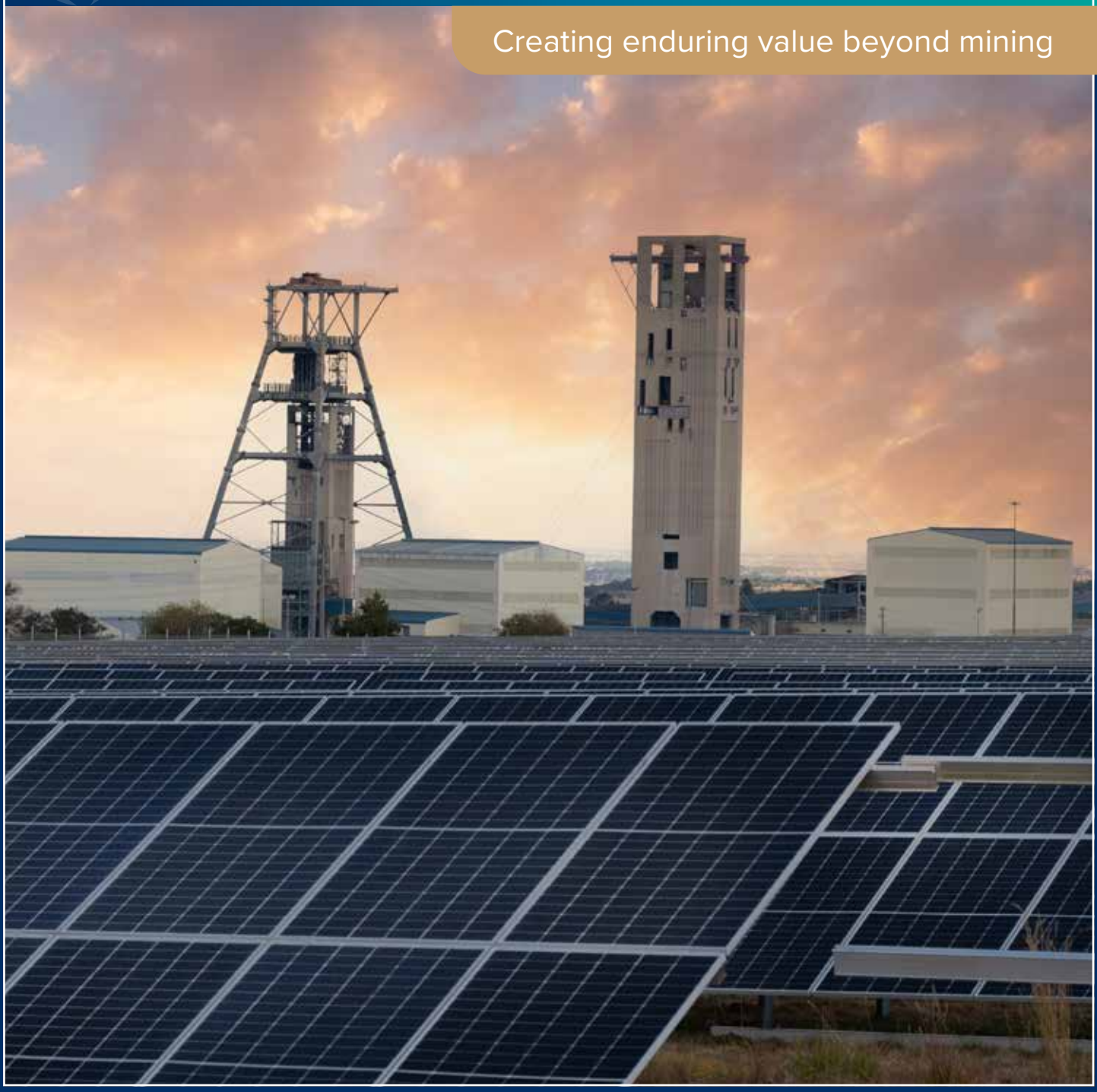
GOLD FIELDS LIMITED
Climate Change Report 2022

Creating enduring value beyond mining



ABOUT OUR COVER

Solar panels of the Khanyisa solar plant in front of South Deep's Twin Shafts

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About this report

Gold Fields has released its **fifth Climate Change Report (CCR)** in alignment with the Financial Stability Board's Task Force guidelines on Climate-related Financial Disclosures (TCFD). The report forms part of Gold Fields' 2022 suite of reports and can be accessed electronically at https://goldfields.com/2022-annual-report-suite.php.

Gold Fields formally commenced its climate change, energy and water journey in 2016, but has reported on our climate change performance since 2010, when our first annual submission to the CDP was made. Since 2018, we have aligned to the TCFD to report on our climate change and related performance, strategies, risks and opportunities.

The CCR details Gold Fields' progress towards its climate change goals, including performance against targets and the implementation of relevant projects. The report provides insights into the Company's climate change strategy and actions taken to mitigate environmental impacts.

TCFD Index

TCFD recommendation	Section in this report covering the recommendation	Linkages with other mainstream filings
Governance Disclosures on the JSE's governance around climate-related risks and opportunities		
Describe the board's oversight of climate-related risks and opportunities	Governance and management, page 8	Integrated Annual Report Page 24 – 25
Describe management's role in assessing and managing climate-related risks and opportunities	Governance and management, page 8	Integrated Annual Report Page 10 – 17, 26 – 31, 73 – 79
Strategy Disclosures on actual and potential impacts of climate-related risks and opportunities on the organisation's business, strategy and financial planning where such information is material		
Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term	Climate risks and opportunities, pages 17 – 23	Integrated Annual Report Page 10 – 17, 26 – 31, 74 – 79
Describe the impact of climate-related risks and opportunities on the organisation's business strategy and financial planning	Diesel replacement, page 16	Integrated Annual Report Page11 – 17, 26 – 31
Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	Our climate change journey, pages 6 – 7 Decarbonisation strategy, pages 12 – 13 Unpacking physical risks, pages 20 – 23	Integrated Annual Report Page 75 – 77
Risk management Disclosures how the organisation identifies, assesses and manages climate-related risks		
Describe the organisation's processes for identifying and assessing climate-related risks	Climate risks and opportunities, page 17 Water stewardship, pages 25 – 26 Tailings storage facility management, page 27	Integrated Annual Report Page 10 – 17
Describe the organisation's process for managing climate-related risks	Climate risks and opportunities, pages 17 – 23 Climate-related standards, pages 9 – 11	Integrated Annual Report Page 10 – 17
Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management	Climate risks and opportunities, page 17	Integrated Annual Report Page 10 – 17
Metrics and targets Disclosures on the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material		
Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process	Gold Fields' environmental performance, page 5 2030 targets and net-zero commitments, page 13 Renewable energy at our mines, pages 14 – 15 Energy and climate change performance, page 24 Water management, page 25 Carbon footprint, page 28 Regional and Group performance, page 29	Integrated Annual Report Page 11 – 17, 54, 73 – 79
Disclose scope 1, scope 2 and if appropriate scope 3 greenhouse gas (GHG) emissions and related risks	Gold Fields' environmental performance – page 5 Carbon footprint, page 28 Regional and Group performance, page 29	Integrated Annual Report Page 9, 30, 54, 73, 75 – 77
Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets	Group ESG performance and targets, pages 6 – 7	Integrated Annual Report Page 73, 75 – 77

Chief Executive Officer's statement

Gold Fields' strategy, launched in December 2021, commits the Company to build on its leading commitments to environmental, social and governance (ESG) objectives. I consider that this commitment is nowhere more evident than in our investments in decarbonising our operations.

Martin Preece
Interim CEO

During 2022, the Company completed the construction and commissioning of the 50MW Khanyisa solar plant at the South Deep mine. The positive impact this plant has on the mine is significant, including reducing our carbon footprint, ensuring security of supply and business continuity and reducing cost. But it is not just the business that benefits: Khanyisa is a beacon of pride for our people improving their job security, and has created jobs in our host communities and paved the way for easier government regulations on self-generated electricity.

Gold Fields is very proud of how we address our climate change impact. Apart from South Deep, we have renewable microgrids at three of our four Australian mines – launching a 12MW project at Gruyere – we use low-carbon gas turbines at our Ghanaian mines and our Cerro Corona operation in Peru is 100% supplied by hydropower. By end-2022, 14% of our electricity was derived from renewable sources.

However, we are acutely aware that there is much to do. The last few months have seen several key developments that have highlighted the need for a rapid, transparent and global approach to decarbonisation. The Intergovernmental Panel on Climate Change's most recent assessment report highlighted the possibility of global warming reaching 1.5°C as early as 2030.

Companies, particularly those in carbon intensive industries like mining, are also facing increased pressure from our communities, NGOs, governments and shareholders.

Closer to home, the impacts of climate-related events are real and immediate. The updated and extensive five-year climate change risk and vulnerability assessments we carried out at all our operations in 2021 provided ample evidence: more intense storms, prolonged droughts and other changing weather patterns adversely affect our operations, our workforce and stakeholders and, in particular, the communities adjacent to our mines. We are actively implementing risk management measures to safeguard our operations by mitigating the impacts of adverse weather conditions.

Gold Fields will be part of the solution. We have committed to reduce our net scope 1 and 2 carbon emissions by 30% and absolute emissions by 50% by 2030 (from a 2016 baseline, assuming growth to 2.8Moz pa), and achieve net-zero carbon emissions by 2050, if not sooner. During 2022, our operations commenced with embedding these targets and are planning to achieve this. In addition, our management teams are being held accountable to ensure that we are implementing energy savings' initiatives and trialling new technologies to help us achieve those targets.

This Climate Change Report 2022 outlines our journey we have taken to date as well as the strategies, policies and programmes we are embarking upon. We have a long way to go, but I am confident that, based on Gold Fields' track record to date and the commitment of our People, the Company will play its role in addressing one of the most critical challenges facing society today.

Martin Preece
Interim CEO

SHSD Committee Chairperson's statement

It is the responsibility of the Safety, Health and Sustainable Development (SHSD) Committee of the Board to monitor and oversee that Gold Fields plays its role in addressing the threats climate change poses to the Company, its people, its stakeholders and society at large. Every year, the impacts of physical climate changes are more pronounced and prevalent, and no responsible corporate citizen can absolve itself from playing a role in addressing one of society's defining challenges.

We believe Gold Fields is playing its part and has a leadership role when it comes to the rollout of renewable energies, reducing emissions and meeting targets. The decarbonisation progress made by Gold Fields in 2022 was aligned with plans and the SHSD Committee looks forward to the implementation of further initiatives as management progresses its decarbonisation strategies. However, there is always more that can be done, in particular when it comes to mitigating the risks of climate change events. The SHSD Committee will continue to challenge and encourage the Gold Fields team to continually innovate and improve Company performance.

On behalf of the Board of Directors, I fully endorse the Gold Fields Climate Change Report 2022, which, if read in conjunction with other relevant reports by the Company, particularly the 2022 Integrated Annual Report, provides an accurate overview of the risks and challenges climate change poses to the Company and the measures Gold Fields is adopting to address them.

Terence Goodlace
Chairperson Safety, Health and Sustainable Development Committee

Gold Fields' environmental performance

GROUP PERFORMANCE – 2022

2.40Moz attributable gold-eq production	14.1PJ energy consumption	5.49GJ/oz energy intensity
14% renewable electricity (including hydroelectricity used by Cerro Corona)	1.72Mt CO_2e[1] GHG (scope 1 and 2) emissions	302kt CO_2e GHG emissions avoided
669kg CO_2e/oz emissions intensity (scope 1 and 2)	8.51GL freshwater withdrawn	75% water recycled/reused

[1] *Includes head offices*

REGIONAL PERFORMANCE – 2022

AUSTRALIA

Mines: St Ives, Granny Smith, Agnew and Gruyere

- **1,061koz** attributable gold production
- **5.40PJ** energy consumption
- **4.43GJ/oz** energy intensity
- **12%** renewable electricity
- **544kt CO_2e** GHG (scope 1 and 2) emissions
- **90kt CO_2e** emissions avoided
- **0.45t CO_2e/oz** emissions intensity (scope 1 and 2)
- **0.78GL** freshwater withdrawal
- **39%** water recycled/reused

GHANA[1]

Mines: Tarkwa, Damang and Asanko JV

- **762koz** attributable gold production
- **5.53PJ** energy consumption
- **7.27GJ/oz** energy intensity
- **0%** renewable electricity
- **599kt CO_2e** GHG (scope 1 and 2) emissions
- **177kt CO_2e** emissions avoided[3]
- **0.79t CO_2e/oz** emissions intensity (scope 1 and 2)
- **2.89GL** freshwater withdrawal
- **89%** water recycled/reused

SOUTH AFRICA

Mine: South Deep

- **328koz** attributable gold production
- **1.88PJ** energy consumption
- **5.73GJ/oz** energy intensity
- **2%** renewable electricity
- **516kt CO_2e** GHG (scope 1 and 2) emissions
- **34kt CO_2e** emissions avoided[2]
- **1.57t CO_2e/oz** emissions intensity (scope 1 and 2)
- **1.77GL** freshwater withdrawal
- **79%** water recycled/reused

AMERICAS – PERU AND CHILE[4]

Mine: Cerro Corona
Project: Salares Norte

- **260koz** attributable gold-equivalent production
- **1.29PJ** energy consumption
- **4.94GJ/oz** energy intensity
- **100%** renewable electricity
- **57kt CO_2e** GHG (scope 1 and 2) emissions
- **1kt CO_2e** emissions avoided[5]
- **0.22t CO_2e/oz** emissions intensity (scope 1 and 2)
- **3.06GL** freshwater withdrawal
- **86%** water recycled/reused

[1] *Excludes data from Asanko JV*
[2] *10kt CO_2e (28%) of South Deep's 2022 emissions avoided of 34kt CO_2e were derived from electricity generated by the Khanyisa solar plant at South Deep. Consumption data was calculated using temporary meters and the methodology verified by independent, external experts as commissioning was still under way in Q4 2022.*
[3] *Emissions avoided from the installation of gas turbines supplied by a pipeline for Tarkwa and Damang (166kt CO_2e, 94% of the region's total emissions avoided) are included in site, region and Group reporting and recognised as an exceptional continuous project as approved by the Gold Fields Group Head of Energy and Carbon. This Project is of strategic importance to the Tarkwa and Damang operations and the Group, as it is a major change, with significant capital investment, impact, complexity, and stakeholder involvement*
[4] *Excludes data from Salares Norte*
[5] *0.1kt CO_2e (10%) of Cerro Corona's 2022 emissions avoided of 1kt CO_2e deviate from the Group guideline definition due to unforeseeable circumstances resulting in a deviation from anticipated performance*

Group ESG performance and targets

Gold Fields is developing a comprehensive decarbonisation strategy, with a commitment to achieving net-zero emissions by 2050, in accordance with the Paris Agreement on Climate Change. As part of our broader range of Environmental, Social, and Governance (ESG) targets, we have committed to a 30% net reduction in scope 1 and 2 emissions (using a 2016 baseline) by 2030. Additionally, we have set a target to achieve a 50% absolute/gross scope 1 and 2 emissions reduction by 2030, further demonstrating our commitment to addressing climate change. Our 2030 targets include the assumption that our annual gold production will grow to 2.8Moz.

	ESG priorities	2022 Group performance and highlights
1	**Decarbonisation**	• Group scope 1 and 2 emissions were unchanged in 2022, despite more challenging mining conditions and increased production • At Gruyere, the 4.4MW/4.4MWh battery storage and 12MW solar farm was commissioned • The St Ives 85% renewable microgrid feasibility study commenced • The South Deep 50MW solar plant was commissioned • Wind studies commenced at South Deep • Cerro Corona 100% renewable electricity
2	**Water stewardship**	• All regions completed the implementation of their three-year (2020 to 2022) water management plans • 75% of Group water use was recycled or reused, as planned • Freshwater withdrawal was 8.5 GL, a reduction of 41% from the 2018 baseline (target was 37% reduction)
3	**Tailings management**	• Work in progress to implement the Global Industry Standard on Tailings Management (GISTM) • Work in progress to convert upstream-raised TSFs • Gold Fields TSF Standard launched

Our climate change journey from 2022 to 2050

Target 100% clean electricity			Target 100% electrification of diesel equipment		
2022 – 2029	**By 2030**	**By 2040**	**2022 – 2029**	**By 2030**	**By 2040**
• New construction of wind and solar projects • Target > 70% green electricity • New energy storage technologies	• Target > 100% green, plus export opportunities • Green hydrogen or long duration • Investment of US$1bn to US$1.6bn	• Leverage disruptive technologies, but not required to achieve 100%	• Electric material movement • Biodiesel, hydrogen fuel cells • Energy efficiency initiatives	• Electric underground mine • For open pit – rail, green hydrogen, large EVs • Heavily automated, driverless vehicles	• Target 100% diesel elimination • Leverage disruptive technologies

Management programmes and strategies

Phase 1
Commenced developing a wide-ranging climate change and energy strategy, programmes and target

Commenced in 2016

Phase 2
Verification of our decarbonisation programmes and our emissions forecast model

Execution was completed in 2021

In addition, climate change will also impact our water and tailings management. As such, we have set 2030 targets for these two environmental priority areas.

To achieve these goals, we are following a phased approach, with all regions integrating processes, identifying opportunities and building the necessary reporting structures in line with the recommendations of the TCFD. Our progress towards these targets is reported annually, with the current 2022 report detailing the 2022 performance in pursuit of these environmental targets.

	2023 targets and key projects	2030 targets
	• ISO 50001-certified energy management systems at all sites • Scope 3 emissions reduction target to be developed • Granny Smith gas power plant expansion • At Agnew, opportunities to increase above 56% renewable electricity are being investigated, including renewable energy storage and additional solar • At St Ives, a full feasibility study to deliver an 85% renewable microgrid to be completed • Ongoing investigation of additional wind and solar option at South Deep • BEV diesel displacement trials continue at St Ives, Granny Smith and South Deep	• 30% net scope 1 and 2 emissions reductions by 2030 against 2016 baseline • 50% absolute emissions reductions at a 2.8Moz assumed production profile
	• Group 2030 water stewardship strategy to be developed • Regional baselines developed against the new ICMM water stewardship maturity framework	• 80% water recycled/reused • 45% reduction in freshwater use from 2018 baseline
	• Tarkwa and Cerro Corona GISTM high-consequence TSF conformance to be completed • Ongoing oversight by independent review boards at Tarkwa and Cerro Corona due to “extreme” or “very high” consequence ratings	• Conformance with GISTM by 5 August 2023 (high consequence TSFs) and 2025 (all other TSFs) • Reduce active upstream-raised TSFs from five to three

Carbon offsets and natural climate solutions

By 2050

2022 – 2029
- Further explore and invest in offset options and natural climate solutions
- Climate adaptation risk and scope 3 reporting programmes established
- 2023: Targets and methodology for scope 3 emissions reductions developed

By 2030
- Carbon offsets to mitigate liabilities
- Site-specific natural climate solutions

By 2040
- Verified carbon offsets
- Site-specific natural climate solutions
- Significantly reduce scope 3 emissions

- Net-zero emissions (in line with our commitment under the Paris Agreement)

Phase 3
Detailed study phase and integration of decarbonisation into the business with project management standards, training and reporting

Implementation began in 2022

Phase 4
Implement decarbonisation management, scoreboards and reporting mechanisms. Develop project management platforms and complete programme deployment

Planned for 2023

Governance and management

During 2022 the Board, via its various subcommittees, oversaw the following material ESG programmes:

- Approval of the Water Stewardship and Sustainable Development policy statements, the latter in February 2023
- Development of water-related community programmes, as part of the Group Flagship Programme
- Commissioning of the 12MW Gruyere solar farm
- Commissioning of South Deep's 50MW, R715m solar project
- Ongoing implementation of the Global Industry Standard on Tailings Management
- Ensured ESG continues to be integrated into the business and first year of implementation of 2030 targets

Our climate change governance structure, and accompanying responsibilities, are as follows.

Board

The Board is accountable and responsible for providing oversight over climate-related strategy, implementation, risks, opportunities and resilience

Board Committee

SHSD – Primary Board subcommittee overseeing climate-related strategy and implementation, SHSD strategies, policies and performance

SET – Stakeholder relations, socio-economic development, human rights, ethics, security

Risk – Enterprise risk management, including ESG risks

Capital – Climate-related capital projects

Chief Executive Officer

The Chief Executive Officer (CEO) is responsible for leading the executive and management teams to draft and implement the Company's Board-approved climate change strategy, including relevant policies and projects

The CEO sets the tone and a climate-conscious culture

Climate-related remuneration
Balanced score card comprises 25% incentives related to ESG, of which half is linked to climate change performance

ExCo

Executive Committee's (ExCo) mandate covers developing strategies, policies and risk management plans

Executive Climate Change Steering Committee

Executives responsible for investor engagement and reporting, finance, decarbonisation, scope 3 emissions planning and offsets and climate risk and adaptation ensure an integrated and systemic approach to addressing multifaceted impacts of climate change on Company, supply chain and stakeholders

EVP: Sustainable Development and Sustainable Development department

The EVP: Sustainable Development is accountable for development and implementation of the Group Climate Change Strategy. The department provides a multi-disciplinary specialist function, comprising sustainable development, ESG reporting and assurance, climate change, water, stakeholder engagement, environmental management

Chief Technical Officer (CTO) and Corporate Technical Services (CTS)

The CTO and CTS are responsible for co-ordination and delivery of the technical aspects of the Group Climate Change Strategy, including the decarbonisation programme to deliver the 2030 and 2050 decarbonisation targets and engineering resilience to climate change adaptation

Working Committees

ESG – develop ESG strategy for Board approval

Water – continuous development and implementation of the water stewardship strategy

Energy and decarbonisation – continuous development and implementation of the energy and carbon strategy, including decarbonisation strategy

Climate-related standards

CLIMATE-RELATED POLICY STATEMENTS AND COMMITMENTS

Gold Fields has integrated global sustainability standards and reporting guidelines to ensure effective management of our climate-related and other environmental risks. These include:

- The **Taskforce for Climate-related Financial Disclosures** (TCFD) has gained worldwide adoption and disclosure since its inception in 2017. Gold Fields' fifth CCR is aligned to the TCFD recommendations. Prior to TCFD-alignment, Gold Fields reported its climate change performance under the **Carbon Disclosure Project (CDP)**. Our water management performance is still submitted to the **CDP Water** programme.
- Gold Fields has submitted its net scope 1 and 2 emissions reduction targets for validation by the **Science Based Targets Initiative** (SBTi). The SBTi endorses company emission targets and provides feedback from technical experts. It is recognised by a range of global organisations, such as the UN Global Compact and CDP. We may apply for validation of our scope 3 targets once these have been finalised.
- As a member of the International Council on Mining & Metals (ICMM), Gold Fields' reports are prepared in accordance with, and with reference to, the **Global Reporting Initiative's** (GRI) Universal Standards, which provide guidance on a wide range ESG disclosures.
- The **Johannesburg Stock Exchange's** voluntary **Climate Change and JSE Sustainability Disclosure Guidance**, which aligns with international disclosure standards such as GRI and TCFD, was introduced in mid-2022.
- The final **US Securities and Exchange Commission** (SEC) rules for climate-related disclosures and the **International Sustainability Standards Board** (ISSB) first two sustainability standards are currently being finalised. Once in effect, we will seek to conform with their sustainability and climate-related disclosure requirements.

Mining industry associations

The **ICMM's** Mining Principles and supporting Performance Expectations define many of our ESG-related policies and guide our work in this area. Our own policy statements have been fully aligned to the Mining Principles. The ICMM's climate change commitment is captured in its 2021Position Statement on Climate Change.

The table on page 10 provides ICMM commitments and policies on climate change and water stewardship, the equivalent Gold Fields commitments and our key implementation actions and targets.

Gold Fields rejoined the **World Gold Council** in February 2022. This membership requires compliance with its two key standards: the Conflict-Free Gold Standard (CFGS) and the Responsible Gold Mining Principles (RGMP). The latter are a framework of 10 principles, including environmental and climate change principles, that set clear expectations for responsible gold mining. As new members, we have three years to achieve full conformance, although we are confident of achieving this ahead of schedule.

ISO standards

Gold Fields' mines comply with energy management standards developed by the International Organisation for Standardisation (IS0). The **ISO 50001** energy management system standard is a framework for implementing technical and management strategies that enable reductions in energy cost and greenhouse gas emissions. Our Ghanaian mines and Cerro Corona in Peru are certified to the standard.

Our Australian and South African mines are anticipated to obtain ISO 50001 certification by the end of 2023. Such implementation will not only provide the framework in which our decarbonisation journey will take place, it will allow for better management and understanding of indirect emissions that inevitably impact our decarbonisation journey.

All our mines are also certified to the **ISO 4001** environmental management system standard.

Tailings management standards

Through our membership of the ICMM, we are committed to conformance with the **Global Industry Standard on Tailings Management** (GISTM). Gold Fields and other ICMM members are committed to conform all TSFs with "extreme" or "very high" consequence category ratings with the GISTM by August 2023, based on internal self-assessments. All our other active tailings facilities will conform with the GISTM by August 2025.

Conformance with GISTM requires appropriate technical standards, appointment of key personnel, management oversight and governance, and engagement with authorities and communities close to TSFs on emergency preparedness, among others. The GISTM comprehensively addresses climate change risks through requirements covering TSF scoping and design, risk management, water management, stormwater management, rehabilitation, closure and post-closure management.

In January 2023, ICMM, in collaboration with the United Nations Environment Programme and the Principles for Responsible Investment, announced the formation of the **Global Tailings Management Institute** (GTMI). The GTMI aims to drive and implement mining industry safety standards related to TSFs, including overseeing the implementation of the GISTM. A multi-stakeholder advisory panel developed the standards. Gold Fields was one of two mining companies representing ICMM on the panel.

Climate-related standards continued

ICMM commitments	Gold Fields commitments	Key implementation actions and targets
CLIMATE CHANGE		
Scope 3 emissions: Targets, management and partnership	• Committed to address scope 3 emissions as part of our decarbonisation strategy	• Set a 2030 scope 3 target by end of 2023
Targets cover all material sources of emissions	• Legal and other compliance	• The targets cover (or will cover) scope 1, 2 and 3 emissions
Absolute reductions	• Set objectives and targets for carbon emissions reduction, energy savings, energy diversification and water management	• Targets include 30% net emission reductions and 50% absolute emissions reductions by 2030 targets, from 2016 base year
Robust target-setting methodologies; disclose assumptions	• Paris Agreement-aligned targets towards a 1.5˚C future	• Follow the decarbonisation strategy towards a 1.5˚C future • Net zero by 2050
Integrate climate change into decision-making	• Continuously enhance preparedness for climate change, improve performance and increase transparency in public disclosure	• Decarbonisation incorporated in existing mine and business models • Decarbonisation is key priority in 2030 ESG targets
Adaptation and mitigation	• Regional climate change strategies, including mitigation and adaptation plan	• Decarbonisation strategy includes mitigation plans to meet targets • Regional climate change risk and vulnerability assessments conducted and implementation underway
Supporting community resilience	• Seeking collaboration with host communities towards climate change policies	• Ghana, South Africa and Peru continue to be involved in community water provision and educational projects • Water managers worked with community and stakeholder relations departments to identify potential water-related flagship projects
Transparent disclosure: Scope 1-3 emissions; External verification; TCFD-alignment	• Public reporting of greenhouse gas (GHG) emissions footprint and climate-related risks and opportunities	• Mature scope 1 to 2 emissions reporting • Scope 3 emission reduction targets being developed • External independent assurance • TCFD-aligned Climate Change Report
Engagement	• Collaboration with host communities, governments, peers, investors, NGOs and business partners	• Active member of the ICMM and WGC • Stakeholder engagement programmes at all our mines
Innovation and technology	• Support research, innovation and technology development • Renewable, low-carbon energy solutions, energy efficiency initiatives, including carbon offsets	• Decarbonisation strategy driven by innovation and technology • Detailed renewable energy site designs and road map implemented • Trialling BEV vehicles at a number of mines
Carbon pricing	• Transparent carbon providing mechanisms, including CO_2e shadow prices in all new and life extension projects	• Granny Smith gas power plant earns annual carbon credits from the Australian Emissions Reduction Fund • Carbon financing and internal carbon tax work initiated

ICMM commitments	Gold Fields commitments	Key implementation actions
WATER STEWARDSHIP		
Corporate water governance • Approach • Responsibilities and accountabilities • Integrate water into business planning • Public report	• Legal, regulatory and voluntary compliance • Corporate water governance: – Responsibilities and accountabilities – Integrate water into business planning – Public reporting	• Implementation of 2020 – 2025 water stewardship strategy • Strategy comprises three pillars: – Security of supply – Water efficiency – Catchment management • ISO 14000 certification of all mines • All regions implementing three-year (2023 to 2025) water management plans
Effective water management • Water balance • Targets and objectives • Water quantity and quality management • Access to clean drinking water and sanitation facilities for all employees	• Effective water management: – Social and environmental risk management – Efficient water utilisation solutions – Employee awareness and training – Context-relevant water performance targets • Security of operational water supply for all catchment users, including natural environment • Access to clean drinking water, gender-appropriate sanitation facilities and workplace hygiene	• 37% reduction in freshwater withdrawal from 2018 baseline (from 14.5 GL to 9.2 GL) ahead of 2022 business plan. • Water recycled/reused was 75% of total water use in 2022, the same as in 2021. The Group is on track to meet its 2030 target of 80% • All employees have access to clean drinking water, gender-appropriate sanitation facilities and hygiene at the workplace
Collaboration for sustainable water use • Catchment-level risks and opportunities • Engage stakeholders on external water governance • Water stewardship initiatives	• Collaboration: – Proactive engagement with stakeholders, including host communities – Support water stewardship initiatives • Regular updating of risks, including climate-related for operations	• Context-specific catchment stakeholder engagement • Mine water managers worked with community and stakeholder relations departments in 2022 to identify potential water-related Group legacy projects. • Cerro Corona and South Deep have identified projects, of which the Peruvian project has progressed to scoping

The Tailings Storage Facility at the Gruyere mine in Western Australia

Decarbonisation strategy

Global mining companies are setting targets and working to reduce scope 1 and 2 carbon emissions with commitments commonly amounting to a 30% to 40% reduction in baseline emissions by 2030 and net zero by 2050. This is Gold Fields' ambition, though we have added an additional target of 50% absolute emissions reductions on the assumption that our production will reach approximately 2.8Moz by 2030 from 2.4Moz in 2022.

Within these forward-looking targets, Gold Fields' decarbonisation roadmap is continuously being reviewed. Through our phased approach and collaboration between the regions, the decarbonisation programme enables formalisation of trials, studies and projects into sustaining cases by the 2024 business planning cycle. Our four regions now have the following roadmaps:

- Australia – A detailed update has been provided for 2030 with supporting 2023 scheduled trials, studies and projects
- South Africa – A full roadmap has been provided, including extensive reviews of the baseline decarbonisation model
- Americas – Work is currently in progress to identify trials and studies in line with projected life-of-mine plans
- West Africa – 2023 trials, studies and projects have been supplied. The 2030 roadmap will be defined at the conclusion of the prefeasibility study currently in progress

Gold Fields is also implementing a management framework, updating workflows and performance indicators, and developing a decarbonisation management portfolio to integrate into the strategy and budget processes, ensure science-based designs and visualise decarbonisation reporting. This work is overseen by the Executive Climate Change Steering Committee.

The next steps in our climate change initiatives will consist of further integrating the decarbonisation portfolio management guiding principles. This is illustrated in the flow-chart below:

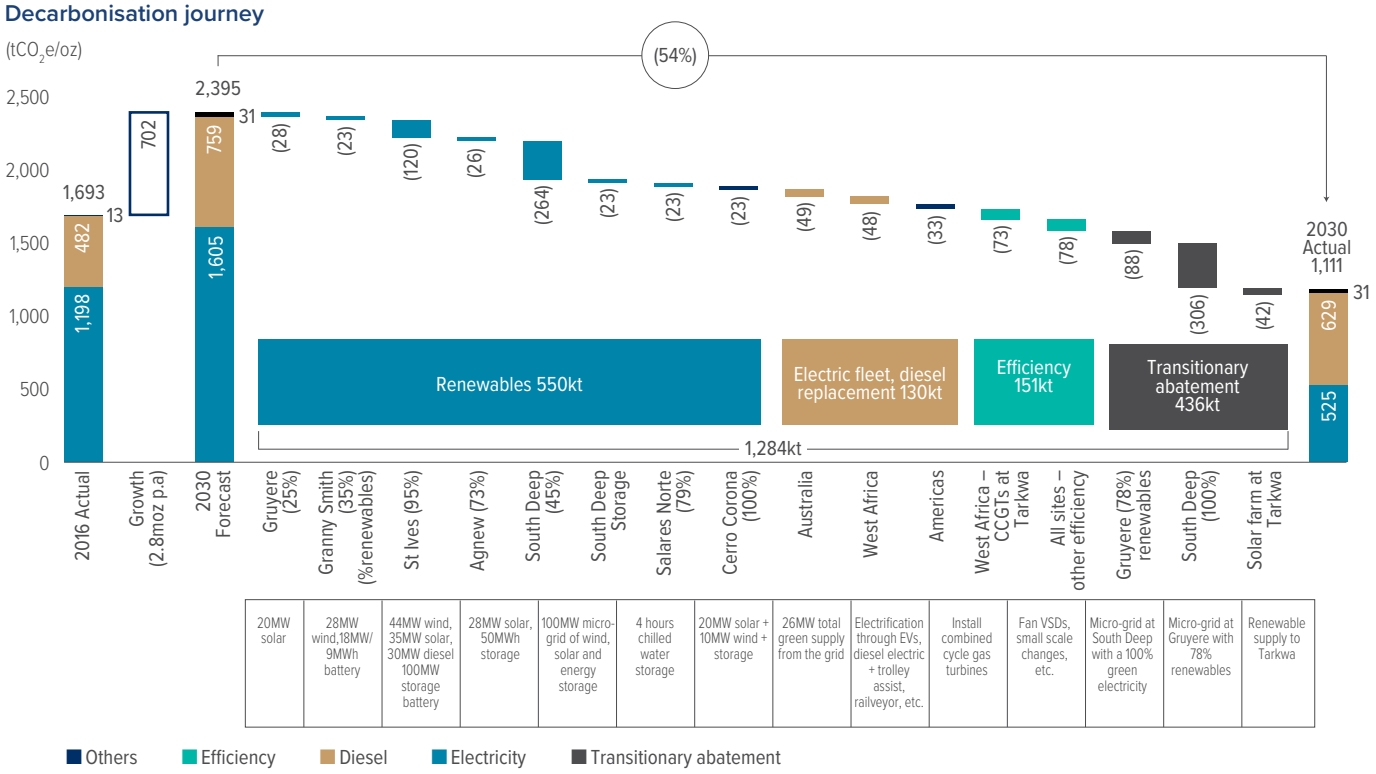
1	2	3	4	5	6	7
Support decentralised delivery	**Centralised information**	**Centralised prioritisation**	**Adaptive governance**	**Standardise data and reporting rules**	**Continuous integration**	**Enable for scale**
Enable Gold Fields to transition from a centralised to a decentralised model of governance for decarbonisation initiatives as maturity and operational capabilities grow	Centralise information about decarbonisation initiatives	Assist Gold Fields in decentralising ideation (idea generation), but centralising idea evaluation and prioritisation	Implement a "fit-for-purpose" mapping system that recognises value potential and degree of feasibility for each study, trial and project	Understand the type of standardisation that will have a real impact in successful implementation of each trial, study and project in the portfolio	Ensure data compatibility, technical consistency and continuous integration with existing systems to avoid siloed solutions and approaches	Evaluate different scenarios to proactively steward decarbonisation initiatives towards full-scale impact

The South Deep Khanyisa solar plant that was commissioned in Q4 2022

2030 TARGETS AND NET-ZERO COMMITMENTS

Gold Fields' 2030 and 2050 decarbonisation targets, detailed on p6, use 2016 as a base year. Despite a 1.6% increase in scope 1 and 2 emissions from 2016 to 2022, we met gross emissions reduction goals with an 18% reduction in absolute emissions in 2022, offsetting a 16% increase in gold production. To reach our 2030 targets and remove estimated 1.2Mt CO_2e emissions by 2030, we aim to reduce emissions to just under 1.2Mt CO_2e from 1.7Mt CO_2e in 2016, as outlined in the infographic below:

Decarbonisation journey



We aim to minimise gas- and coal-fired electricity with renewables to achieve our 2030 goal, with other emissions reductions coming from our diesel reduction efforts, include replacing our diesel fleet with electric vehicles and improving energy efficiencies. These initiatives are the focus of the decarbonisation work until 2030, with the high-level target of eliminating 20% diesel consumption in the first 10 years and 100% by 2050. Energy-efficiency initiatives are targeted to contribute approximately 150kt to emissions reduction, 12% of the total emissions reductions by 2030. By 2050, all mines' electricity will be clean, and carbon offsets will be the last resort, if required.

Our decarbonisation strategy outlines five key themes until 2030:

- Renewables and energy storage
- Underground electrification
- Open-pit electrification
- Nature-based solutions
- Fit-for-purpose deployment framework

Renewable and low-carbon electricity

Two-thirds of Gold Fields' current GHG emissions emanate from our electricity usage. Over half of our emissions (54%) are scope 2 emissions, with South Deep the highest emitter, deriving almost all of its electricity from coal-based power supplied by the national utility. To reach the 2030 target, the focus will be on replacing most of the gas and coal-fired electricity with renewable energy. The figure alongside shows how much electricity each mine intends to derive from renewables by 2030 as a percentage of total electricity.

South Deep	45%
St Ives	95%
Salares Norte	79%
Cerro Corona	35%
Agnew	73%
Gruyere	73%
Granny Smith	35%

We are making reasonable progress on this journey. In 2022, the electricity consumed from renewable energy sources was approximately 14% of the total. As recently, as two years ago it was only 4%. Since then, we have added renewable microgrids at the Agnew, Granny Smith and Gruyere mines in Australia, and South Deep in South Africa. Critically, Cerro Corona's hydro-power supply was certified as 100% renewable.

The current renewable status of each of our nine mines and projects is shown on subsequent pages (p14 – 15).

From our energy efficiency initiatives, a total of 1.08PJ of energy and 203ktCO_2e of emissions were saved in 2022.

Renewable energy at our mines

AUSTRALIA – Agnew

- **2022 Renewables as a percentage of electricity:** 54%, up to 85% in conducive climatic conditions. 40% reduction in mine emissions
- **Current microgrid:** 18MW wind, 4MW solar, 13MW/4MWh, battery storage, 18MW gas, 3MW diesel
- **Total cost:** US$80m (IPP: US$58m; Arena Fund: US$10m)

Next steps

- Planned 73% renewable energy by 2030

New microgrid project

Phase 1 by 2024

- 6MW solar, 20MW energy storage system

Phase 2 by 2029

- 12MW solar, 30MWh energy storage

AUSTRALIA – Granny Smith

- **2022 Renewables as a percentage of electricity:** 6%, resulting in 7% emission reductions
- **Current microgrid:** 8MW solar, 2MW/1MWh battery storage, 35MW gas, 5MW diesel
- **Total cost:** US$28m (IPP: US$26m)

Next steps

- Expansion of gas plant to meet summer 2023 refrigeration demand underway
- Evaluating the use of additional solar to offset the increase in gas demand with further optimisation studies scheduled for 2023
- Planned 35% renewable energy by 2030, comprising solar, 28MW wind, 18MW/9MWh battery storage

2022 energy performance for Gold Fields Australia

- **Cost savings:** US$21.62m
- **Cost savings/oz:** US$17.74/oz
- **Energy savings:** 842TJ

AUSTRALIA – Gruyere

- **2022 Renewables as a percentage of electricity:** 5%
- **Current microgrid (started in 2022):** 12MW solar, 4.4MW/4.4MWh battery storage, 53MW gas, 3MW diesel
- **Total cost:** US$22m (IPP: US$22m)

Next steps

- Plan to increase solar capacity by 20MW
- 25% renewable energy by 2030

AUSTRALIA – St Ives

- Existing natural gas power purchase agreement in place until the end of 2023
- Feasibility study for a standalone, renewable power solution underway – commissioning set for 2024
- Planned microgrid for 85% renewable energy from wind, solar, and battery storage continued

SOUTH AFRICA – South Deep

- 50MW Khanyisa solar plant commissioned in Q4 2022 at a cost of R715m (US$45m)

Benefits for South Deep
- 24% of mine's electricity supply
- R123m/year cost saving
- 109kt net emissions reduction per year

2022 energy performance for South Deep
- **Cost savings:** US$3.12m
- **Cost savings/oz:** US$9.51/oz
- **Energy savings:** 115TJ[1]

Next steps
- Wind energy viability being studied
- Investigating use of additional solar power
- 2030 target: 45% renewable energy with storage capacity

[1] *32TJ (28%) of South Deep's 2022 energy savings of 115TJ were derived from electricity generated by the Khanyisa solar plant at South Deep. Consumption data was calculated using temporary meters and the methodology verified by independent, external experts as commissioning was still under way in Q4 2022*

PERU – Cerro Corona

- Kallpa, the electricity provider received iREC certificate since 2021 for producing 100% renewable electricity

2022 energy performance
- **Cost savings:** US$0.65m
- **Cost savings/oz:** US$2.50/oz
- **Energy savings:** 16TJ[2]

Next steps
- Planned additional renewable energy sources by 2030

[2] *2TJ (12%) of Cerro Corona's 2022 energy savings of 16TJ deviate from the Group guideline definition due to unforeseeable circumstances resulting in a deviation from anticipated performance*

CHILE – Salares Norte

- Mine set to be operational in Q4 2023
- Commissioning of 10MW solar plant scheduled for 2025
- Total estimated cost: US$19m (IPP: US$13m)
- Planned 79% of renewables, comprising 20MW solar, 10MW wind and storage by 2030

GHANA – Damang

- Gas transition from diesel to LPG (2016) to natural gas (2020)

Next steps
- Planned 20MW clean power by 2025
- Turbine technology upgrades by 2026

GHANA – Tarkwa

- Gas transition from diesel to LPG (2016) to natural gas (2020)

Next steps
- Turbine technology upgrades by 2025

2022 energy performance for Gold Fields Ghana
- **Cost savings:** US$26.70m
- **Cost savings/oz:** US$35.06/oz
- **Energy savings:** 106TJ[3]

[3] *14TJ (13%) of the Ghana 2022 energy savings of 106TJ were derived from energy savings initiatives at our Tarkwa and Damang mines which deviate from the group guideline definition. As they resulted in cost, energy and emissions savings, they have been recognised as exceptional savings by the Gold Fields Group Head of Energy and Carbon.*

Renewable energy at our mines continued

DIESEL REPLACEMENT

In terms of our diesel reduction proposition, our mines are focused on introducing zero-emissions vehicles (ZEVs) on site. We are also working with our peers in the ICMM, the Electric Mine Consortium (EMC) and the Austmine Charge On Innovation Challenge in the development of cleaner, safer vehicles towards zero-carbon and zero-particulate mines. As a founding member of the EMC, we are accelerating electrification of both the underground and open pit mines.

Accelerating mine electrification – Underground

GFA is a founding member of the Electric Mine Consortium

22
Companies collaborating

1
Shared vision

0
CO_2e emissions

0
Particulates

10
Active workstreams

1. **Underground haulage**
   – previously led by Gold Fields Australia (GFA)
2. **Future workforce**
   – previously led by GFA
3. **Energy Supply and Storage**
   – contribution by GFA
4. **Mine Design**
   – contribution by GFA
5. **Light and Ancillary Equipment**
   – contribution by GFA
6. **Carbon measurement**
   – contribution by GFA
7. **Data Sharing**
   – contribution by GFA
8. **Charging and Electrical Infrastructure**
9. **Surface and Long Haulage**
10. **Policy Working Group**
    – Being reviewed by GFA

Accelerating mine electrification – Surface

Charge On Innovation Challenge

19
Companies collaborating

8
Innovation projects

2
GFA reviewing

220T
Haul truck prototype focus

Gold Fields started trialling ZEV vehicles at its mines during 2022, in co-operation with the original equipment suppliers. These are an underground truck at St Ives, a load-haul dumper at Granny Smith and an underground loader at South Deep. Some of the key ZEV features include:

- ZEV mining equipment is currently at trial stage and not readily available
- ZEV capital costs average 1.5x – 2x conventional vehicles
- Replacing a diesel truck with a ZEV will remove approximately 940tCO_2 and 350kl diesel a year
- ZEV trucks can travel at 16km/hour uphill (77% faster than diesel trucks) and, 20km/hour downhill
- ZEV trucks' dump time is four seconds faster than diesel trucks
- A typical ZEV truck needs recharging after two loads

Scope 3 reduction targets

Gold Fields has been measuring and reporting its scope 3 emissions, since 2008. During 2022, Gold Fields' scope 3 emissions accounted for 25% of our total emissions. In comparison to other precious metals and minerals, gold has a relatively low carbon footprint. While this is fortunate, it does not exonerate us from our responsibility towards minimising our impact as best as we can.

While the main focus until 2030 will be reductions in scope 1 and 2 emissions, over which we have direct control, to achieve net zero by 2050 or earlier we will also have to eliminate scope 3 emissions. This will require working closely with our suppliers and contractors.

In line with ICMM timelines, Gold Fields will announce its first scope 3 emissions target by the end of 2023. In preparation, we have taken steps to understand Gold Fields' scope 3 baseline, such as expanding reporting for purchased goods and services, updating GHG Protocol methodologies, and obtaining supplier-specific emissions factors. We also plan to include scope 3 for capital goods and align with the Science-Based Targets Initiatives' scope 3 framework.

Gold Fields Australia has led the work in this field by carrying our pilot programmes with its supplier base. The model is being applied to the other regions in 2023.

Climate risks and opportunities

Climate and environmental risks remain the core focus of global risk perceptions over the next decade – and are the risks for which the world is seen to be the least prepared. The lack of deep, concerted progress on climate action targets has exposed the divergence between what is scientifically necessary to achieve net zero and what is politically feasible. The World Economic Forum has published the Global Risk Report for 2023, which highlights climate-related risks in the top 15. These are: natural disasters and extreme weather and failure to mitigate climate change impacts. For Gold Fields, failure to implement climate change adaptation measures is one of our top 10 Group risks. Risk management is essential not only to assess the key operational adjustments our mines have to make, but also to inform efforts to mitigate our greenhouse gas emissions.

Gold Fields has incorporated climate-related risks and opportunities into our enterprise risk management and strategy processes at Group and regional levels. The Group and regional risk registers are on p11 – 17 of the Integrated Annual Report. Each region conducted its second five-yearly climate change risk and vulnerability assessments (CCRVA) during 2021. Focused CCRVAs have been initiated for the Group's TSFs, as well as water infrastructure. National and international climate-related regulatory and legislative requirements are reviewed continually to ensure that associated risks are managed, and potential opportunities leveraged. See progress on mitigating actions to the CCRVA on pages 20 – 23.

CLIMATE CHANGE – RELATED GROUP RISKS

	GROUP RISK	RISK CONTEXT	RISK IMPLICATION	MITIGATING ACTIONS
8	**ESG stakeholder expectations and activism**	• The Brumadinho and Samarco TSF disasters have highlighted mining's tailings safety issues • Investors and customers demand independent standards for validating ESG performance • Nature, biodiversity, and their connection to climate change and communities are gaining more attention	• Higher costs (capital and operating) • Investor and stakeholder pressure • Talent retention and attraction • Executive and Board focus on ESG • Reputational risks • Reporting quality	• Good corporate governance and assurance processes • Sustainable development and resource management programmes • Alignment with leading standards (ICMM, WGC) • Renewable energy implementation • Stakeholder engagement and communication • Improved community benefits
11	**Failure to implement climate change adaptation measures**	• Demonstrate leadership in managing negative impacts of climate change to meet rising investor expectations • Gold Fields focuses on adaptation and mitigation measures for water and energy security and regulatory compliance • Gold Fields faces challenges such as extreme weather events, including local weather patterns, flooding, droughts and temperature fluctuations across different countries • There are more stringent government regulations and policies on water, energy, GHG reporting, and carbon emissions, such as the South African Carbon Tax	• Natural resources such as water and energy are becoming scarcer and more expensive, affecting production costs • Extreme weather events can cause production losses and damage critical infrastructure • Investor appetite may be lost due to environmental risks • Tailings and heap leach structures can be compromised by excess rainfall or drought • Licensing and permitting can be delayed and costly due to climate-related risks • Environmental impacts can lead to costly litigation • Environmental activism and local communities affected by climate change can damage corporate reputation • There is an expectation to quantify the financial impacts of climate-related risks	• Developed regional climate change plans for adaptation and mitigation • Implemented proactive measures for flooding such as berms, canals, plugs and seals • Emergency power generators and evacuation procedures in place • Implemented management and control room procedures • Determined GFL's carbon footprint and established a group carbon policy statement • Established Group water, energy, carbon and mine closure guidelines • Developed dynamic water models for post-mine closure planning • Transparent community engagement practices in place • Participation in policy discussions through industry representative bodies • Reporting according to TCFD and CDP Water standards

Climate risks and opportunity continued

	GROUP RISK	RISK CONTEXT	RISK IMPLICATION	MITIGATING ACTIONS
13	**Water security**	• Extreme weather events – (flooding and drought) • Water pollution and contamination from mining activities • Community discontentment and anti-mining sentiment caused by water pollution • Positive or negative water balances • Loss of water use licences and increased water costs • Water scarcity and loss of access to water for projects • Contingent liability associated with post-closure water management	• Loss of social and legal licence to operate • Shutdown of operations • Increased operating costs • Insufficient water to continue processing or mining • Fines or sanctions • Decrease in shareholder value • Loss of investor confidence • Reputational damage and scrutiny from NGOs	• Water balances and water scarcity planning • ISO 14001 and Cyanide Code certification • Country water agreements and permits • Independent review of TSFs for environmental and legal due diligence • Group-wide water guidelines and policies • Critical hazard standards and controls • Reporting in accordance with CDP Water • Water supply agreements and regional strategies

Gold Fields' catastrophic risks relevant to climate change for 2023 are:

	GROUP RISK	RISK CONTEXT	RISK IMPLICATION	MITIGATING ACTIONS
1	**Tailings dam failure**	• Adverse conditions: Water overtopping the TSF embankments because of high rainfall, cyclic liquefaction, e.g. embankment failure, because of adverse dynamic loading	• Environmental harm • Fatalities • Production loss • Financial loss • Administrative fines • Evacuations • Mine stoppage • Prosecution • Reputational harm • Poor quality work and technical neglect	• TSF Management Policy and Standard • Design and manage TSFs following international guidelines • Local jurisdiction regulations • Site-instigated geotechnical and operational reviews • Independent design reviews • External, audits compliance • Emergency evacuation procedures, management and control procedures
3	**Flooding – major incident causing loss of life and property damage**	Extreme weather events are becoming more common because of climate change. As a result, mines are exposed to the impacts of these events, which are principally associated with intense rainfall leading to increased surface run-off. Other events potentially associated with flooding and their impacts, include: • Total power failure, rendering pumping systems inoperable • Flooding at an underground or open-pit mine • Catastrophic failure of a water dam embankment	• Drowning (fatalities) • Destruction of mine property and production loss • Significant reputation impacts, penalties, fines or sanction • Litigation • Financial loss • Administrative fines • Evacuation • Mine stoppages • Access for transportation of materials and products • Prosecution of senior managers and executives	• Hydrological and flood modelling plans • Design of flood protection measures • Critical Control Management programme • CCRVA • Operational risk management process • Operational flood control measures • Emergency evacuation and flooding procedures • Insurance risk engineering surveys and recommendations

TRANSITION RISKS

Governments have responded to the climate crisis in various ways. The table below lists the climate-related policies, legislation and Nationally Determined Contributions (NDCs) in our countries of operation. NDCs are integral to the Paris Agreement and outline each country's targets to reduce national emissions.

Australia

KEY LEGISLATION	POLICY AND REGULATIONS	CARBON TAX	NDCs	GOLD FIELDS RESPONSE
• Clean Energy Finance Corporation Act, 2012 • Climate Change Act (pending) • Proposed Greenhouse Gas Storage and Transport Bill for Western Australia	• Clean Energy Finance Corporation Investment Mandate Direction 2020 • Climate Solutions Package, 2019 • National Hydrogen Strategy, 2019 • Emission Reduction Fund and Safeguard Mechanism		Target of net-zero emissions by 2050; Reduce emissions by 26%-28% below 2005 levels by 2030	• Continued implementation of renewable energy at all four mines • Gruyere solar plant commissioned in 2022 • Participation in Electric Mine Consortium • Trial of zero-emission vehicles

South Africa

KEY LEGISLATION	POLICY AND REGULATIONS	CARBON TAX	NDCs	GOLD FIELDS RESPONSE
• National Climate Change Bill • Carbon Tax Act, 2019	• National Climate Change Adaptation Strategy, 2020 • Sectoral emission targets framework and company-level carbon budget allocation, expected 2023	• Phase 1 of carbon tax regime taxes primary emissions, with no liability to date. R159/tCO_2e applies to entities which breach the 100kt threshold • Phase 1 extended until end 2025 • Pass-through tax on cement	Fixed level target range of 398Mt – 510Mt CO_2e reductions by 2025; 350Mt – 420Mt CO_2e reductions by 2030	• Construction of the 50MW Khanyisa Solar Plant completed • Approval to increase capacity to 60MW received • Trial of zero-emission underground vehicle • Wind turbine trials commenced

Ghana

KEY LEGISLATION	POLICY AND REGULATIONS	CARBON TAX	NDCs	GOLD FIELDS RESPONSE
• Renewable Energy Act, 2011	• National Climate Change Policy, 2013 • Ghana Renewable Energy Master Plan, 2019 • National Adaptation Plan Framework, 2018		Fixed level target range of 4.9 – 14.9% reduction by 2025 and 12.0 – 26.9% reduction by 2030 (against business-as-usual levels)	• Upgrade to combined cycle gas turbines at Tarkwa • Studies into electric fleet and diesel replacement

Chile

KEY LEGISLATION	POLICY AND REGULATIONS	CARBON TAX	NDCs	GOLD FIELDS RESPONSE
• Carbon Tax • Framework Law on Climate Change being developed • Promotion of expansion of energy matrix through unconventional renewable energies	• Long-Term Climate Strategy • National Green Hydrogen Strategy, 2020 • Sectoral mitigation and adaptation plans	• Carbon tax of US$5/t CO_2e to apply to entities that emit 2,500t CO_2e and/or 100t of PM from combustion processes from 2023 onwards	Carbon neutrality by 2050 GHG emissions of no more than 1,100Mt CO_2e between 2020 and 2030, with a peak by 2025 and GHG level of 95Mt CO_2e by 2030	• Salares Norte's energy will consist of a 27MW hybrid microgrid with 10MW of solar

Peru

KEY LEGISLATION	POLICY AND REGULATIONS	CARBON TAX	NDCs	GOLD FIELDS RESPONSE
• Framework Law on Climate Change, 2018 • Energy Efficiency Act, 2007	• 2015 National Climate Change strategy (ENCC) • National Forestry and Climate Change Strategy • Voluntary carbon footprint reporting • Proposed registry of emissions and transfers of pollutants		Fixed level target range of 208.8Mt CO_2e (unconditional) and 179.0Mt (conditional) by 2030	• Renewable energy procured from grid • Hydropower allocation classified as renewable energy by the international REC Standard

Unpacking physical risks

UPDATE ON 2021 CLIMATE CHANGE RISK AND VULNERABILITY ASSESSMENT

In our last climate change report, we presented the second round of CCRVAs that were conducted at all our mines during 2021. The Salares Norte project carried out its first CCRVA that year. The initial assessments followed the ICMM methodology to increase the resilience of Gold Fields, our operations, the value chain and local communities, as set out in the "Adapting to a changing climate" report.

In terms of the methodology, risk is determined by the severity and the probability of an uncertain future event. Vulnerability evaluates the degree to which a system is incapable of coping with adverse effects of climate change. The vulnerability of a system is determined by the exposure to the climate change impact, the sensitivity of the system and its capacity to adapt. The vulnerability of each risk is classified as low, medium or high, according to the consideration of the exposure to climate change and its sensitivity, followed by an adjustment according to the adaptive capacity of the system to climate change.

Progress on the adaptation actions that our mines and projects implemented in 2022 is detailed below:

Dimension	Risk	Adaptation action	Status
SOUTH AFRICA – South Deep			
Core operations	• Increase in intensity and variability of rainstorms resulting in unauthorised discharge into the Leeuspruit river	• All water dams have been designed to cater for 1:50 year rainfall events • Lining and increasing capacity of the old return water dam • Installation of pumping pipeline for the transfer of process water between the old return water dam and Doornpoort return water dam	~ 40% complete
	• Increase in drought periods causing reduction in on-site water • Water flows which result in increased demand for water from the public utility, increasing operational costs	• Reduce the use of public utility water through reverse osmosis (RO) plants • 1ML/day of fissure water treatment project is underway; the project went online in 2022 • RO plant recovery capacity increased in 2022 from 1.8ML/day to 2.2ML/day • Capture surface water runoff for reuse • Convert to thickened tailings as feed to the TSF • Increase and improve water storage capacity on mine • Instal ratio and control valves to minimise pressure on the supply line to mining areas • Pressure reducing valves on the public water pipe were installed underground in 2022, reducing overall consumption by almost 50% • Instal instrumentation on the service water network to enable better monitoring and troubleshooting	~ 50% complete
	• Increase in drought periods could render the public utility unable to supply the required volumes of water		
Value chain	• An increase in droughts and water stress which may disrupt electricity supply or cause electricity prices to increase	• 50MW solar plant completed • Further renewables being planned • ISO 50001 certification planned for 2023	~ 50% complete
Broader network Natural and social environment	• Increase in temperatures and heatwaves resulting in increased water demand by Thusanang which could result in community volatility and increased dependence on South Deep	• Continuous engagement with the Rand West local municipality • Thusanang water infrastructure is included in Rand West City Integrated Development Plan	Ongoing

Dimension	Risk	Adaptation action	Status
AUSTRALIA – Gruyere, Granny Smith, St Ives and Agnew			
Core operations	• Adequacy of flood management and storage capacities to safeguard personnel	• Align flood management protocols to a critical control management approach • Design verification process for flood management • Review surge capacity in light of in-pit waste rock disposal • Integrate long-term modelling into closure planning for appropriate structures	**Implemented** **In progress** **Implemented** **In progress**
	• Declining availability of process water in terms of suitable quality and quantity	• Water balances developed for all sites and reviewed to lift focus on mining activities and linked to water management plans • Life-of-mine water risk assessments completed for all sites • Water included in strategic plans • Conclude water source and capacity studies at all operations	**In progress** **Implemented** **Implemented** **Implemented**
	• Ventilation requirements increase as mines move deeper and ambient temperature increases	• Implement the innovation and technology strategy • Participate and provide input into the Electric Mine Consortium • Investigate and trial battery electric vehicles for the underground operations • Continue to advance investigations and deployment of remote technologies • Investigate ventilation-on-demand technologies	**Implemented** **Implemented** **In progress** **In progress** **In progress**
	• Tailings dam stability during periods of extreme rainfall	• Complete buttress works at the Granny Smith TSF • Complete drainage works at the Gruyere TSF • Utilise in-pit tailings where possible • Align to the GISTM • Closure modelling scenarios to include long-term stability assessment and requirements of the GISTM	**In progress** **Implemented** **Implemented** **In progress** **In progress**
	• Bushfire impact to infrastructure, supply and safety	• Review site Critical Hazard Standards to ensure appropriate coverage of bushfire risk • Review site-based fire management plans • Review at risk infrastructure • Mutual aid agreements to be in place at all sites • Weatherzone system and predictive capacity to be implemented at all sites • Participate in the Goldfields Voluntary Regional Organisation of Councils' work on climate change	**Implemented** **Implemented** **Implemented** **Implemented** **In progress** **Planned**
	• Energy consumption increases for cooling of equipment and workplaces	• Align to ISO 50001 • Energy Management Plans developed for all sites inclusive of a focus on energy efficiency • Implement technology strategy to reduce heat loading • Transition energy sources to renewable energy	**In progress** **In progress** **In progress** **In progress**

Unpacking physical risks continued

Dimension	Risk	Adaptation action	Status
AUSTRALIA – Gruyere, Granny Smith, St Ives and Agnew continued			
Value chain	• Government restricting access to water	• Implement the three-year water management strategies • Broaden water balance focus to mining activity with linked water management plans • Identify all potential water sources with a view to regulatory approval • Water included in strategic plans • Ongoing assessment of treatment technologies	In progress In progress Implemented Implemented In progress
Broader network Natural and social environment	• Societal pressure to address climate change	Map out 30% emissions reductions by 2030 aligned to current strategic plans including: • Complete studies at St Ives considering 75% to 85% renewable energy • Assess feasibility of extending Agnew renewable energy fraction to above 70% • Investigate inclusion of additional wind power at Granny Smith • Gruyere solar plant commissioned	In progress
		• Utilise the existing government engagement plan to emphasise Gold Fields' approaches and success on climate change	Planned
		• Participate in the Chamber of Minerals and Energy structures and ensure Gold Fields content within the campaigns	Planned
PERU – Cerro Corona			Status
Core operations	• Increase in intensity of rainfall may affect slope stability	• Monitoring of ground water levels, piezometric ground water pressure, pumping capacity, water treatment capacity and tailings storage capacity • Slope stability monitoring system in place	On schedule
	• Operational stoppage caused by interruption of concentrate transport to port due to landslides	• Increase concentrate storage capacity on-site and at the port	Complete
	• Extreme events (floods/droughts) could impact revegetation at closure	• Ensure a feasible revegetation plan is designed for Cerro Corona rehabilitation programme • Evaluation of climate change impact on TSF design	On schedule
Value chain	• Interruption of provision of supplies	• Available alternative routes in fairly good condition for the delivery of products • Availability of diesel storage, with stock to last up to 10 days • Construction works at the dam wall are postponed during the rainy season and resumed during the dry season	Complete
Broader network Natural and social environment	• Droughts could make local farmers resentful of mine water supplies • Poverty and literacy level may hamper ability of local community to build resilience	• Implementation of projects to improve water supply to the local community including water treatment and harvesting • Investment in community education initiatives	On schedule

Dimension	Risk	Adaptation action	Status
		GHANA – Tarkwa and Damang	
Core operations	• Larger volumes of mine water and increased pit flooding and pumping with associated increased operational cost	• Continue to mine deeper in the dry season to compensate for wet season limitations	**Weather data is used to inform planning**
		• Continue to incorporate impact of weather on operational continuity, and on annual budgeting, for both operations. Increase stockpiling to last approximately 28 days	
	• Increased discomfort experienced and risk of heat-related illnesses	• Provide for increased operating cost from energy usage in hot seasons • Solar-powered air conditioning units in offices	**Tarkwa has invested in solar air conditioners, which consume 30% less energy**
		• Conduct frequent health checks, especially during hot periods	**Heat stress monitoring programme in place**
		• Educate employees on heat stress, malaria and other health issues resulting from climate change impacts	**Malaria control programmes in place**
	• Decreased water quality available for processing purposes	• Increase water recycling and treatment to improve water quality and potable water available to local communities and for processing purposes • Initiate water saving programmes among workforce and communities	**Region's water recycling (>80%) and freshwater reduction in line with targets. Several water-saving initiatives implemented**
Value chain	• Weather-related delays in transport of materials, critical equipment and spares	• Ensure stocking of critical spare parts (especially pumps and dewatering equipment) to minimise operational stoppages	**Critical parts for mining equipment and pumps stocked**
		• Ensure on-site diesel storage facilities are maintained at the required levels	**Implemented**
		• Diversify the energy mix currently used by both mines to include other small scale energy sources (e.g., solar panels)	**Implementation ongoing**
		• Roadside waterways should be regularly monitored, especially during the rainy season. Keep gullyways free of litter and create deeper trenches to increase capacity	**Ongoing road upgrades undertaken, including enhanced drainage systems**
Broader network Natural and social environment	• Increased vulnerability of host communities due to impacts of climate change, including increased dependency on Gold Fields for service provision and financial support during crises	• Educate local communities on climate changes and impacts	**Sanitation teams established**
		• Increase the adaptive capacity of communities through assisting local municipalities with providing basic services, including electricity, potable water and ablution facilities	**Refresher training on water management** **Continuous support for community water initiatives** **Construction of 40,000 – 80,000 litre capacity tanks completed** **Rehabilitation of water facilities in near-by farming villages completed**

Energy and climate change performance

Gold Fields' Energy and Carbon Management Strategy addresses our key energy priorities: security of supply, cost-effective electricity, reducing energy consumption and carbon emissions. This is supported by energy management systems aligned to the ISO 50001 standard. Our Cerro Corona, Damang and Tarkwa mines have been certified to ISO 50001 and we aim to have all our operations certified by the end of 2023.

The key initiatives to achieve our energy objectives are:

- Increasing the use of renewables
- Improving energy efficiencies
- Training and awareness programmes for our workforce
- Trialling and use of zero-emission vehicles

Energy efficiency initiatives have the dual benefit of improving energy productivity and reducing our carbon footprint.

Energy performance 2022

Overall, our energy spend increased by 24% during 2022 to US$424m (2021: US$341m), mainly due to higher oil prices.

Total energy spend, which combines the Group's electricity and fuel spend, amounted to 21% of total operating costs in 2022, up from 18% in 2021.

Total energy consumption increased by 1% to 14.1PJ compared with 13.9PJ in 2021, as gold production was marginally higher during the year. The energy mix was made up almost equally of haulage diesel and electricity.

During 2022, Gold Fields spent US$45m on energy and emissions savings initiatives (including renewable investments), which resulted in energy savings of 1.08PJ in 2022 (2021: 1.21PJ), and a cost saving of US$53m – equal to US$21/oz.

The investment in energy savings is also reflected in the reduction in energy intensity to 5.49GJ/oz in 2022 (2021: 5.66GJ/oz). This has been achieved despite more energy-intensive mining over the past few years as we mine deeper at our underground mines and have to travel longer haulage distances at many of our open-pit operations.

The table below shows the energy profile of our regions during 2022:

Regions	Total diesel consumption (ML)	Total electricity consumption (TJ)	Grid electricity (%)	Renewable electricity (%)
Australia	66	2 826	24	12
South Africa	4	1 750	98	2
Ghana	100	1 772	5	—
Peru	20	550	100	100
Group	**190**	**6 898**	**44**	**14**

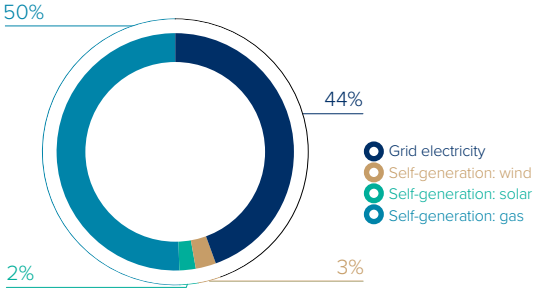
Renewable energy

During 2022, we continued our efforts to increase the share of renewables in our energy mix. Renewables contributed 14% of Group electricity by year-end.

A regional breakdown shows that the Australia region averaged 12% renewables (Agnew 54%, Granny Smith 6%, Gruyere 5%) while South Deep achieved 2%, as the solar plant only started supplying the mine during Q4 2022. Cerro Corona's electricity is 100% renewable, since it is sourced from hydropower.

Our mines are also trying to reduce their reliance on grid electricity. As the graph below shows, 44% of electricity used by our mines is purchased from public utilities, with 56% self-generated power. At present, this reflects predominantly the gas that is supplied from on-site plants to our mines in Australia and Ghana. Grid electricity tends to be sourced from carbon-intensive resources, such as the coal-fired power that is supplied to our South Deep mine in South Africa.

Group electricity consumption and breakdown for 2022



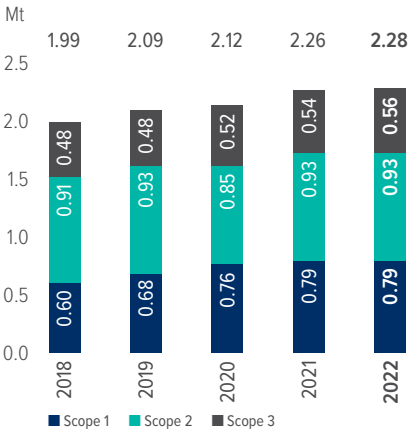
Emission performance

Our carbon emissions performance mirrors our operations' energy use trends. Total scope 1 and 2 CO_2e emissions during 2022 were marginally higher at 1.72Mt (2021: 1.71Mt), as production remained stable and the two solar plants were commissioned.

Emissions intensity dropped to 0.67tCO_2e/oz in 2022 from 0.70tCO_2e/oz in 2021. Emissions reductions from savings initiatives totalled 302kt CO_2e[1] during 2022 (2021: 306kt CO_2e), in line with internal targets.

It is envisaged that emissions intensity will continue to decline during 2023 as the South Deep and Gruyere plants will be operational for a full year.

Group scope 1 – 3 CO_2e emissions[2]



[1] *Emissions avoided from the installation of gas turbines supplied by a pipeline for Tarkwa and Damang (166kt CO_2e, 55% of the Group total emissions avoided) are included in site, region and Group reporting and recognised as an exceptional continuous project as approved by the Gold Fields Group Head of Energy and Carbon. This project is of strategic importance to the Tarkwa and Damang operations and the Group as it is a major change, with significant capital investment, impact, complexity, and stakeholder involvement*

[2] *Restated 2016 to 2020 numbers due to updated emission factors in line with ISO 14064*

Tailings storage facility management

Our Tailings Storage Facility (TSF) Management Policy Statement commits us to ensure that our TSFs cause zero harm or damage to our people and the natural environment. The danger of TSF failures is heightened by weather events such as intense storms and prolonged rainfall periods. We are pursuing a number of strategies to further strengthen the technical management and governance of the 37 tailings facilities at our operations and joint ventures.

As a member of the ICMM, Gold Fields has been integrally part of the development of the GISTM as an international imperative to prevent TSF failures, such as those that had occurred over the past few years at the Brumadinho and Samarco TSFs in Brazil, both resulting in major loss of life, and the Mount Polley TSF in Canada.

This global best practice standard sets out how companies can ensure that tailings facility risks are managed appropriately, consistently and transparently. At a company level, Gold Fields has publicly endorsed and committed to conforming to the GISTM. We have also aligned our tailings management practices to the ICMM position statement on tailings management.

TSF RISK AND VULNERABILITY ASSESSMENTS

Our previous climate change report outlined the climate change risk and vulnerability assessments (CCRVA) that we have conducted for our TSFs. The process to amplify the 2021 CCRVA (see p20 – 23) included a specific focus on our TSFs and water management structures. This is aligned with the ICMM Tailings Best Practice Guide in relation to TSF design for climate change as part of our process towards conformance to the GISTM. We have developed a set of actions that we reported on last year. The status of those actions is:

CCRVA action	2023 status update
Ensure that the hydrological parameters are current	We have established that the hydrological parameters are current. These form the baseline for each site
Estimate the potential changes in Annual Exceedance Probability (AEP) and Probable Maximum Precipitation (PMP) events due to climate change at each operation	We have developed a climate prediction report for each site
Update water balances and hydrological and hydrogeological models for all operations	The mines' Engineers of Record will update this for the TSFs. Currently, climate prediction reports are used
Develop a water-retaining structure design standard	On track for 2023

The Far East Tailings Storage Facility at the Damang mine

Water stewardship

WATER STEWARDSHIP

The Intergovernmental Panel on Climate Change has termed the climate crisis a water crisis. This is particularly relevant in countries that are water stressed, as are three of the countries in which we operate – South Africa, Australia and Chile. Climate change also impacts our operations and communities through, for example, severe rainfall, shifts in rainfall patterns and prolonged droughts.

Water is a commonly shared scarce and valuable resource and access to water is a fundamental human right and a critical component for the proper functioning of natural ecosystems. As such, the impacts our mines have on water sources have to be managed extremely carefully and in agreement with our stakeholders.

Gold Fields is therefore strongly committed to responsible water stewardship and our 2020 – 2025 Water Stewardship Strategy is supported by three-year water management plans at all our mines. Our strategy comprises the following three pillars: Security of supply, water efficiency and catchment area management.

We have also assessed the impact of climate change on our operations and communities through the 2021 Climate Change Risk and Vulnerability Assessments, which are listed on p20 – 23.

Gold Fields is currently developing a 2030 Water Stewardship Strategy, to be completed in 2023, to ensure we meet our two water-related 2030 ESG targets:

- Recycle or reuse 80% of total water used: We achieved our 2022 target of 75%. The target remains the same for 2023, and we are on track to meet our 2030 target
- Reduce freshwater withdrawal by 45% from the 2018 baseline: During 2022, we reduced our freshwater withdrawal to 8.5 GL (2021: 9.4 GL), a 41% reduction from the 2018 baseline. We remain on track to achieve our 2030 target, though the progression will not be linear amid the addition of Salares Norte in Chile's Atacama desert to the Gold Fields portfolio in 2023.

During 2022, Gold Fields spent US$37m on water management and projects (2021: US$32m). We continue to invest in improving our water management practices, including pollution prevention, recycling and water conservation initiatives.

Increased rainfall associated with the La Niña global weather phenomenon resulted in floods across much of South Africa during the 2022/2023 summer rainfall season. South Deep experienced increased rainfall, which contributed to Level 2 environmental incidents in the reporting year. In early 2023, South Africa declared a National State of Disaster to enable an intensive, coordinated response to the impact of floods, including the Gauteng province where South Deep is situated.

Group water performance

Performance parameter	2022	2021	2020	2019	2018
Water withdrawal (GL)	**18.3**	18.5	21.6	22.3	21.2
Freshwater withdrawal (GL)	**8.5**	9.4	10	14.1	14.4
Total water recycled/reused (% of total)	**75**	75	71	68	66
Water withdrawal efficiency (L/t processed)	**416**	420	490	590	640

INITIATIVES TO MEET 2030 TARGETS – 2023 AND BEYOND

We also invest heavily in water infrastructure that will assist us in meeting our 2030 targets. Six of these are listed below:

Initiative	Operation	Status
Increase RO capacity to increase recycling	South Deep	To install reverse osmosis (RO) for underground and stop using Rand Water supplies. Project underway and on track to deliver treated water from 2023 onwards
Upgrade old return water dams	South Deep	The project budget was deferred to 2023. This is a long-term project planned to be completed in 2025. Desilting started in 2021 and was stopped due to high rainfall experienced during 2022
Reuse of process water at various areas in the mine	South Deep and Tarkwa	Already delivering savings for both operations: • Reuse of process water at the Genser gas plant and for mixing chemicals at the processing plant • Recycling of treated effluent at South Deep
Tailings filters and detox clarifier	Salares Norte	Project underway and aligned with the construction schedule. Will help operation recycle/reuse 80% of its water
Dust suppression with treated water	Salares Norte	The pilot has been completed successfully, so dust suppression will be done using water that is mixed with dust suppressant chemicals on haul roads. It provides long-term dust control with a single application
Water recovery in truck washing system	Salares Norte	Reuse/recycle water at the truck wash bay. This project is on track

WATER STEWARDSHIP PERFORMANCE BY REGION

As water risks are local, each region identified its key risks and opportunities to develop its regional water management plan. These plans require that our regions implement projects that improve water efficiencies, ensure the safety of water infrastructure and engage relevant stakeholders, particularly neighbouring communities. The table below highlights this work per region:

REGION	RESPONSES TO POTENTIAL EXTREME WEATHER EVENTS (DROUGHTS AND FLOODS)	WATER EFFICIENCY PROGRAMMES	CATCHMENT MANAGEMENT
Australia	Implementation of life-of-mine water security projects underway at three of our mines to ensure water supply particularly during times of prolonged droughts: • Develop the North Keringal borefield to supplement water supply at Granny Smith • Development of the South Yeo contingency borefield underway at Gruyere • St Ives is developing a 15 yr+ water security programme for its life-of-mine	• Water efficiency projects to save 25% of raw water consumption at Gruyere being developed • Replacement of a 4.5km section of raw water pipeline from the Mt Morgan Borefield to supply St Ives	• Granny Smith participated in the Lake Carey forum
South Africa	A project to upgrade the old return water dam is underway. Current status: • Desilting of the dam will commence during 2023 • Final designs are completed by 3rd party and have been reviewed by the mine • Use of scavenger wells to supplement water withdrawal	• The mine achieved its freshwater withdrawal and recycling/reuse targets for 2022 • An underground Reverse Osmosis (RO) plant to treat underground water (0.5 ML/day) was commissioned in Q4 2022. This will further increase recycling/reuse of water at South Deep	• Played an active role in the Rietspruit catchment area forum • Participated in catchment management initiatives to raise awareness on water and collaborative programmes among communities • Participated in the Far West Rand regional mine closure and water management forum
Ghana	• Refurbishing and retrofitting of water treatment plants at both Tarkwa and Damang to treat excess water	• The region achieved and exceeded water management targets for 2022 • Installation of a micro-infiltration unit at the Tarkwa carbon-leach plant to maximise recycling • Refurbishing of water treatment plant at Tarkwa	• Catchment study has been completed and actions are being implemented • Construction of four water supply systems, each with 40,000-litre capacity, for communities around our Tarkwa and Damang mines. This assists in preventing water-borne diseases, like malaria
Peru	• Cerro Corona completed its pit dewatering project in 2022 to eliminate the risk of pit slope failure as a result of increased rainfall intensity	• Cerro Corona achieved its freshwater withdrawal and recycling/reuse targets for 2022	• Construction of the Coymolache water treatment plant for nearby communities is in progress

Regional and Group carbon emissions performance

GREENHOUSE GAS (GHG) EMISSIONS

Direct (scope 1) GHG emissions

CO_2e emissions (kt) (scope 1[1])	2022	2021	2016
Australia	**438**	425	233
South Africa	**10**	9	9
West Africa	**284**	301	448
Americas	**57**	52	29
Group[2]	**789**	787	719

[1] *Emission factors 2018 to 2020 for West Africa and Americas restated in line with ISO 14064, which adjusted the Group numbers*
[2] *Includes Head Offices*

Indirect (scope 2) GHG emissions

CO_2e emissions (kt) (scope 2[1])	2022	2021	2016
Australia	**106**	106	166
South Africa	**506**	493	526
West Africa	**315**	302	241
Americas	**0**	27	39
Group[2]	**927**	927	972

[1] *Emission factors 2018 to 2020 for West Africa and Americas restated in line with ISO 14064, which adjusted the Group numbers*
[2] *Includes Head Offices*

Other indirect (scope 3) GHG emissions

CO_2e emissions (kt) (scope 3[1])	2022	2021	2016
Australia	**275**	245	167
South Africa	**36**	34	35
West Africa	**202**	209	203
Americas	**49**	54	45
Group	**563**	542	450

[1] *Scope 1 – 3 includes operations and Head Offices*

Emissions intensity[1] (kg CO_2e/oz) based on scope 1 and 2

Operations	2022	2021	2016
Australia	**450**	460	430
South Deep	**1,570**	1,710	1,920
West Africa	**790**	777	963
Cerro Corona	**220**	317	253
Group emission intensity	**669**	697	763

[1] *Emission factors 2018 to 2020 for West Africa and Americas restated in line with ISO 14064, which adjusted the Group numbers*

Regional and Group energy performance

Electricity purchased (GWh)	2022	2021	2016
Australia	**189**	189	287
South Africa	**477**	465	526
West Africa	**492**	474	434
Americas	**153**	152	153
Group	**1,311**	1,280	1,400

Diesel consumption (ML)	2022	2021	2016
Australia	**66**	64	71
South Africa	**4**	3	3
West Africa	**100**	107	97
Americas	**20**	19	13
Group	**190**	193	183

Total energy consumption (PJ)	2022	2021	2016
Australia	**5.40**	5.21	3.60
South Africa	**1.88**	1.78	2.01
West Africa	**5.53**	5.69	5.07
Americas	**1.29**	1.23	1.01
Group	**14.10**	13.90	11.70

Energy intensity (GJ/oz produced)	2022	2021	2016
Australia	**4.43**	4.94	3.82
South Africa	**5.73**	6.10	6.91
West Africa	**7.27**	7.33	7.09
Americas	**4.94**	4.94	3.75
Group	**5.49**	5.66	5.27

Total energy costs (US$m)	2022	2021[1]	2016
Australia	**146**	124	84
South Africa	**45**	43	32
West Africa	**188**	144	153
Americas	**44**	30	21
Group	**424**	341	289

[1] *Includes 100% energy costs for Gruyere, previously 50% was included*

Energy spend (% of Opex)	2022	2021	2016
Australia	**17%**	15%	14%
South Africa	**14%**	14%	12%
West Africa	**31%**	25%	32%
Americas	**19%**	16%	14%
Group	**21%**	14%	20%

Gold Fields' 2022 carbon footprint

SCOPE 1 AND 2 EMISSIONS ($ktCO_2e$)

Operation	Scope 1 emissions			
	Diesel: haulage and other	Diesel: power generation	Petrol	Liquefied petroleum gas
SOUTH AFRICA REGION INCLUDING OFFICES	**10**			
South Deep Joint Venture	10			
Gold Fields Group Services	0.02			
WEST AFRICA REGION INCLUDING OFFICES	**270**	**0.7**	**0.2**	**3**
Tarkwa Gold Mine	197			0.3
Damang Gold Mine	73	0.7		3
Accra Office	0.03		0.2	
AUSTRALIA REGION INCLUDING OFFICES	**176**	**3**		**3**
St Ives Gold Mine	55			1
Agnew Gold Mine	25	0.7		0.7
Granny Smith Gold Mine	35	2		0.7
Gruyere Management Pty Ltd	61	0.4		0.02
Perth Office				
SOUTH AMERICA REGION INCLUDING OFFICES	**55**		**0.06**	**0.02**
Cerro Corona Gold Mine	55		0.06	0.02
Lima Office	0.03			
Group total	**511**	**4**	**0.20**	**6**

SCOPE 3 EMISSIONS ($ktCO_2e$)

Operation	Total purchased goods and services	Total fuel and energy-related activities	Upstream transport and distribution
SOUTH AFRICA REGION INCLUDING OFFICES	**17**	**17**	**0.2**
South Deep Joint Venture	17	17	0.2
Gold Fields Group Service			
WEST AFRICA REGION INCLUDING OFFICES	**58**	**139**	**3**
Tarkwa Gold Mine	44	109	2
Damang Gold Mine	15	30	0.7
Accra Office	0.03	0.06	0
AUSTRALIA REGION INCLUDING OFFICES	**144**	**118**	**4**
St Ives Gold Mine	52	21	1
Agnew Gold Mine	23	17	0.6
Granny Smith Gold Mine	29	24	0.8
Gruyere Management Pty Ltd	40	57	1
Perth Office		0.001	
SOUTH AMERICA REGION INCLUDING OFFICES	**12**	**35**	**0.9**
Cerro Corona Gold Mine	12	35	0.9
Lima Office		0.007	
Group total	**232**	**310**	**8**

The following categories of scope 3 emissions are zero

Category	Comment
Capital goods	This is reported as zero as it is not applicable for reporting
Upstream leased assets	Not reported, because assumed not to be material
Use of sold products	This is reported as zero because energy use after refining of gold is assumed to be negligible
Downstream leased assets	Not reported, because assumed not to be material
Franchises	No franchises, therefore zero
Investments	No investments, therefore zero

Liquefied natural gas for power	Blasting agents	Pipeline natural gas for process	Acetylene	Total scope 1 emissions	Total scope 2 emissions	Total scope 1 and 2 emissions
	0.3		**0.02**	**11**	**506**	**516**
	0.3		0.02	11	506	516
				0.02	0.06	0.08
	5	**5**	**0.02**	**284**	**315**	**599**
	4	5	0.01	207	215	421
	0.8		0.009	77	100	177
				0.2	0.2	0.5
253	**3**	**1**	**0.004**	**438**	**106**	**544**
	0.4		0.001	57	106	162
36	0.4			63		63
84	0.3		0.001	122		122
132	2	1	0.002	197		197
					0.08	0.08
	2		**0.002**	**57**	**0**	**57**
	2		0.002	57	0	57
				0.03		0.03
253	**9**	**6**	**0.05**	**789**	**927**	**1,716**

Waste generated	Total business travel	Employee commuting	Downstream transport and distribution	Processing of sold products	End of life treatment of sold product	Total scope 3 emissions
0.5	**0.1**	**1**	**0.03**	**0.1**	**0.2**	**36**
0.5	0.1	1	0.03	0.1	0.2	36
	0.02	0.05				0.07
0.3	**0.4**	**0.6**	**0.005**	**0.1**	**0.3**	**202**
0.2	0.3	0.3	0.004	0.1	0.2	156
0.08	0.08	0.3	0.002	0.004	0.09	46
		0.009				0.1
0.6	**7**	**0.9**	**0.02**	**0.2**	**0.4**	**275**
0.2	0.4	0.2	0.007	0.07	0.1	75
0.2	2	0.2	0.005	0.04	0.09	43
0.1	2	0.2	0.006	0.05	0.1	57
0.1	2	0.08	0.006	0.06	0.1	101
		0.1				0.1
0.2	**0.6**	**0.2**	**0.008**	**0.003**	**0.05**	**49**
0.2	0.6	0.1	0.008	0.003	0.05	49
		0.03				0.04
2	**8**	**3**	**0.07**	**0.5**	**1**	**563**

External assurance statement

INDEPENDENT REASONABLE ASSURANCE STATEMENT TO GOLD FIELDS LIMITED

ERM Southern Africa (Pty) Ltd ('ERM') was engaged by Gold Fields Limited ('Gold Fields') to provide reasonable assurance in relation to selected sustainability information set out below and presented in Gold Fields' 2022 Climate Change Report for the year ended 31 December 2022 (the 'Report').

Engagement summary	
SCOPE OF OUR ASSURANCE ENGAGEMENT	Whether the 2022 data for the following performance indicators at the group, regional and site level are fairly presented in the Report, in all material respects, in accordance with the reporting criteria: • Total water withdrawal [GL]: Page 26 • Total water withdrawal per tonnes processed [L/tonne]: Page 26 • Freshwater withdrawal [GL]: Pages 5 and 26 • Percentage of water recycled or reused [Percentage]: Pages 5 and 26 • Total CO_2-equivalent emissions, Scope 1-2 [$MtCO_2e$]: Pages 5, 24, 28 and 31 • Total CO_2-equivalent emissions, Scope 3[1] [$MtCO_2e$]: Pages 24, 28 and 31 • Energy consumption [PJ]: Pages 15 and 29 • Total CO_2-equivalent emissions avoided from initiatives [$ktCO_2e$]: Pages 5 and 24 • Total energy saved from initiatives [PJ and TJ]: Pages 14, 15 and 24 Our assurance engagement does not extend to information in respect of earlier periods or to any other information included in the Report.
REPORTING PERIOD	2022 (1 January 2022 – 31 December 2022)
REPORTING CRITERIA	Gold Fields' definitions for the selected environmental, social, health and safety indicators as disclosed within the Report and on Gold Fields' website.
ASSURANCE STANDARD AND LEVEL OF ASSURANCE	We performed a reasonable assurance engagement, in accordance with the International Standard on Assurance Engagements ISAE 3000 (Revised) 'Assurance Engagements other than Audits or Reviews of Historical Financial Information' and in accordance with ISAE 3410 for Greenhouse Gas data issued by the International Auditing and Standards Board.
RESPECTIVE RESPONSIBILITIES	Gold Fields is responsible for preparing the Report and for the collection and presentation of the information within it, and for the designing, implementing and maintaining of internal controls relevant to the preparation and presentation of the selected information and the Report. ERM's responsibility is to provide conclusions to Gold Fields on the agreed scope based on our engagement terms with Gold Fields, the assurance activities performed and exercising our professional judgement. We accept no responsibility, and deny any liability, to any party other than Gold Fields for the opinions we have reached.

OUR OPINION

In our opinion, the selected indicators as described under 'scope' above are fairly presented in the Report, in all material respects, in accordance with the reporting criteria.

EMPHASIS OF MATTER

Without affecting our opinion, we draw attention to the explanatory notes provided by Gold Fields on pages 5, 15 and 24 of the Report relating to the total emissions avoided and energy saved from initiatives for the Group, West Africa Region (Tarkwa and Damang mines) and Americas (Cerro Corona mine), which include initiatives that deviate from the group guideline definition, as well as projects that are recognized as exceptional continuous projects by the Gold Fields Group Head of Energy and Carbon. We also draw attention to the explanatory notes on pages 5 and 15 of the Report relating to the basis of calculation of the total emissions avoided and energy saved from initiatives for the 50MW Khanyisa solar plant initiative for the South Deep mine.

OUR ASSURANCE ACTIVITIES

Considering the level of assurance and our assessment of the risk of material misstatement of the selected information presented in the Report, a multi-disciplinary team of sustainability and assurance specialists performed a range of procedures that included, but was not restricted to, the following:

- Assessing the appropriateness of the reporting criteria for the selected indicators presented in the Report.
- Testing the processes and systems, including internal controls, used to generate, consolidate and report the selected information.
- Interviews with management representatives responsible for managing the selected indicators.
- A review at corporate level of a sample of qualitative and quantitative evidence supporting the reported information.

[1] *ERM's assurance coverage of Scope 3 emissions included the following categories only: Purchased Goods; Fuel & Energy Related Activities; Upstream Transportation & Distribution; and Business Travel, representing a coverage of 96% of total Scope 3 emissions. ERM also assured the overall Scope 3 emissions consolidation*

- An analytical review of the year-end data submitted by all locations included in the consolidated 2022 group data for the selected disclosures which included testing the completeness and mathematical accuracy of conversions and calculations, and consolidation in line with the stated reporting boundary.
- In-person visits to the following sites to review source data and local reporting systems and controls:
  - Gruyere Mine, Australia;
  - St Ives Mine, Australia;
  - South Deep Mine, South Africa;
  - Tarkwa Mine, West Africa; and
  - Damang Mine, West Africa.
- Virtual visits to the following sites to review source data and local reporting systems and controls:
  - Agnew Mine, Australia;
  - Granny Smith Mine, Australia; and
  - Cerro Corona Mine, Peru.
- Confirming conversion and emission factors and assumptions used.
- Reviewing the presentation of information relevant to the scope of our work in the Report to ensure consistency with our findings.

THE LIMITATIONS OF OUR ENGAGEMENT

The reliability of the assured information is subject to inherent uncertainties, given the available methods for determining, calculating or estimating the underlying information. It is important to understand our assurance opinions in this context.

FORCE MAJEURE

As a result of safety concerns arising from the socio-political unrest in Peru at the time of the planned site visit, we were unable to carry out certain assurance activities as originally planned and agreed with Gold Fields. The in-person visit to Gold Fields' Cerro Corona mine was replaced with remote reviews via teleconference and video calls for this year's assurance engagement. While we believe these changes do not affect our reasonable assurance opinions above, we draw attention to the possibility that if we had undertaken an in-person visit we may have identified errors and omissions in the assured information that we did not discover through the alternative approach.

OUR INDEPENDENCE, INTEGRITY AND QUALITY CONTROL

ERM Southern Africa (Pty) Ltd and ERM Certification and Verification Services Limited ("ERM CVS") are members of the ERM Group. All employees are subject to ERM's Global Code of Business Conduct and Ethics. ERM CVS is an independent certification and verification body accredited by UKAS to ISO 17021:2015. Accordingly, ERM CVS maintain a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements. Our quality management system is at least as demanding as the relevant sections of ISQM-1 and ISQM-2 (2022).

ERM CVS applies a Code of Conduct and related policies to ensure that its employees maintain integrity, objectivity, professional competence and high ethical standards in their work. ERM CVS' processes are designed and implemented to ensure that the work we undertake is objective, impartial and free from bias and conflict of interest. ERM CVS' certified management system covers independence and ethical requirements that are at least as demanding as the relevant sections of Parts A & B of the IESBA Code relating to assurance engagements.

The team that has undertaken this assurance engagement has extensive experience in conducting assurance on environmental, social, ethical and health and safety information, systems and processes, and provides no consultancy related services to Gold Fields Limited in any respect.

Jonathan van Gool
Engagement Partner
ERM Southern Africa (Pty) Ltd
Johannesburg, South Africa

Gareth Manning
Review Partner
ERM Certification and Verification Services Limited
London, United Kingdom

30 March 2023

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ERM

Disclaimer and forward-looking statements

DISCLAIMER

This Climate Change Report contains data on Gold Fields' scope 1, 2 and 3 greenhouse gas emissions. Data for scope 1 and 2 emissions relate to Gold Fields' own activities and supplied heat, power and cooling, which are measured using data from its own systems and independently assured. Scope 3 emissions relate to other organisations' emissions and are therefore subject to a range of uncertainties and challenges. At present, scope 3 data is not yet consistently available in many value chains and is calculated, collected or estimated in different ways. Gold Fields' scope 3 emissions data is determined using the ISO 14064 part 1 standard. As value chain emissions data advances over time, Gold Fields expects to improve the quality of its scope 3 data and data reporting.

FORWARD-LOOKING STATEMENTS

This Climate Change Report contains forward-looking statements within the meaning of section 27A of the U.S. Securities Act of 1933 (the Securities Act) and section 21E of the U.S. Securities Exchange Act of 1934 (the Exchange Act) with respect to Gold Fields' environmental (including climate change), social and governance targets, commitments, ambitions and the methodologies we use to assess our progress in relation to these. Such forward-looking statements can be identified by the use of forward-looking terminology, including the terms "believes", "estimates", "plans", "anticipates", "aims", "continues", "expects", "hopes", "may", "will", "would" or "could" or, in each case, their negative or other various or comparable terminology. Forward-looking statements can be made in writing but may also be made verbally by directors, officers and employees of Gold Fields (including during presentations) in connection with this document. Forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future.

These forward-looking statements, wherever they may occur in this Climate Change Report, are necessary estimates reflecting the best judgement of Gold Fields' senior management and involve a number of risks and uncertainties that could cause actual results to differ materially from those suggested by the forward-looking statements. Consequently, these forward-looking statements should be considered in light of various important factors, including those outlined in this Climate Change Report and other filings with the US Securities and Exchange Commission, including in our Annual Report on Form 20-F for the year ended 31 December 2022.

In preparing the climate change-related information contained in this document, Gold Fields has made a number of key judgements, estimations and assumptions, and the processes and issues involved are complex. The climate data, models and methodologies used are often relatively new, are rapidly evolving and are not of the same standard as those available in the context of other financial information, nor are they subject to the same or equivalent disclosure standards, historical reference points, benchmarks or globally accepted accounting principles. In particular, it is not possible to rely on historical data as a strong indicator of future trajectories, in the case of climate change and its evolution. Outputs of models, processed data and methodologies are also likely to be affected by underlying data quality, which can be hard to assess and we expect industry guidance, market practice and regulations in this field to continue to change. There are also challenges faced in relation to the ability to access data on a timely basis and the lack of consistency and comparability between data that is available This means the climate change-related forward-looking statements and climate change-related information discussed in this document carry an additional degree of inherent risk and uncertainty.

In light of uncertainty as to the nature of future policy and market response to climate change, including between regions, and the effectiveness of any such response, Gold Fields may have to re-evaluate its progress towards its climate change ambitions, commitments and targets in the future, update the methodologies it uses or alter its approach to climate analysis and may be required to amend, update and recalculate its climate change disclosures and assessments in the future, as market practice, data quality and availability develop rapidly.

Gold Fields undertakes no obligation to publicly update or release any revisions to these forward-looking statements to reflect events or circumstances after the date of this report or to reflect the occurrence of unanticipated events.

Refer to Gold Fields' comprehensive forward-looking statements on www.goldfields.com

Glossary

This glossary contains key definitions based on the IPCC's Working Group II Report, Summary for Policymakers as contribution to the Sixth Assessment Report (IPCC 2022, pages SPM 4 and 5).

Adaptation	Human systems adapt by adjusting to actual or expected climate and its effects to lessen harm or take advantage of beneficial opportunities. Ecological systems adapt by adjusting to the actual climate and its effects, which may be facilitated by human intervention.
Adaptation limits	The point at which the needs of human or ecological systems can no longer be secured from intolerable risks through adaptive actions. Two limits can be distinguished: • Hard adaptation limit: the intolerable risks can no longer be avoided through adaptation actions • Soft adaptation limit: intolerable risk can be avoided through options, but these are currently not available
Exposure	The existence of people, economic, social or cultural assets, infrastructure, livelihoods, ecosystems and their functions and the like, in places and settings that could be negatively affected.
Hazard	The potential for the occurrence of a natural or human-induced physical event or trend with adverse effects, such as loss of life, injury or health impacts, loss and damage to property, ecosystems and environmental resources.
Resilience	Any system's ability to bounce back, cope and return to a previous state after a disturbance in order to maintain its essential function, identity and structure and to still be able to adapt, learn and transform.
Risk	Risk can be used as a valuable framework to understand the interlinked and increasingly severe impacts of climate change on human systems, ecosystems and biodiversity. Risk is the potential for negative consequences for human or ecological systems, cognisant of the array of values and objectives underlying these systems. The interactions between climate-related hazards, and the exposure and vulnerability of affected human and ecological systems gives rise to risk.
Vulnerability	The tendency, or exposure to be negatively affected, determined by a system's level of sensitivity to harm and its lack of capacity to cope and adapt.

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