets as Performance Risks. Performance Risks are managed by Asset management teams given their potential to directly affect performance of our operations. Controls for physical risks include health and safety protocols, Trigger-Action-Response-Plans (TARPs) and accommodating climate change scenarios in asset planning.

⁵ <https://www.climatechangeinaustralia.gov.au/en/>

Metrics & targets

2022 marked the first year of implementation of our Decarbonisation Roadmap which commits our operating assets⁶ to reduce emissions by 50 per cent by 2027, relative to FY21 baseline, and net zero scope 1 and 2 emissions by 2030. In 2022⁷, our total scope 1 emissions were 95,387 tCO₂-e (Table 1), increasing 0.7 cent from 2021⁸ (Figure 1), consistent with the expected trajectory of our Roadmap. Our scope 2 emissions decreased over the same period to 230,651 tCO₂-e (7.7 per cent decrease), despite an increase in energy consumption at our Australian operating assets (Figure 2). This was largely due to a significant decrease in the emissions intensity of the South Australian electricity grid⁹, attributable to renewable penetration of approximately 67.5 per cent¹⁰ in 2022.

Reflecting the above emissions, in 2022 we completed a review of progress¹¹ against our Decarbonisation Roadmap. The review concluded that we are on track to meet or exceed our scope 1 commitment, despite an increase in scope 1 emissions of 0.7 per cent in 2022. This increase was anticipated, as outlined in the trajectory of our Decarbonisation Roadmap¹², and we remain confident of substantial reductions in scope 1 emissions prior to 2027. Regarding our net zero scope 1 and 2 by 2030 commitment, we anticipate our combined scope 1 and 2 emissions in 2030 to be between 58 per cent and 77 per cent below our FY21 baseline, depending on the scale of reduction in emissions intensity of the South Australian electricity grid. The review noted our progress implementing trials of zero emissions equipment has been slightly impacted, primarily due to changing planning and longer than anticipated timeframes caused by supply chain impacts.

During the reporting period, West Musgrave Project (WMP) set a commitment to net zero scope 1 emissions by 2038¹³ (WMP is not anticipated to produce scope 2 emissions) as part of FID. The circa 80 per cent renewable power penetration gives the WMP an advantage to produce concentrates with an emissions intensity of 1.3 tCO₂-e/tonne CuEq, one of the lowest globally¹⁴. West Musgrave also has a pathway aligned with potential transition to an electric haulage fleet at first engine change out.

We also re-baselined our scope 3 emissions in 2022¹⁵, which totaled 557,847 tCO₂-e, a 31 per cent increase on 2021. The increase was largely due to our inclusion of a significantly larger cohort of suppliers¹⁶, which increased emissions associated with purchased goods and services. In addition, there was a greater amount of smelting activity associated with shipments of our product in FY22. Smelting is the largest and most emissions intensive source of scope 3 emissions, hence this increase in activity resulted in a significant increase in downstream emissions.

Table 1: OZ Minerals' 2022 emissions (FY22)

tCO ₂ -e	Australian operations	Brazilian operations	Total
Scope 1	87,403	7,984	95,387
Scope 2	227,546	3,105	230,651
Total Scope 1+2	314,949	11,089	326,038
Scope 3 - All OZ Minerals: 557,847			

⁶ At time of Decarbonisation Roadmap publication

⁷ Financial year ending 30 June 2022

⁸ Financial year ending 30 June 2021

⁹ Compilation No. 14 (July 2022), National Greenhouse and Energy Reporting (Measurement) Determination 2008

¹⁰ 12-month average renewable penetration across calendar year 2022, available at

<https://opennem.org.au/energy/sa1/?range=1y&interval=1w>

¹¹ The outcomes of the review of our Decarbonisation Roadmap were communicated to the Board Sustainability Committee

¹² Refer Figure 1, page 88 of 2021 OZ Minerals Annual and Sustainability Report

¹³ West Musgrave does not produce scope 2 emissions

¹⁴ [Green light for West Musgrave Project. ASX release 23 September 2022](#)

¹⁵ Financial year ending 30 June 2022

¹⁶ Cohort of suppliers was determined as those constituting 80 per cent of suppliers by spend

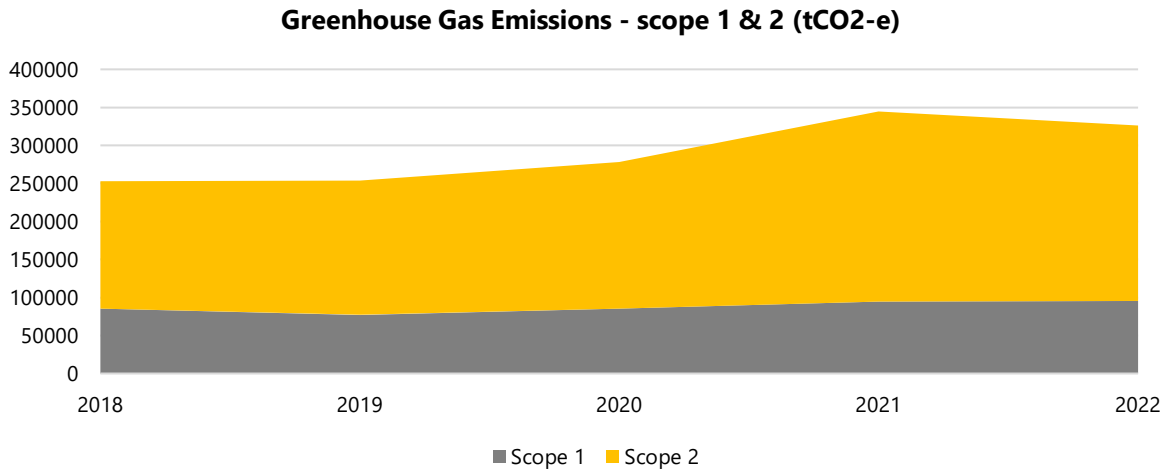


Figure 1: OZ Minerals total Scope 1+2 greenhouse gas emissions 5-year trend.

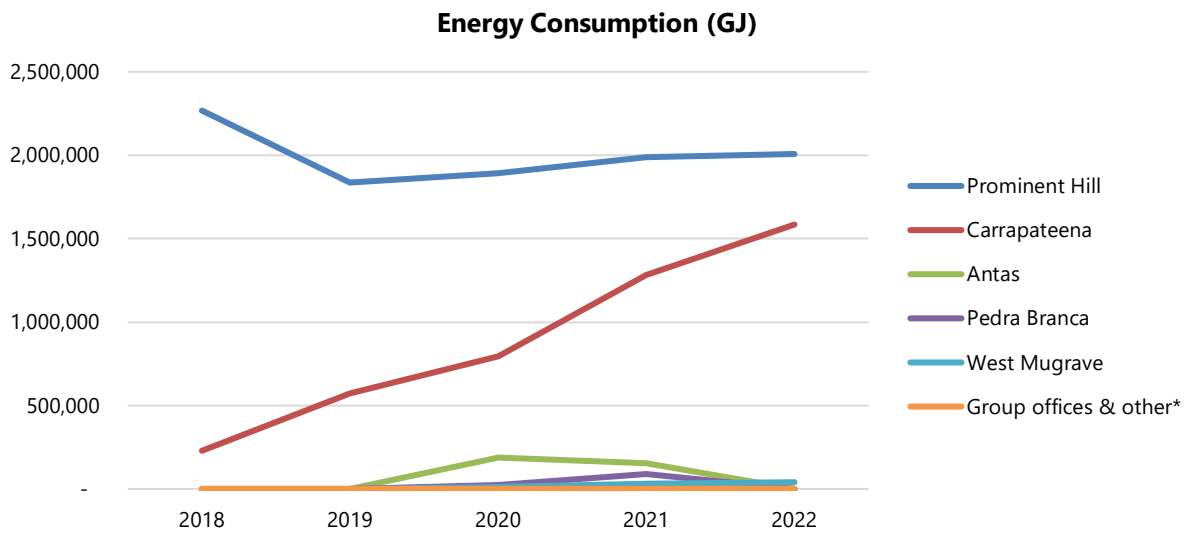


Figure 2: Energy consumption across OZ Minerals' assets -5-year trend. *includes Exploration, excludes Brazil Projects includes Brazil Projects

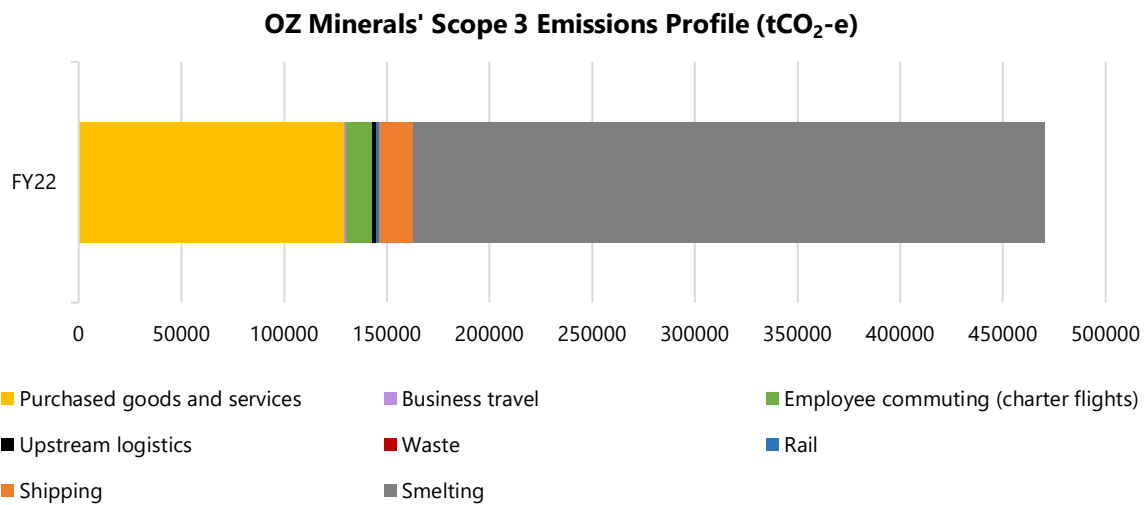


Figure 3: OZ Minerals' FY22 scope 3 greenhouse gas emissions

In addition to the above metrics, we capture monthly metrics on energy consumption, renewable percentage, and scope 1 and 2 emissions as part of our Stakeholder Value Creation Metrics ([see page 60 of 2022 Annual and Sustainability Review](#)). The underlying data for these SVCMs include:

- Diesel consumption – the source of over 99 per cent of our scope 1 emissions
- Grid electricity consumption – the source of our scope 2 emissions
- Grid renewable energy percentage – key metric influencing our electricity emissions intensity and in turn our scope 2 emissions
- Water withdrawal – withdrawal of water from a range of natural systems, including groundwater, and withdrawal in areas of extreme water stress^{17,18}

To support delivery of our net zero commitments and potential exposure against changing government policy settings, we have developed an Offsets Plan. The Plan is centred on value creation for our Stakeholders through the use of offsets and informs how we meet our abatement requirements and ensure integrity. Through the Plan, we identified working with Stakeholders to consider opportunities for new offsets projects is a key choice for us, along with how we build our offsets portfolio to maximise stakeholder value, whether in our current operating locations or more broadly.

In addition to our Offsets Plan, we have developed a Reduction Plan for Scope 3 emissions which focused on engaging our suppliers and value chain partners, including our customers, to identify opportunities to collaborate to reduce scope 3 emissions. In 2022, we worked with our air charter provider to change to a more fuel efficient aircraft for flights to our South Australian operations. We estimate the aircraft change, in addition to flight scheduling enhancements, will deliver a 45 per cent reduction in emissions associated with this activity.

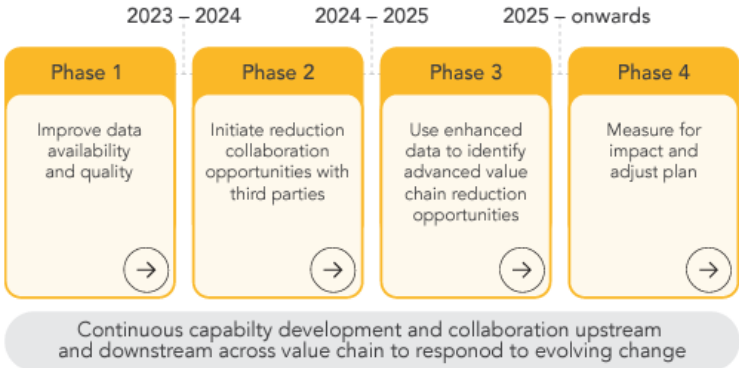


Figure 4: OZ Minerals’ Scope 3 Reduction Plan (simplified version)

As noted above, in 2022 we have matured our reporting approach and enhanced the availability of data. Further data, including year-on-year performance data across scope 1 and 2 emissions and energy, are available for download via the [Sustainability section of our website](#).

OZ Minerals’ TCFD Action Plan

The following Action Plan outlines our actions completed in 2022 against commitments made for the same period¹⁹. Given the progress we have made implementing the Recommendations of the TCFD and embedding climate change risk (threats and opportunities) at OZ Minerals, for 2023 our focus will be on reviewing and managing identified climate-related risks under our Risk Management Framework. We will also continue to implement our Decarbonisation Roadmap to deliver progress against our commitments.

¹⁷ As defined by the World Resources Institute Aqueduct Water Risk Atlas
¹⁸ No OZ Minerals assets withdrew water from areas of extreme water stress in 2022
¹⁹ Refer to OZ Minerals 2021 Annual and Sustainability Report

TCFD category and recommended disclosures	2022 commitments Maturing our approach	2022 actions
Governance		
a) Board's oversight of climate-related risks and opportunities.	<ul style="list-style-type: none"> Review governance approach to climate-related threats and opportunities Review climate-related roles and responsibilities, including implementation of our Decarbonisation Roadmap 	<ul style="list-style-type: none"> Revised Company approach to risk management (Context and Performance Risks, including Climate Change) Decarbonisation-specific roles created at Assets Brazil operations' Decarbonisation Plan and emissions inventory
b) Management's role in assessing and managing climate-related risks and opportunities.		
Strategy		
a) Climate-related opportunities and threats the organisation has identified over short, medium, and long-term	<ul style="list-style-type: none"> Consider material climate-related risks in asset planning Enhance suite of internal decision-making tools Continue review of company strategy in context of decarbonisation opportunities Commence implementation of Decarbonisation Roadmap Consider climate-related risks across value chain and supply chain Further consider how climate-related issues serve as input into financial planning, time periods, and risk prioritisation 	<ul style="list-style-type: none"> Climate risk assessment of Carrapateena Expansion Basis of Design Scope 3 Baseline and Reduction Plan Company Strategy update focused on decarbonisation and electrification Updated Strategic Aspirations, including zero carbon footprint Developed and published a decarbonisation roadmap which enshrines zero emissions aspiration Review of progress against Decarbonisation Roadmap Internal carbon price used in WMP FID
b) Impact of climate-related risks and opportunities on business Strategy and financial planning		
c) Resilience of organisations Strategy, including to a 2°C or lower scenario		
Risk Management		
a) Process for identifying and assessing climate-related risks and opportunities	<ul style="list-style-type: none"> Review process and climate-related risks for value chain Further refine approach to climate-related risk management Develop approach to carbon offsets 	<ul style="list-style-type: none"> Revised Company approach to risk management (Context and Performance Risks, including Climate Change) Climate risk assessment of Carrapateena Expansion Basis of Design Developed Offsets Plan Developed Scope 3 Reduction Plan
b) Process for managing climate-related risks and opportunities		
c) How climate-related risk management is integrated into overall risk management		

Metrics and Targets		
a) Metrics used to assess climate-related risks and opportunities in line with Strategy and risk management processes	<ul style="list-style-type: none"> • Continue to report on Stakeholder Value Creation Metrics (SVCMs) • Report on delivery of Decarbonisation Roadmap • Further investigate opportunities to work with value chain partners to reduce scope 3 via development of a reduction pathway • Disclose metrics more closely aligned to identified climate-related risks • Review and evolve SVCMs as required and leverage to embed performance 	<ul style="list-style-type: none"> • SVCMs reporting in 2022 Annual Report and Sustainability Review • Scope 3 Baseline and Reduction Plan • Review of progress against Decarbonisation Roadmap • Broader disclosures and data via 2022 Sustainability Review and OZ Minerals website • Review of select SVCMs
b) Scope 1 and 2 GHG emissions, and if appropriate, Scope 3		
c) Targets used to manage climate-related risks and opportunities and performance against targets		