ARM
African Rainbow Minerals

2024 CLIMATE CHANGE AND WATER REPORT

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2024
Climate change and water report

We do it better

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In F2024, we again cross-reference to other documents in our reporting suite, hyperlinked for your convenience by the icons below. Photographs from our library span a number of years, including the pandemic period.

Information available on our website **www.arm.co.za**

Information available elsewhere in our report

African Rainbow Minerals (ARM) is a leading South African diversified mining and minerals company with operations in South Africa and Malaysia. ARM mines and beneficiates iron ore, manganese ore, chrome ore, platinum group metals (PGMs), nickel and coal. It also produces manganese alloys and has strategic investment in gold through Harmony Gold Mining Company Limited (Harmony Gold).

OUR 2024 SUITE OF REPORTS

IAR **2024 Integrated annual report**

A holistic assessment of ARM's ability to create sustainable value, with relevant extracts from the 2024 suite of reports.

AFS **2024 Annual financial statements**

The audited annual financial statements have been prepared according to International Financial Reporting Standards (IFRS Accounting Standards).

ESG **2024 ESG report**

A detailed review of our performance on key environmental, social and governance matters. The ESG report includes the full remuneration report and should be read in conjunction with the GRI Index.

CCW **2024 Climate change and water report**

A detailed review of our performance on key climate-change and water matters, in line with the Task Force on Climate-related Financial Disclosures (TCFD) and IFRS S2 Climate-related financial disclosure.

KING **2024 King IV™* application register**

A summary of how ARM implements the principles and practices in King IV to achieve the governance outcomes envisaged.

MRMR **2024 Mineral Resources and Mineral Reserves report**

In line with JSE Listings Requirements, ARM prepares Mineral Resources and Mineral Reserves statements for all its mining operations as per SAMREC guidelines and definitions (2016).

AGM **2024 Notice to shareholders**

- Notice of annual general meeting
- Form of proxy
- Protecting value through good governance
- Board of directors
- Report of the audit and risk committee
- Report of the social and ethics committee chairman
- Remuneration report
- Directors' report
- Summarised consolidated financial statements

All monetary values in this report are in South African rand unless otherwise stated. Rounding may result in computational discrepancies on management and operational review tabulations.

Overview

We recognise that the company's **long-term success** and ability to **create value** are inherently tied to how responsibly and ethically we act.

Khumani Mine

About this report

This report has been built using the recommendations of the TCFD[1]. We are progressively moving towards adopting the International Financial Reporting Standards (IFRS) S2 guidance as part of our core framework. The report also considers the position statements of the ICMM on water stewardship and climate change and other relevant frameworks and standards[2]. Through this report, we justify and explain how and where we have used a comparative basis of reporting with previous years. We cross-reference content to relevant TCFD recommendations and related IFRS S2 requirements.

We also seek to continually meet the reporting expectations of our varied and evolving stakeholder base.

This report details our climate-change and water-management strategies, risk-management processes, targets, and performance measurements between 1 July 2023 and 30 June 2024 (F2024).

It covers operations that we either directly control or jointly manage, including those that form part of our ARM Ferrous and ARM Platinum divisions. Our F2023 report began to include Bokoni Platinum Mine (acquired in September 2022) in various programmes related to climate change and water. This year, we included the operation in all related programmes and processes, and, in this report, we include performance data for the mine.

Like our ESG report, this report does not address the operations, joint ventures or investments that we do not manage directly – such as ARM Coal, the Sakura ferroalloys smelter, and Harmony Gold – or projects that are in exploration, development or feasibility phases. These investments are part of our scope 3 greenhouse gas (GHG) emissions inventory and are included in our assessment and management of indirect climate and water-related risks and opportunities. All information is provided on a 100% basis throughout.

Please refer to the TCFD/IFRS S2 index on page 55.

For illustrative purposes, the values in the report graphs are rounded to two decimal places. For exact percentages of year-on-year changes, please refer to the numbers detailed in the text.

[1] *ARM is a formal supporter of the TCFD* ***https://www.fsb-tcfd.org/supporters/***

[2] *These include: CDP (formerly the Carbon Disclosure Project); FTSE-Russell ESG Index Series and the FTSE-Russell Transition Pathways Initiative Climate Transition Index Series; TCFD (the basis for the IFRS S2 standards considered for reporting in F2024); GRI sector standard for mining; ICMM membership requirements and principles and related-performance expectations, including the ICMM water reporting good practice guide, 2nd edition; IFRS S2 climate-related disclosures, including volume 10 (metals and mining) of the industry-based guidelines; JSE Guidance for Climate disclosure; Transition Pathway Initiative (TPI); Minerals Council of South Africa (MCSA) position statement on climate change; World Economic Forum's (WEF) stakeholder capitalism metrics; The United Nations' Sustainable Development Goals; Engagements with non-governmental organisations (NGO), non-profit organisations and other stakeholders; regulatory reporting requirements; other evolving reporting expectations have also been considered.*

Beeshoek Mine

Extract from social and ethics committee chairman's statement

Dr Rejoice Simelane
Chairman of the social and ethics committee

Through its business endeavours, ARM seeks to act as a catalyst for local, regional, national and international development and to make a lasting and important social, economic and environmental contribution in developing regions in which ARM operates.

As follows in this report, we also consider many other global and local frameworks, both statutory and voluntary, emphasising our commitment to integrating all aspects of sustainability in our business for the benefit of all our stakeholders.

Responsibilities

The ARM board is ultimately responsible for monitoring the effective management of sustainable development and delegates this responsibility to the social and ethics committee. The committee is constituted under regulation 43(5)(c) of the Companies Act.

The committee operates according to its terms of reference, which are regularly updated. It monitors and reports on the manner and extent to which ARM protects, enhances and invests in the economy, society and natural environment to ensure its business practices are sustainable. It also holds responsibility for monitoring specific activities under relevant legislation, other legal requirements and codes of best practice, including:

- Social and economic development
- Responsible corporate citizenship, including promoting equality, preventing unfair discrimination, implementing measures to address any incidents, and contributing to the development of communities in which ARM operates
- Sustainable development, including environmental management, occupational health and wellness, and safety
- Stakeholder relationships
- Labour and employment.

In addition, the committee assumes responsibility for matters assigned to it by the board. It draws relevant matters to the board's attention and reports to shareholders at annual general meetings. Its responsibilities are supported by executive management and the appropriate management committees and governance structures, including the employment equity and skills development committee.

The committee oversees the management of ESG risks identified through the enterprise risk management (ERM) process, which considers internal and external stakeholders as well as governance processes.

Table 1: Committee members and appointment date

Member	Appointed
Dr RV Simelane (chairman)	February 2007
JA Chissano	August 2019
AK Maditsi	June 2012
DC Noko	August 2019
JC Steenkamp	April 2018

Composition

The committee's terms of reference provide for a minimum of three members, with a majority of independent non-executive directors. The committee currently comprises five independent non-executive directors who bring extensive experience in mining operations, human resources, sustainable development, and stakeholder engagement.

Invitees to meetings include the chief executive officer, finance director, executive: investor relations and new business development, divisional chief executives, executive: risk, executive: sustainable development, group executive: human resources, group executive: legal and executive: compliance.

There were four scheduled meetings in F2024.

Assurance

In line with its terms of reference, the committee had oversight of ARM's appointment of an independent external sustainability assurance provider for the 2024 ESG report and reported to ARM's audit and risk committee that an appointment was made.

In F2024, the committee focused its attention and deliverables according to its terms of reference, including specific actions related to greenhouse gas emissions (scope 1, 2 and 3).

During the year, in relation to climate change and water, in particular, the committee:

F2024 focus

- Monitored tailings storage facilities (TSF) at our managed operations and progressed in conformance to the Global Industry Standard on Tailings Management (GISTM)
- Monitored ongoing initiatives to reduce carbon emissions and further improve our corporate water and climate-change reporting processes. This included assessing performance against operation-specific greenhouse gas and water targets
- Monitored management's implementation of the new ICMM accounting and reporting guidelines as well as development of appropriate company scope 3 emissions targets and commitments

The committee's priorities for the year ahead speak to ARM's long-term sustainability vision and advancing on the growth and improvements made concerning scope 3 emissions. The committee acknowledges that meeting these targets, as well as those set for scope 1 and 2, are fundamental in meeting our decarbonisation objectives.

Executing responsibilities

Based on its activities, we believe the social and ethics committee has executed its duties and responsibilities during the financial year in line with the Companies Regulations promulgated under the Companies Act and its terms of reference, and towards ensuring that management adequately integrates climate change into ARM's operations and strategy.

Working together to entrench good ESG practice

The story of ARM is one founded on sustainable development and responsible mining. Sustainability is a principle deeply integrated into our operational ethos and embedded in our strategy, influencing our approach to production and sense of responsibility. We recognise that the company's long-term success and ability to create value are inherently tied to how responsibly and ethically we act.

The traditional core factors of production, particularly in the mining industry, expand to recognise the importance of ESG factors such as the environment, human capital and our relationships with our host communities and broader society.

Effective corporate governance is crucial for managing and navigating this broader decision-making framework, ensuring transparency, accountability, and fairness

Our activities help to realise the value of the country's mineral reserves to catalyse growth and development. In the process, we are committed to operating sustainably, ethically and with full regard for the interests of our stakeholders. We are mindful of our responsibility to manage and mitigate potential negative impacts arising from our activities and operations. ESG targets are included in the remuneration packages of relevant executives to align management and stakeholder interests.

We are intent on consistently advancing our approach towards integrating sustainability and responsible production, and ensuring we remain mindful of our dedication to people, planet and profit.

We are proud to be a member of the ICMM and share its commitment to mining with principles. The board has opted to maintain its voluntary membership with the ICMM in pursuit of and alignment with practices in the sector as a member body. ARM has implemented the ICMM's sustainable development framework, and since F2019, our operations and the corporate office have completed self-assessments against the ICMM's 38 performance expectations. ARM determined that the operations prioritised for validation will follow the ESG report assurance process, with the undertaking that all operations will be subject to the external performance expectations validation process over a three-year cycle. In F2024, self-assessments of performance expectations for Bokoni and Cato Ridge Works were validated by external assurance regarding ESG information.

ARM continues to be recognised by our inclusion in the FTSE/JSE Responsible Investment Top 30 Index and the FTSE4Good Index Series.

Our approach

We are committed to contributing to global efforts to reduce carbon emissions and mitigate the physical impacts of climate change. We are equally committed to contributing to a water-secure future that is socially and culturally equitable, environmentally sustainable, and economically beneficial.

To meet these commitments each year, we strive to better monitor and mitigate our environmental impacts, improve our understanding of and response to risks and opportunities, and comply with reporting and regulatory requirements.

Given that climate change and water are inextricably linked, we house them together in this single report. For the sake of clarity, we describe our climate change and water journeys separately in this and subsequent sections. However, where relevant, we describe how the respective activities and analyses intersect.

Our climate change journey to date

The need for an urgent global response to the threat of climate change is evident across all areas of society and the economy. We are committed to being part of the solution.

Setting targets

We have taken many notable GHG target-setting steps since we first tracked and reported on GHG emission-reduction initiatives to the Carbon Disclosure Project (CDP) in 2010. In F2020, we revised our carbon emission-reduction target based on a bottom-up assessment of opportunities to reduce GHG emissions at our operations and a top-down assessment that included benchmarking against peer company targets and stakeholder expectations.

In F2021, ARM committed to achieving net-zero GHG[3] emissions (scope 1 and 2) from mining by 2050, (please refer to Figure 1: Our climate change journey to date on page 11). To achieve this commitment, we undertook to develop operation-specific decarbonisation pathways and associated short-term and medium-term targets. We recognise that decarbonisation cannot happen at all costs, particularly in the context of a developing country, and we continue working to identify contextually appropriate and just mitigation options for each operation.

We began developing these decarbonisation pathways in F2022. In F2023, we focused on improving our underlying data (projected GHG emissions) and conducting additional assessments of GHG mitigation potential. Within our decarbonisation pathways, we prioritised three main mitigation options: energy-efficiency measures, renewable energy, and emission-reducing new energy vehicles.

We used these pathways to set short- and medium-term scope 1 and 2 emissions targets, including operation-specific plans. As part of these initiatives, by F2026, we will make incremental improvements to our energy efficiency, secure large-scale renewable energy solutions and battery storage, and pilot battery electric vehicles underground.

Please refer to our 2023 climate change and water report for more detailed information on our decarbonisation pathways.

Some of our most advanced explorations have focused on different opportunities to invest in renewable energy technologies and to procure clean energy from renewable sources.

By F2030, we plan to achieve sustained energy savings, scale up existing and additional renewable energy solutions, and adopt new energy vehicle solutions, including appropriate opencast technologies.

In F2024, we focused on consolidating our scope 3 emissions accounting, building on previous work. We have also established qualitative scope 3 emissions targets and focused on developing a robust process to deliver on our value-chain decarbonisation commitments. These were developed following the newly released ICMM guidelines on scope 3 emissions accounting and target setting. Looking ahead, we will continue to revise these with an aspiration to culminate in quantitative targets set in F2027, and by promoting partnerships that enable collective action and emission reductions across our value chains.

To track our progress and performance this year, we continued to improve the functionality of our data management system. This included incorporating financial metrics and exploring options for integrating broader ESG-relevant metrics and related management activities.

We consider executive incentives as an important mechanism for ensuring our GHG targets are achieved. Targets for the reduction of GHG emissions are included in the performance conditions for the annual awards of ARM long-term incentives.

Other measures and activities underway include internal carbon pricing, energy-efficiency projects and capital allocation, and explorations into low-carbon technologies and products. These and other activities focused on supporting our decarbonisation journey are included under our climate-change strategy framework currently being developed.

Please refer to climate-change strategy framework and transition planning for further details.

In the context of these initiatives, we continue to face uncertainty regarding the reliability and cost of power supplied by Eskom and meet with its representatives in quarterly liaison meetings.

Climate and water compliance and reporting programme

ARM has been implementing its climate and water compliance and reporting activities in line with the ICMM's recommendations. In F2024, ARM continued to follow the ICMM's guidance. Additionally, we have expanded our focus areas within the context of a broader climate-change strategy framework under development and have been working to implement IFRS S2 recommendations fully. This climate-change strategy framework, built around a just transition goal, is in line with our long-term commitment and characterised by clear plans and associated resources and systems. This framework is a guide toward ensuring future targets are achieved. The following key components have been our primary focus in F2024 and are planned to continue in F2025, predominately:

- Scope 3 (improved emissions inventory and target setting considering latest developments from the ICMM)
- Decarbonisation (meeting scope 1 and 2 emissions targets through budgeting, action plans, project and monitoring)
- Capital allocation and financial planning
- Continued local economic development (LED) and enterprise development (ED) spending for improved community resilience to physical and transitional climate risks
- Compliance (both carbon budgeting and reporting of carbon tax, and mandatory GHG emissions and pollution prevention reports)
- Reporting based on the latest frameworks, standards and guidelines (including the ICMM, IFRS S2 and other assessment reports)
- Mainstreaming climate change through internal capacity building, training and awareness
- Continued water-related compliance with the ICMM requirements.

Additional areas of focus include the refinement and progression of our climate-change strategy framework.

The previous programme (F2017 to F2023) facilitated ARM meeting climate change and water regulations, various reporting expectations (including the ICMM's water accounting framework) and voluntary requirements. The programme introduced on-site awareness-raising and training workshops and engaged with internal divisions and operations on mainstreaming climate change within ARM's processes.

The programme evolved from an early focus on GHG data, risk assessments, and management reporting to a more comprehensive set of topics, ranging from scope 3 emissions management, operational physical climate-change risk and supply-chain risk assessments, as well as corporate social investment (CSI) and LED spending in host communities. As a result, our ongoing work to refine decarbonisation pathways and achieve operation-specific targets is integrated into our ambitious climate-change strategy framework (currently under development) and addressed within our decarbonisation pillar. As part of this framework, a broader suite of effective mitigation options is constantly being explored.

Please refer to climate-change strategy framework and transition planning for further details.

[3] *This includes ARM's scope 1 and 2 emissions associated with operations under direct or joint direct operational control.*

Our approach continued

Managing risks

Over the last 24 months, building on the climate-scenario analysis first done in F2021, we have made notable progress in explicitly incorporating climate change into our enterprise risk management (ERM) processes. We have started engaging with businesses to highlight the need to explore operation-specific impacts from projected physical climate changes. We will undertake a second scenario analysis in F2026 to inform our response and strategy towards climate change and will consider more quantitative aspects to this analysis than previously.

Extreme weather events (eg heavy rainfall, drought, flooding) have already affected most of ARM's mining sites (see Table 2: Responding to climate-transition and physical risks and opportunities on page 35).

By assessing different climate futures, we are gaining a more robust understanding of the physical climate risks to which some of our operations and suppliers will be exposed. We have considered increased operational costs associated with these risks in our short-term strategy, as well as regulatory changes and market demands in our medium-term strategy. Additionally, our work involves exploring appropriate response measures and developing systems to ensure more structured, ongoing assessments of climate risks through corporate webinars, operation training webinars, and operation-specific workshops. Please refer to Integrating climate-change risk into ARM's ERM processes on page 37 for further details.

Reporting

One of our primary focus areas involves improving our accounting and reporting processes. Last year, we improved emissions accounting at Cato Ridge Works, where process emissions represent 44% of ARM's scope 1 emissions and 10% of its scope 1 and 2 emissions on an operational-control basis. Operations and investments outside our operational control are again included under the scope 3 emissions categories. This includes emissions associated with coal investments (based on percentage equity in Goedgevonden (GGV), Participative Coal Business (PCB), ARM Coal, Harmony and Sakura).

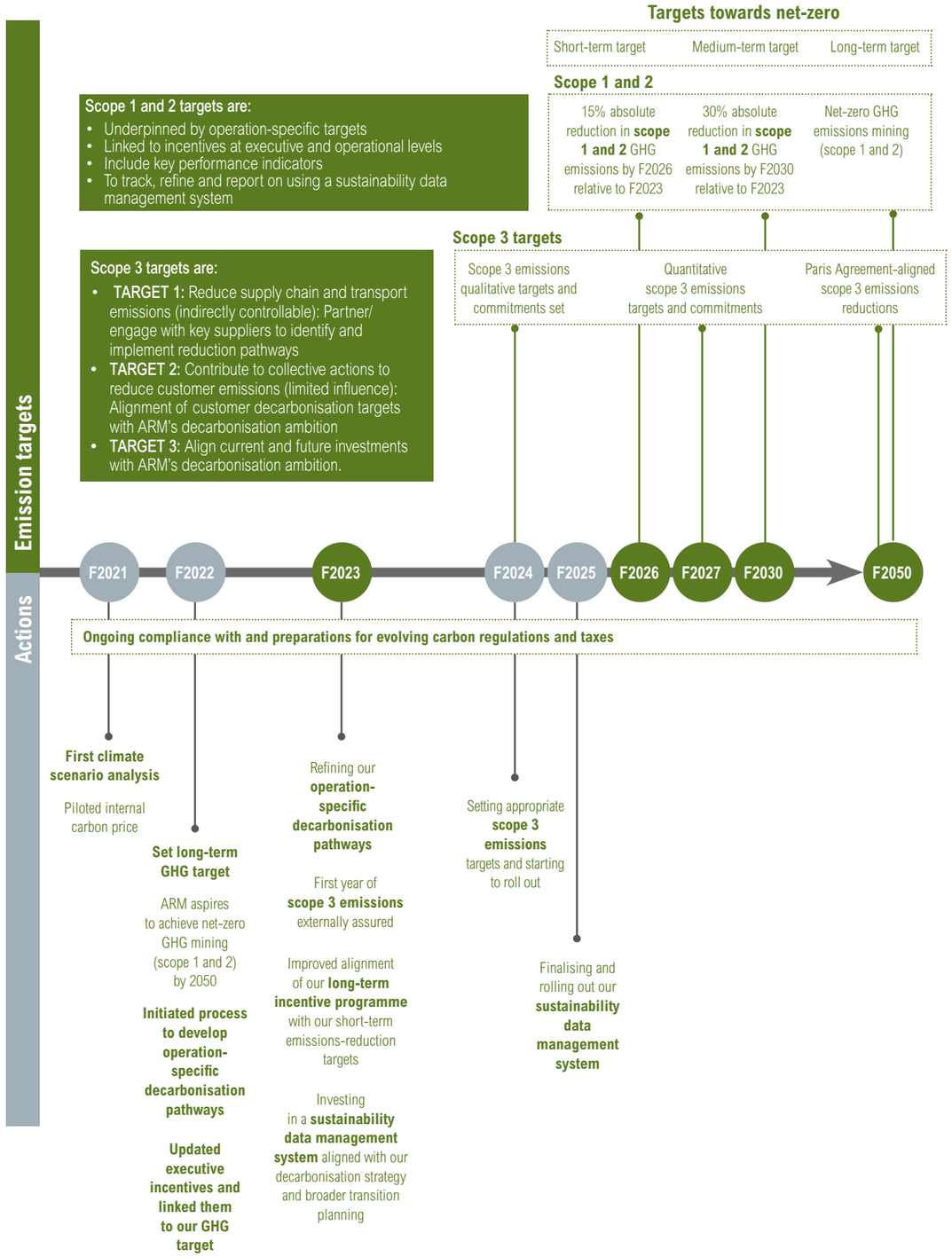
A primary focus of this year's work has been to improve our scope 3 emissions inventory in line with the latest ICMM *(Scope 3 Emissions Accounting and Reporting Guidance, 2023)*. To achieve this, we have assessed our scope 3 emissions categories to understand which are material to our business. Although categories 5 (waste), 6 (business travel) and 7 (employee commuting) are considered not material to ARM, we have continued to report for risk management purposes and completeness of reporting. To facilitate this shift, we are working closely with operations to ensure the collection of accurate data on the volumes of key purchases categories (to inform accounting of emissions for categories 1 and 2) and collaborating with partners to report for the first-time emissions of our sold products under the platinum division. Our scope 3 emissions are externally assured.

In parallel with this work, we have engaged with our operations and management to discuss setting qualitative scope 3 emissions targets in line with the ICMM *Scope 3 Emissions Target Setting Guidance* (2023). This has seen us conduct an extensive internal stakeholder engagement process to collect inputs towards our targets. Our approach has been focused on developing a solid process and setting our commitments, with an intention to set scope 3 emissions quantitative targets by F2027.

We continue to comply with the South African carbon budget requirements. In previous years, we complied with phase 1 of the carbon budget (voluntary, non-legislated phase) and the Department of Forestry, Fisheries and the Environment's (DFFE) extension phase, while working to align with the legislated phase 2 of the carbon budget. In F2023, we received confirmation of our extension-phase carbon budget, which covers calendar years 2020 to 2024. The DFFE used its product-level carbon-intensity benchmark to provide a draft carbon budget for our smelters. We have had a series of engagements with the DFFE about this draft budget, but it has yet to be finalised. We also have yet to receive a carbon budget for our mines, and mandatory carbon budgets are likely to come into effect now that the Climate Change Act 22 of 2024 has been promulgated and awaits commencement under section 38. Until the budgets are finalised, we will continue to comply with existing requirements, prepare for future budgets, engage with the DFFE and interrogate its budget-allocation methods. Alongside the carbon budget, we are awaiting the allocation of sectoral emissions targets (SETs) – emissions-reduction targets specific to different sectors, mining included, that will also apply to ARM. These SETs are considered a key mechanism for achieving the emissions reductions expressed in the nationally determined contributions (NDCs).

We are also developing a formal data management system to help us manage our energy consumption and GHG emissions, building on a process we initiated in F2020. Over the years, we have been improving its functionality and expanding it to cover broader sustainability metrics. We started to incorporate financial metrics to inform the prioritisation of decarbonisation measures and to aid the development of our decarbonisation pathway. We are now moving towards using the system to track the progress of targets associated with operation-specific decarbonisation plans and to identify cost-effective opportunities for improving energy and emissions performance.

Figure 1: Our climate journey to date



Our approach continued

Figure 2: Our low-carbon products

Our products are contributing to a low-carbon future

Saving energy, reducing emissions	Enabling the hydrogen economy	Strong energy efficiently
• Higher-quality ores optimise production and generate lower emissions • Our high-grade manganese requires less energy to process.	• Hydrogen fuel cells use platinum to generate energy from hydrogen and oxygen, water is the only emission • Our platinum can be used to create hydrogen fuel-cell electric vehicles, which offer a zero emissions alternative to the internal combustion engine.	• Lithium-ion energy storage supports the growth of renewable energy and electromobility • Our nickel and manganese are used in these batteries.

Our water journey to date

Water is essential to all mining and metals operations. We are increasingly exposed to water-related risks that could affect production, increase costs, constrain growth, disrupt our supply chains, and place our communities and employees under strain. ARM remains committed to this water journey, with no significant changes or updates to report.

Our proactive and holistic water-management strategy facilitates how we sustainably manage our water resources. It is built around identifying and mitigating water-related risks, exploring opportunities, and engaging with partners to achieve collective action. We focus on water balances, a hierarchy of water uses, and minimising the withdrawal of clean, potable or municipal water. Our goal is to recycle 100% of water – excluding losses due to evaporation, seepage and entrainment – and to have no uncontrolled discharges. This year we had three high-impact (level 4) incidents.* There was one discharge incident at Machadodorp Works and two discharge incidents at Nkomati Mine, both of which followed protocol and were reported to the relevant authorities (see Table 15: Main water measures at ARM's operations on page 68).

Setting targets

As an ICMM member acting in line with its specific requirements, and our water stewardship policy (page 58), we use water targets to better manage our withdrawals, consumption, outputs and reuse efficiency. Our initial target was set at the ARM level in F2018. It included a 10% reduction of potable water withdrawals (surface and municipal sources) by F2020, relative to a baseline (set at F2011 levels; please refer to Figure 3: Our water journey to date on page 13).

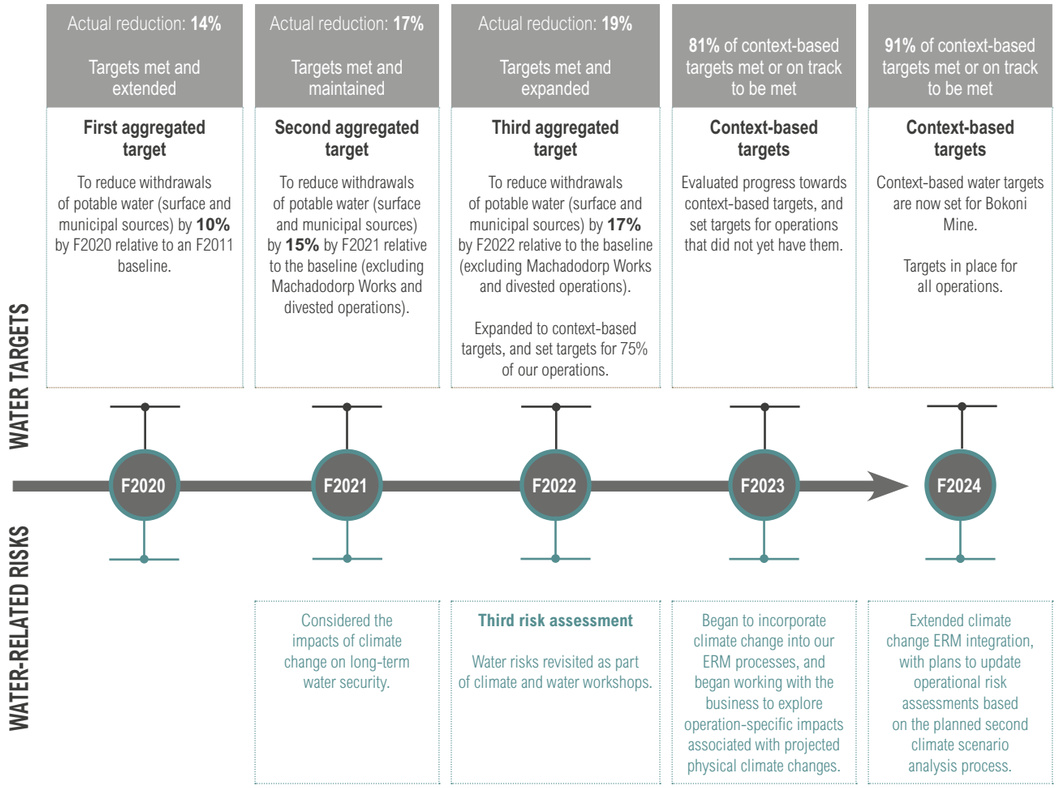
Over the ensuing years, we increased the ambition of this target in F2020, aiming for 15% less than the baseline by F2021 and, in F2021, aiming for 17% less than the baseline by F2022. In both instances, we met the targets and exceeded our ambition. However, without covering the multidimensional risks specific to each operational context (as mines in the same catchments can face different water challenges), our operations did not find the targets useful for measuring and driving their water performance.

To remedy this, as a next step on our target journey, we focused on setting context-based water targets for operations with material water-related risks. Since F2021, and following the ICMM guidance, we have worked with operations and technical teams to develop process-oriented targets that include commitments for stakeholder engagement, and that detail collective action to address community access to water. By F2022, we had set context-based water targets for 75% of our operations, and this year, by setting targets for the Bokoni Mine – which began its operations in September 2022 – we have now set context-based water targets for 100% of our operations.

As in previous years, we evaluated the progress made towards these targets through operation-specific workshops. 91% of these targets have been met or are on track to be met.

* *Definitions are described under water discharge incidents on page 77.*

Figure 3: Our water journey to date



Reporting

Through all our initiatives, we report on water using the ICMM water accounting framework guidelines. Until F2022, our reporting was based on the 2019 guidelines, but in F2023 we began reporting data according to the revised guidelines.

Our approach continued

Managing risks

An essential ARM activity focuses on water-related risks and opportunities, which we consider at company and asset levels. In F2017 and F2018, we completed site-specific risk assessments at Beeshoek, Black Rock, Khumani, Nkomati, Modikwa and Two Rivers mines as part of a water-performance and reporting gap analysis and compliance project. In F2019, we used the WWF water risk filter[4] as part of climate and water workshops. From F2023, we used detailed projections to understand the impact of climate change on our business's resilience. These projections included considering different water-related futures (eg projected average annual rainfall, peak rainfall intensity, evapotranspiration, droughts) for each operation.

Details of emerging or ongoing risks and/or opportunities and our capacity to manage these are discussed at our quarterly management risk and compliance committee meetings as well as social and ethics committee meetings. The outputs and decisions of these feed directly into the climate-change strategy framework development process. Moving ahead, we are working on incorporating both water and climate change into the ERM process as part of the resilience pillar under our climate-change strategy framework.

We are also increasingly looking beyond our operational borders to manage risks. In F2024, we continued reassessing water-related risks in our supply chain, based on the results of our climate-scenario analysis of F2021. We are also using a catchment-level approach to manage some of the significant catchment-level water risks that certain operations face. These risks include poor existing infrastructure, lack of funding and capacity to deliver new infrastructure, and the impacts of climate change on water supply. Ongoing and planned mitigation measures include both the installation of reverse-osmosis and water-treatment plants at several operations (including Machadodorp Works, Cato Ridge Works, Nkomati and Bokoni mine), lining dams and monitoring surface and groundwater quality to ensure compliance with water use licence (WUL) conditions. We regard water availability, consumption and pollution as key risks and include these in operational and corporate risk registers, tailored to operational risk contexts. Additionally, we have 13 TSFs across our operations, with our standards and policies aligned with the GISTM (see page 70 for more information).

We continue to partner with local and regional government structures, where appropriate, to mitigate water risks outside of our mine boundaries.

Water stewardship and community resilience

Investors and other stakeholders are increasingly calling for greater insight on catchment-level water balances, including projected demand and supply, as well as water-quality elements. ARM's commitment to water stewardship drives our engagements with various stakeholders to find solutions appropriate to all water users' needs and to ensure the sustainability of water resources and consideration of these critical stakeholders across our projects and operations. These stakeholders include: the Department of Water and Sanitation (DWS); local communities; authorities at local, provincial and national levels; water forums; irrigation boards; catchment management agencies (CMA); farmers and other industry users.

Engaging with communities helps us understand and mitigate their concerns, identify how we can contribute to community water security, and increase the transparency of our operations. Along with our joint-venture partners, and through our operations, we invest in local water infrastructure to improve community access to sufficient potable water and increase community resilience. Through the ARM rural upliftment trusts, we fund various water-provision projects, including sinking and equipping boreholes for schools and communities across South Africa.

Following our climate-scenario analysis, we are investigating opportunities to improve community resilience against water-related impacts through our LED and CSI programmes. These have the additional benefit of improving community relations and strengthening our social licence to operate.

In F2023, we began piloting the ICMM water stewardship maturity framework at ARM operations (see case study on page 67). This was rolled out in F2024 at Beeshoek and Bokoni to both standardise our best practices and effectively manage water as a shared resource.

External water-reporting requirements have evolved, and ARM continues to align with those relevant to our operations. Substantial work has been undertaken by the owners of various reporting initiatives to align reporting platforms and metrics. In F2021, the ICMM updated its water reporting good practice guide, which includes guidance for more holistic and aggregated reporting. As an ICMM member, we responded to this by sensitising our operations to the changes and we have followed the guidance in our reporting since then. The ICMM conducted a mid-point metrics-only conformance review in May 2024 against water-reporting commitments. No gaps were observed in ARM's water reporting against the ICMM water reporting guidance.

For improved accounting and clarity, since F2023, we have distinguished between operational water withdrawals (water that enters the operational water system used to meet operational water demand); and the withdrawal of other managed water (water that is actively managed without intent to supply operational water demand) (page 83). We continue to report on aggregated water metrics for all sites, as well as collect and report on changes in operational water storage.

In F2024, we reviewed our climate-related reporting against the IFRS S2 framework and FTSE-Russell index to improve our alignment with their guidance and standards of reporting. We have also ensured compliance with updates to the ICMM's water accounting framework (WAF), released in 2021.

Annual climate-change and water workshops

As part of our climate and water compliance and reporting programme, we conduct annual workshops with each division and operation, facilitated by an external specialist consultant. Representation at these workshops includes senior management, engineers, the corporate environmental manager, on-site environmental managers, the executive: sustainable development and divisional safety, health, environment and quality (SHEQ) managers. Considering the interconnectivity of climate change and water within our operations and our updated reporting and compliance programme, in F2024, these issues were combined in a dedicated workshop per operation.


Bokoni Mine

[4] *WWF's water risk filter (https://waterriskfilter.panda.org) is an online tool that helps companies and investors assess and respond to water-related risks facing their operations and investments across the globe. The tool rates operational and basin risk on a scale of 1 to 5 and considers physical, regulatory and reputational water risks. Aggregated risk scores for catchment areas are computed by applying industry-specific weightings. Operational risk scores are calculated based on operation-specific responses to the WWF water risk filter questionnaire.*

Governance

The ARM social and ethics committee provides oversight by monitoring and reporting on the manner and extent to which we protect, enhance and invest in the wellbeing of the economic, social and natural environments in which we operate.

Black Rock Mine

Oversight

Dr Rejoice Simelane, is chairman of this committee, which is responsible for the broad oversight of climate change and water.

The responsibility for implementing ARM's initiatives rests with the chief executive officer (CEO), who in turn delegates to the chief executives of each division and the ARM executive: sustainable development. This executive is responsible for developing, implementing and reviewing ARM's sustainable development policies, strategies and targets, including our revised GHG and water targets. She ensures these targets are aligned with the board's commitment to zero tolerance for harm to employees, host communities, and the environment.

Assmang, a joint venture between ARM and Assore South Africa Proprietary Limited, has a social and ethics committee that monitors its sustainability performance. It is chaired by the ARM executive: investor relations and new business development. It reports to the Assmang executive committee and board, as well as the ARM social and ethics committee. In the ARM Platinum division, every operation has a sustainable development committee. This is chaired by the ARM executive: sustainable development and reports to the executive committee or board of the respective joint venture, as appropriate, as well as to the ARM social and ethics committee.

Climate-related issues are reported to the ARM social and ethics committee and remuneration committee, and included on the agenda of quarterly board meetings. Recent meetings have considered:

- ARM's operation-specific decarbonisation pathways and associated short- and medium-term emission-reduction targets
- Although no amendment was proposed to the methodology for determining the climate-change target, the baseline for the F2025 awards will change
- Recommending the annual ESG and climate change and water reports to the board
- Receiving/monitoring quarterly reports on climate-change and water performance and compliance.

The timing of our climate-change risk management process is aligned with our assurance and corporate governance requirements. However, climate-risk management takes place continuously through all phases of our work and with every major change in our business and operations. All ARM-managed operations and divisions conduct quarterly risk reviews as part of the ERM process. These are supported by six-monthly corporate risk reviews and an annual group-level risk workshop. Climate-specific processes to augment these steps include annual climate and water risk assessments and management workshops with the divisions and operations, as well as climate-scenario analyses to explore the long-term transition and physical risks associated with different climate futures. The management risk and compliance committee (a committee of the ARM audit and risk committee) monitors our ERM process, which includes climate-change risks. Company-level risks, such as evolving climate-change mitigation regulations (including the carbon tax and carbon budgets), are tracked by the sustainable development department.

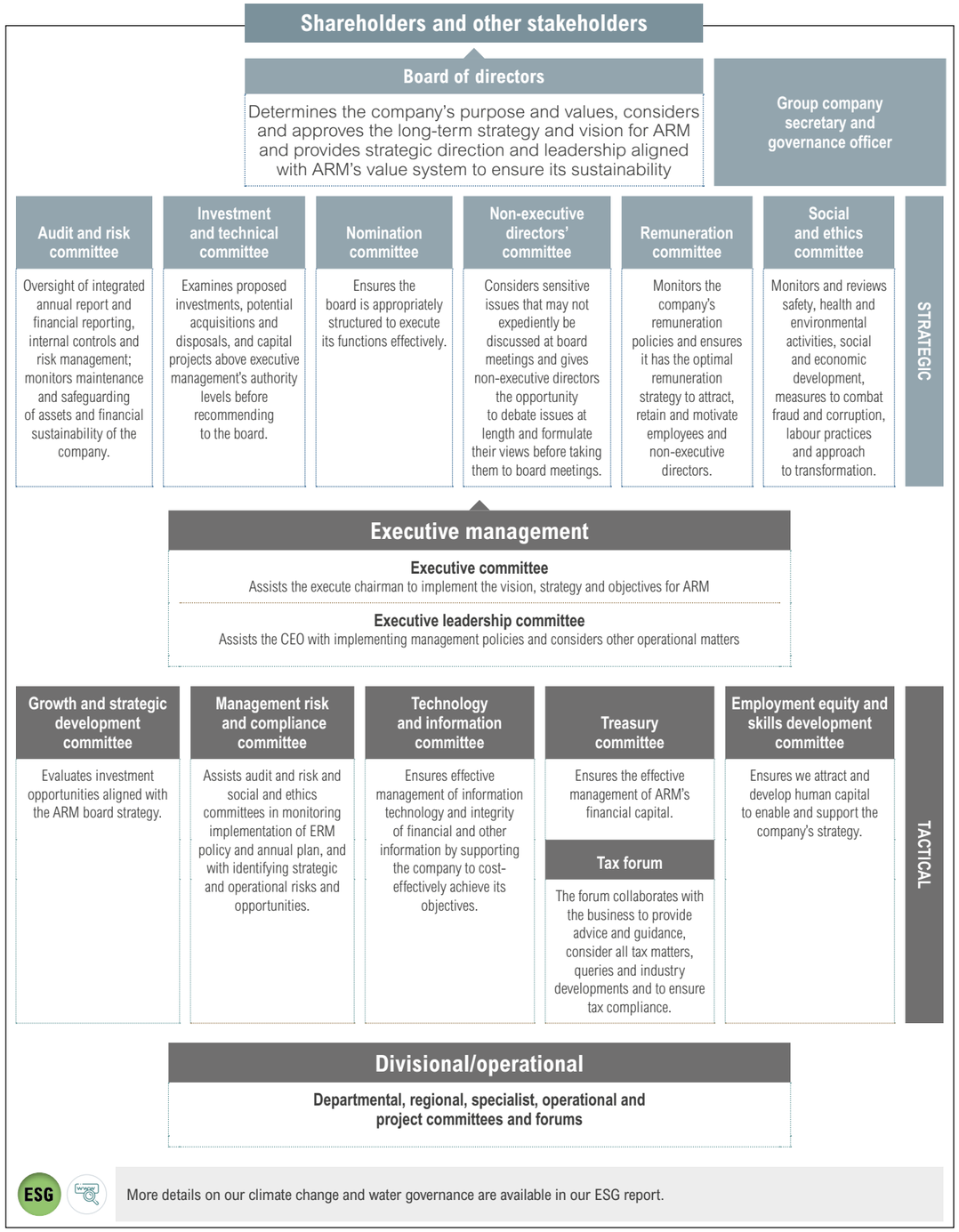
The executive: sustainable development also reports to the management risk and compliance committee on matters related to climate change and carbon emissions. This includes an update on carbon tax and progress on developing of decarbonisation pathways.

We continue to disclose our performance according to the TCFD-based disclosures framework. We have also completed an initial climate-scenario analysis process and set a long-term emission-reduction target in line with the Paris Agreement's goals.

Our current focused programme to comply with new climate-change regulations, as well as non-negotiable but voluntary requirements and reporting expectations for climate change and water, originated in 2017. It has continuously been reviewed and updated. Given that regulatory and voluntary requirements are related, we are embedding a methodical process for developing systems and reporting as well as building capacity to meet current and evolving requirements.

We continue to report data according to the revised ICMM WAF. The corporate environmental manager and climate change and water consultant are members of the ICMM water working group, which considers emerging issues driven by new legislation or society, and uses these to develop corresponding good practices, policies or position statements for collective industry.

Figure 4: Governance framework



Delivering on our decarbonisation ambitions

To deliver on our commitment to net-zero GHG emissions from mining by 2050, we are developing a robust decarbonisation roadmap as part of our climate-change strategy framework, under development. This includes decarbonising our operations and value chain, and ensuring compliance with related regulations. Part of the actions to deliver on our ambitions are decarbonisation pathways, company and operation-specific targets, and a series of enablers or tools, such as transparent governance and reporting structures, to ensure that we meet those targets.

We regard incentives as a critical enabler of our decarbonisation roadmap and are using the ARM long-term incentive plans (LTIPs) (which include the 2018 conditional share plan (CSP) and the 2018 cash-settled conditional share plan) and operational key performance indicators (KPIs) to ensure our employees are sufficiently incentivised to achieve our short- and medium-term targets and support our long-term commitment. For each operation, we have developed specific targets associated with specific projects.

We strive to attain greater clarity and coherence between ARM LTIP GHG performance criteria and these on-the-ground actions, and ensure that ARM executives have a clear understanding of what they are expected to do at the operational level to contribute to positive LTIP performance outcomes. As in previous years, the climate-change targets in the LTIPs are linked to ARM's short-term GHG reduction target.

ARM's short-term GHG reduction target is expressed as a 15% reduction in absolute greenhouse gas emissions by F2026 relative to F2023

CCW

The detailed emissions targets and decarbonisation pathways are described in our 2023 climate change and water report

The GHG-related performance conditions in the LTIPs are described in the remuneration report in the 2024 ESG report. Executive remuneration is, therefore, explicitly aligned with ARM's decarbonisation roadmap, which is a key pillar of our climate-change strategy framework, currently under development (page 29).

Going forward, we will continue to refine the remuneration systems described above and will also allocate capital to decarbonisation, in line with our climate-change strategy framework.

Assurances

KPMG Inc. provided independent limited assurance over selected performance information and related disclosures in our 2024 ESG report. This assurance was aligned with the ICMM mining principles, ICMM assurance and validation procedure, GRI Standards, and international assurance standards for sustainable development assurance engagements (ISAE 3000 and ISAE 3410).

The climate change and water-related indicators assured in F2024 included total scope 1 and 2 GHG emissions (100% basis), total scope 3 emissions, total energy used, total electricity consumption, total diesel consumption, and total volume of water withdrawal.

The emission savings associated with our reduction initiatives have also been subjected to independent third-party assurance. Our performance on our F2024 emission-reduction target and the associated executive share incentive are based on actual (reported) emission reductions relative to a business-as-usual baseline. Carbon emission-reduction initiatives implemented over a particular period are included in the scope, but only if they are active at the end of the period. The target is at a company level. This means there are no operational targets, but that savings from our operations are aggregated to determine company-wide performance.

Khumani Mine

Stakeholder engagement

Supply-chain engagement

We have always worked closely with our key suppliers to ensure we collectively strive to mitigate climate risks in our supply chain, and that we use the best technology available. We understand that relevant and new technology might help our operations increase energy efficiency, reduce our GHG emissions, or increase our resilience to physical climate-change risks.

We use supply-chain emissions and risk studies to determine climate-change performance and better understand and manage climate-change risks. Conducted between F2019 and F2022, we have progressed from a focus on our operations' top five suppliers' emissions by spend, to a preliminary assessment of supply-chain risk in our climate-scenario analysis and, in F2022, considering physical climate-change risks. Through our current bottom-up and top-down approaches, we identify the priority suppliers for analysis, including modelling impacts, assessing risk profiles and proposing mitigation (or other) recommendations.

The growing emphasis on scope 3 emissions in the sector and related ICMM guidance on scope 3 emissions inventory (released in 2023), having influenced our decision to focus on improving our accounting in this regard. In F2022, we drew on expenditure and leveraged relevant emission factors to achieve more complete assessments of scope 3 emissions categories 1 (purchased goods and services) and 2 (capital goods). In F2024, we built on these initial assessments through an extensive stakeholder engagement process with our operations, to identify key purchases categories and collect volume data to improve our accounting for categories 1 and 2. Additionally, this year, we have applied industry-available emission factors (EFs) at a product-level for the key purchases categories, and intend to move towards applying more specific EFs through further engagement with suppliers in F2025.

In addition to improving our inventory of scope 3 emissions, we have also set qualitative targets for our scope 3 emissions, which are in line with ICMM guidelines. This is an initial process that will involve profiling suppliers from F2025, on their response to climate-change risks and opportunities.

In addition to supplier profiling, as part of our strategic approach to risk management, we are exploring climate and water risks in our supply chain. This is included in our broader climate-change strategy framework, and includes a specific focus on resilience – of our operations, our community and our value chain (please refer to the climate resilience section on page 32). Under this framework, we are looking into performing an initial assessment and mapping of supply-chain risks across operations in F2025, engaging with suppliers and developing appropriate mitigation measures to address the risks identified.

The security of electrical supply in South Africa is a material risk, specifically the reliability and cost of power from Eskom, our primary supplier of electricity, which has demonstrated and reported problems in its financial and operational management. There is uncertainty about the utility's future given that Eskom is currently structured as a vertically integrated electricity utility, encompassing generation, transmission and distribution.

However, there are far-reaching plans to restructure the electricity supply industry so that it comprises: a diversified, competitive generation sector; an independent transmission system operator; an independent market operator; an electricity, capacity and ancillary services market; and an electricity trading and distribution sector.

Public/policy engagement

ARM supports the move to a low-carbon economy and is committed to constructively engaging with the South African government on measures aimed at achieving this. Important issues to consider in South Africa, however, would be the use of carbon tax to support targeted mitigation actions, alignment with other mechanisms such as carbon budgets, and clarity on how these mechanisms will integrate.

ARM engages with the DFFE and has been supportive in disclosing information that fed into the design of various climate-related policy developments. There is also further engagement in these processes through industry associations.

Participation in business and industry initiatives enables collective engagement with regulators and stakeholders and promotes benchmarking and sharing good environmental practices. ARM participates in several initiatives, including the Minerals Council South Africa (MCSA) and its environmental policy committee, the Ferroalloys Producers Association, and the ICMM.

Participation in these initiatives, as highlighted by stakeholders and various reporting frameworks, is integral to maintaining consistency between our climate-change policy and positions taken by our industry associations. Considering this, our involvement in these associations is a sharing and learning opportunity, as well as an advocacy mechanism for engaging with the development of climate-change policy. Considering the importance of ARM within the sector, and our reporting and stakeholder responsibilities, we have committed to developing robust internal structures to avoid any incidents of misalignment in our associations and memberships. We will explore the development of a detailed study on our positions relative to these associations and will provide further communication on the outcomes.

We will publicly disclose where our position, from that of the ICMM and the MCSA differs on climate change. In such instances, the structure of these associations and ARM's senior involvement within the councils grants our decision-makers effective levers of influence and agreement to ensure full alignment with our position.

We continue to engage as an active member of the ICMM through the climate change and water working groups. We provided feedback and comments on drafting the ICMM's scope 3 emissions GHG accounting and reporting guidance for the mining and metals sector, published in December 2023. We also provided input and reviewed the MCSA position statement on climate change, and member guidelines for the climate-change action plan, which were published in February 2023. Our policy and commitments are aligned with the ICMM, and we have further committed to updating our long-term target in line with any updates to the ICMM climate-change position statement.

In F2022, we reviewed the climate-change positions of industry associations to which ARM belongs. We assessed the climate-change policies and positions of the five industry associations of which ARM is a member or where our joint ventures are members to see how these align with ARM's climate-change policy/commitments. We found that ARM's positions are largely congruent with most other industry associations that have public positions on climate change.

We also found positions on carbon pricing to be largely outdated or absent, and that most South African industry associations reviewed oppose the design of the carbon tax or seek greater certainty.

We believe these engagements with industry associations and, by default, our peers are an embracement of responsibility and continue to influence our drive for innovation, integration of best practices and top-level accountability.

ARM can continue to benefit from engaging with these associations to learn about climate-change policy developments for industry and to help shape the enabling environment and demonstrate climate-change leadership.

Engaging with our partners

We work with our joint-venture partners to collectively assess and mitigate climate-change risks and capitalise on climate-related opportunities. This includes ongoing management interactions during the course of business, depending on the shareholder agreement.

Our joint-venture partnership with Assore South Africa provides access to important industry initiatives such as life-cycle assessment and life-cycle inventory studies, waste-management initiatives, and energy-efficiency initiatives of the International Manganese Institute.

In F2020, we disclosed for the first time GHG emissions from our direct investment in coal and ARM Coal operations, managed by Glencore. In F2021, we expanded disclosure to cover our interest in Harmony Gold and, in F2022, we expanded it further to cover our interest in Sakura.

We adhere to the highest ethical and governance standards in dealings with all stakeholders, including our joint-venture partners.

As part of our work on improving our scope 3 emissions inventory, we have engaged with our partners to enhance the collection of accurate data on the processing of sold products (category 10) in our platinum division. Further engagements were held to collect data required to report on emissions associated with our investments (category 15) in Sakura, Harmony and Glencore.

As we refine our scope 3 emissions targets in coming years, partner engagement will be a crucial aspect of our work. Our targets set in F2024 are aligned with ARM's and partners' existing GHG reduction ambitions (the latter is a work in progress and will continue to be refined in coming years through extensive engagement). Together with our internal and external stakeholders and partners, we will establish shared ambitions and develop plans and agreements to achieve our goals and targets, where possible.

Climate change

CLIMATE CHANGE

In the last two financial years, and galvanised by our net-zero commitment, we have seen significant mainstreaming of climate change across the organisation. Employees across our operations are working more coherently towards the same goals. We have started a process to develop a climate-change strategy framework to guide our actions and ensure we are moving towards achieving our goals. Additionally, we have improved our scope 3 emissions inventory and developed scope 3 emissions qualitative targets.

ARM Platinum Photovoltaic Solar Facility

Our position on climate change

At ARM, we are keenly aware of the critical global challenges that climate change presents and the effects they may have on our business, our stakeholders and the world.

As a result, we are committed to participating in the global response to reduce carbon emissions and mitigate the physical impacts of climate change. We view climate change as a business imperative and are grateful that this agenda is centre stage.

We have implemented robust processes to measure and report on carbon emissions at our operations and identify opportunities to reduce these emissions. We are actively developing technology and processes to enhance energy efficiency at our operations while improving fuel efficiency and reducing our carbon footprint through other targeted initiatives.

To meet our short-term targets, implement best practices noted across the industry and through our ICMM membership, we are investing in renewable energy across our operations to produce tangible and practical solutions.

We are not making any new coal investments and will continue running existing assets to the end of their current economic lives. We are continually looking for opportunities to be more responsible and efficient in our coal-related activities, as well as the production of metals critical to a low-carbon future. We are exploring and investing in energy transition and critical minerals that could be value accretive (eg copper and nickel).

Our climate-change policy recognises:

- The need for an urgent global response to the threat of climate change across all areas of society and the economy. We are committed to being part of the solution
- The need to support the Paris Agreement's goals to limit the increase in the global average temperature to 2°C and pursue efforts to limit it to 1.5°C
- The critical role of the mining and metals sector in supporting the global transition to a low-carbon economy by contributing to the sustainable production of commodities essential to the energy and mobility transition, working with partners and key suppliers along our value chains
- The need to reduce emissions from the extraction and use of mining products and support collaborative market-based approaches to accelerate the use of low-emission technologies as part of a transition to a low-carbon energy mix
- The practical challenges that South Africa, as a developing country with domestic supplies of fossil fuels, will face in making that transition to a low-carbon economy
- That climate and energy policy should be technology-neutral and rely on market-based approaches to enable least-cost abatement solutions
- The vital role that a broad-based, predictable, long-term carbon price can play, alongside other market mechanisms, in driving the reduction of GHG emissions and incentivising innovation
- The importance of providing climate-related disclosure to measure and respond to climate-change risks and opportunities. We welcome the transparency on opportunities brought by the TCFD and, more recently, through the IFRS S2 climate-related disclosures
- The prioritisation of emission-reduction initiatives and technologies, recognising the role of carbon offsets in hard-to-abate emissions
- The role of a circular economy in reducing emissions associated with the extraction and use of mining products by increasing resource efficiency in production and promoting reuse and recycling.

We commit to:

- Engaging with our peers, governments and others to develop effective climate-change policies. We support the movement towards a low-carbon economy and are committed to constructive engagement with governments on measures aimed at achieving this. Important issues still under consideration and discussion with governments include using carbon tax to support targeted mitigation actions, alignment with other mechanisms such as carbon budgets, and clarity on carbon tax allowances and offsets
- Implementing governance, engagement and disclosure processes to ensure climate-change risks and opportunities are considered in business decision-making
- Supporting carbon pricing and other market mechanisms that drive the reduction of GHG emissions and incentivise innovation. We support global efforts to address systemic challenges that inhibit this transition, such as a lack of willingness to pay for lower-carbon products; limited alternatives and options to reduce emissions, especially in hard-to-abate industrial sectors; and a lack of incentives and support to facilitate expensive, long-term investments in new technologies and processes. These will require collective efforts, and we will collaborate, to the extent appropriate, to drive the changes necessary to achieve a net-zero carbon industry
- Demonstrating leadership by advancing operational-level adaptation and mitigation solutions through, for example, researching, developing and piloting new technologies
- Engaging with host communities on our shared climate-change risks and opportunities and helping host communities adapt to the physical impacts of climate change
- Supporting initiatives to mitigate GHG emissions, both in collaboration with our peers and individually, by promoting innovation, developing and deploying low-emissions technology, and implementing projects that improve energy efficiency and incorporate renewable energy supply in our energy mix
- Disclosing scope 1 and 2 emissions annually and setting emission-reduction targets informed by the scientific requirements to achieve the 1.5°C by 2050 global temperature goal, and associated work towards a net-zero carbon industry
- Engaging with stakeholders to determine a preferred approach to reporting scope 3 emissions and exploring our role in reducing those emissions
- In F2021, our first scenario-analysis process informed a range of commitments towards reducing GHG emissions across our value chain. This year, we have set scope 3 emissions targets in line with the ICMM guidelines
- Since F2022, we have significantly improved our scope 3 emissions accounting, and we continue to implement new ICMM guidelines
- Supporting the global transition to a low-carbon economy by contributing to the sustainable production of commodities essential to the energy and mobility transition, and by working with partners and key suppliers along our value chains.

Black Rock Mine

Strategy

Our business strategy

Our business strategy is to deliver competitive returns and sustainable value by:
- Operating our portfolio of assets safely, responsibly and efficiently
- Allocating capital to value-creating investments
- Focus on value-enhancing and integrated growth.

Our climate-change strategy framework and transition planning

Originally, climate change was purely a focus on sustainability, but it is increasingly presented in other areas such as capital allocation and investments, community development, procurement, finance and more.

In F2024, we have focused on consolidating and refining different aspects of our transition efforts through the ongoing development of a climate-change strategy framework. This framework is being developed to help guide our actions and priorities as we move towards achieving our targets and shifting our business towards net-zero by 2050. The framework considers the need for a just transition at the centre of our vision. Particularly, considering our position in the Global South, the need to ensure a transition that is equitable and fair becomes even more relevant to our business and our role in Africa. This is encompassed by three strategic pillars focused on 1) decarbonisation of our operations and value chain; 2) resilience of our business, community and value chain; and 3) our products (diversification of our portfolio).

We are working to consolidate these in line with the guidance of the Transition Plan Taskforce (TPT), giving emphasis to the definition of our ambitions and actions and ensuring proper tools or structures (working as enablers) are in place, besides the clear allocation of roles and responsibilities to implement these. The decarbonisation strategy section below details some of the elements of our climate-change strategy framework evolving for decarbonisation, and the section on resilience expands on some of the specific actions being planned and executed in line with this framework. As we refine and further advance it, we will report progress in coming disclosures.

Decarbonisation strategy

The development of our decarbonisation pathways and establishment of short- and medium-term targets marries actions with our long-term commitment. We are focusing on ways to implement these pathways, including allocating capital to renewable energy and other measures, developing executive incentives to drive operational action, and developing data systems to improve the quality and efficiency of our reporting. These actions are being explored as part of our climate-change strategy framework under the decarbonisation pillar. Our ambitions for decarbonising our operations and our value chain include a wide range of actions and enablers – tools and structures – to support the achievement of our short-, medium- and long-term goals.

In mitigating the risks associated with climate change, we are also exploring harnessing opportunities to respond to the demand for low-carbon minerals. This is reflected in the organisation of our priority pillars, which go beyond decarbonisation to look at our portfolio of products and the resilience of our operations, value chain and community.

In F2024, we worked across operations to implement our decarbonisation pathways. This remains our focus for the coming years as we strive towards achieving our targets and seeing an effective reduction of our operational scope 1 and 2 GHG emissions.

The importance of the emissions associated with our value chain (scope 3) is equivalent to that of our operational emissions. This is reflected by our climate-change strategy framework objective to decarbonise our value chain. This year, we made significant progress by setting scope 3 emissions qualitative targets and further improving our scope 3 emissions inventory, in line with ICMM guidelines. Stakeholder engagement is a critical aspect of this work, as achieving our targets and delivering on strategic objectives requires collective efforts of internal and external parties, including our suppliers and partners.

Operation-specific decarbonisation pathways (scope 1 and 2 decarbonisation)

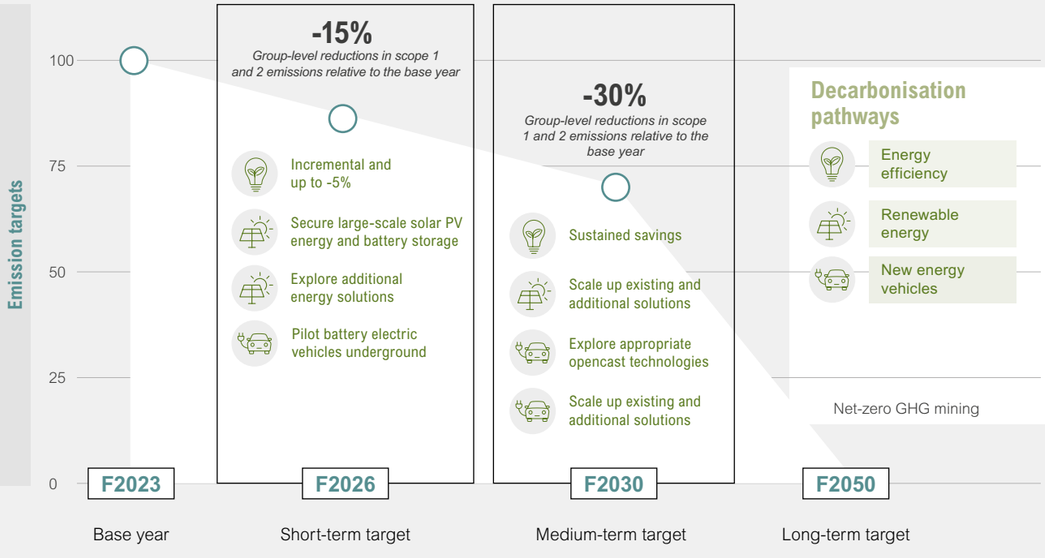
ARM followed the October 2021 commitments of the ICMM to net-zero scope 1 and 2 GHG emissions by 2050 or sooner, in line with the ambitions of the Paris Agreement, and committed to achieving net-zero GHG emissions (scope 1 and 2) from mining by 2050. Since F2022, we have initiated decarbonisation pathways (operation-specific measures to reduce GHG emissions over time) with short-term and medium-term targets for operations where ARM has operational or joint operational control: Beeshoek, Khumani, Black Rock, Two Rivers Platinum, Modikwa and Bokoni mines and Cato Ridge Works. Machadodorp Works and Nkomati mines are excluded due to being on care and maintenance. In F2023, we improved the underlying data, conducted additional GHG mitigation potential assessments, prioritised options and set targets, including the integration of new targets into the ARM LTIP.

Decarbonisation pathways and emission-reduction targets

In the short and medium term, we are considering three main mitigation options: energy-efficiency measures, renewable energy, and new energy vehicles.
- **Energy efficiency:** The mines are already leveraging many available energy-efficiency options, and we have identified an additional incremental saving of up to 5%. In the longer term, we will look to sustain these savings while leveraging emerging opportunities linked to evolving technologies (eg digitisation, and artificial intelligence).
- **Renewable energy:** Considering the significant scope 2 emission contributions from the platinum division, renewable energy is the best available mitigation lever. Plans are underway to source substantial amounts of renewable energy, mainly through solar photovoltaic (PV) power.
- **New energy vehicles:** Building on previous diesel and electric consumption, we continue to explore technology options to mitigate mobile diesel consumption emissions, including piloting battery electric vehicles at Black Rock Mine with roll-out plans across the platinum division in future (as technology options become available). Although constrained by the limited availability of options, we are exploring the long-term decarbonisation of our yellow fleet. Considering this uncertainty about the nature and type of technology options to be deployed, our detailed plans of specific measures, timelines, roles and responsibilities, and implementation requirements only extend to F2030.

Please refer to our 2023 climate change and water report (on page 37) for more detailed information about our emissions targets and decarbonisation pathways.

Figure 5: Emissions targets and decarbonisation pathways



Strategy continued

About our emissions targets:

- The group-level target is underpinned by detailed operation-specific targets based on decarbonisation pathways. It includes operations within ARM's operational control boundary as well as the board-approved early ounces project at Bokoni Mine. It excludes Nkomati Mine and Machadodorp Works which are on care and maintenance
- We have worked extensively with our stakeholders and management to establish a process and set qualitative scope 3 emissions targets in F2024, in line with the ICMM 2023 guideline. The next step will be to advance partnerships that enable credible target-setting and emission reductions across our value chains and revise these targets as necessary, culminating in quantitative targets set by F2027
- The baseline year and targets will be adjusted for any material acquisitions and divestments, material changes to planned operating conditions, and to reflect progressive refinement of GHG reporting methodologies. Adjustments are expected following the detailed feasibility study at Bokoni Mine and following a board decision on future activities at Machadodorp Works
- We are ensuring that our employees are sufficiently incentivised at both operational and executive levels to achieve our targets, and support our long-term commitment.

To support and complement our decarbonisation pathways and deliver on our long-term ambition, we commit to:

- Work collectively to ensure enabling policy environments
- Work collectively to secure financial and technical support, especially for mining and metals operations in developing countries
- Engage with suppliers to ensure the availability of feasible decarbonisation technologies relevant to our specific operations
- Collaborate across our value chains to determine the most appropriate role we can play in contributing to net-zero scope 3 emissions
- Engage with our joint-venture partners to ensure alignment with their commitments, provided these are in line with our overall level of ambition.

Assumptions and uncertainties

Over time, our grid emission factor remains uncertain due to our continued reliance on Eskom and an associated level of grid-decarbonisation uncertainty beyond our control. Secondly, with respect to new energy vehicles, we rely on the market to introduce technologies that can help us decarbonise within the context of our operations.

Aligning new targets and ARM long-term incentive plans

Executive long-term incentives are an essential mechanism to ensure decarbonisation plans are implemented and that short, medium and long-term company targets are achieved.

The new climate-change targets, adopted in F2023, integrate the ARM emission-reduction targets into the climate-change component of our long-term incentive performance criteria. The new methodology builds on the previous method, offers a simpler way to assess performance, and gives management a clearer understanding of what they can practically drive at the operations to achieve ARM Group-level GHG targets.

Exploring renewable energy opportunities

We are continually exploring options to invest in renewable energy-generation technologies or to buy electricity from renewable sources. Our feasibility considerations include capital and operational costs, electricity generation relative to our operations' load requirements, GHG and environmental impacts, and the alignment of green investments with the remaining economic lives of our assets. The latter is particularly important as operations with a short life-of-mine are not suitable candidates.

ARM Platinum

ARM Platinum has made significant progress in its journey to wheel renewable energy, especially notable in the construction of the 100MVA solar facility, which remains on schedule for completion in the first half of F2026. Once operational, the solar facility will supply approximately 30% of ARM Platinum's energy requirements, significantly reducing ARM's scope 2 carbon emissions over the long term. Our research shows that over the 20-year lifespan, the renewable power facility is expected to generate some 4 900 000MWh of electricity and save around 4 800 000 tons of CO_2.

In further investments on the potential for wheeling renewable energy power and in meeting the significant electricity requirements of the Two Rivers Merensky project, Eskom's new 132kV transmission line was completed in F2024.

ARM Ferrous

In line with ARM's decarbonisation pathway process and cross-operational investments in renewable energy, investigative work is underway on a possible energy blend for our Northern Cape operations to combine solar, battery storage, wind and gas. These investigations – to be completed in F2025 as aligned with the overall timeline will consider carbon implications (carbon credits, carbon taxes and international benchmarks), assess the energy security potential, and evaluate different cost models (eg outright ownership versus sourcing power from independent producers).

Energy efficiency forms the base of our medium-term plan while investigating technology solutions and piloting some at our underground and opencast mines.

In support of this, environmental authorisations have been received for both the iron ore and manganese mines based on the solar PV solution, including battery energy storage solutions.

While applications have been submitted to Eskom for its approval and costing of our "behind the meter" renewable installations, once approved, further technical interactions with Eskom will follow.

We anticipate that some of the renewable solutions will be implemented from F2027.

Managing change

We manage rising operating costs associated with climate risks as part of our short-term strategy (until F2026). Our medium-term strategy (F2027 to F2030) is influenced by expected changes in regulations and market demands that pose both risks and opportunities. For instance, regulatory changes will affect the price and supply of energy and water. This is especially true for geographies where climate changes are expected to be severe, and where resulting regulatory changes will impact our ability to operate.

In recent years, in terms of market demands, we have observed how making higher-grade "cleaner" products that yield fewer emissions gives us a competitive advantage in the growing Asian market. As the global economy becomes more carbon-constrained, we expect this demand will become increasingly material. For example, as per our climate-scenario analysis, demand for manganese is projected to increase because it is a key component in lithium-ion batteries used in electric vehicles. As demand for electric vehicles grows, so will demand for manganese. Additionally, demand for platinum is expected to increase given both its key role in the hydrogen economy and climate-related drivers in transport and industry.

Carbon pricing and decarbonising future capital expenditure

Carbon pricing is now universally accepted as critical for driving decarbonisation towards the global 1.5°C climate goal. Projections on the potential carbon price in different jurisdictions vary, and there is considerable uncertainty about how governments will set prices over time. It is expected that, even under business-as-usual conditions, carbon prices will translate into increased operating costs for ARM.

Our F2021 scenario analysis as shown in Figure 6 below explicitly considered how different potential carbon prices affect the costs of supplying our commodities to global markets, the potential impact of these costs on demand for our products, and the possibility of border-tariff adjustments to create level playing fields in these markets.

Figure 6: ARM's range of assumed internal carbon prices (US$)

	2025	2030	2040	2050
South African carbon tax (business-as-usual scenario)	10	12	20	33
1.5ºC – supportive	45	83	160	200

In the case of avoided power supplied by the Eskom grid, it is assumed that a carbon price could only be passed through the electricity price, but its timing is uncertain.

We modelled a range of carbon tax pass-through costs, assuming a grid emission factor based on South Africa's integrated resource plan's technology mix and a range of effective tax costs that Eskom could pass. Avoided costs, based on the zero-carbon electricity generated and consumed by our operations, were considered over the life of the assets to determine a range of impacts on the project's internal rate of return.

The actual carbon price in South Africa, reflected in the carbon tax, has been incorporated into our internal carbon price. In F2024, we are using this internal carbon price to evaluate new projects and acquisitions, applying a range of carbon prices to our prefeasibility studies for energy solutions in the Northern Cape, for example. Moving forward, we intend to set specific carbon pricing as a key enabler of the ambitions laid out in our climate-change strategy framework, as it is developed.

Initial evaluations provided some insight into the financial implications of a project that reduces carbon-tax liability and generated lessons for integrating an internal price

Strategy continued

of carbon into ARM's new projects and acquisitions. Our internal carbon-price assessments are parallel processes with the feasibility studies that demonstrate the internal rate of return when considering potential avoided carbon-tax costs.

We also identified a range of potential carbon prices relevant to developed-country markets of up to US$75 in 2025, US$130 in 2030, US$205 in 2040 and US$250 in 2050. As part of the next iteration of our climate-scenario analysis, we will undertake further quantitative analyses to explore the implications on demand for our products. We will incorporate our range of carbon prices into subsequent renewable energy and other feasibility studies at our operations to consider the potential reduction in carbon liability and the contribution to our emission-reduction ambitions on the overall feasibility of projects.

We will continue to explore how our future capital expenditures can support the delivery of our climate-change strategy. Key parts of this include the phasing out of coal at the end of our mines' lives and investments in renewable energy and low-carbon metals as we look to move away from carbon-intensive assets and products.

Climate-change risks and opportunities, considering the influence of the energy transition, are also contributing to our impetus to invest in innovation, including low-carbon technology. An example of our alternative approaches and technologies relates to our smelters, as we are investigating and testing technology that may reduce energy requirements in the smelting process. This is in development phase and, if found feasible and appropriate, we will take steps to develop a strategy to explicitly outline how we plan to align future capital expenditure with our decarbonisation goals.

Climate resilience

As noted, we are not making any new coal investments and will continue running existing assets to the end of their current economic lives. During this time, we will continue to look for opportunities to be more responsible and efficient in our coal-related activities. We are allocating capital to prioritise metals consistent with the transition. Although autocatalyst demand has decreased, we expect an increase associated with the green hydrogen economy. We are also exploring lower-carbon metals that the world needs, while exploring energy transition and critical minerals that could be value-accretive (eg copper and nickel) to best position ourselves and our operations.

As such, we are translating this energy-transition awareness into our operational and investment decision-making, as evidenced by our investment in Surge Copper Corporation.

These actions are anticipated in the portfolio (products) pillar of our climate-change strategy framework. To contribute to a just transition, we consider the decarbonisation, portfolio, and resilience pillars equally important. Our resilience ambitions include focusing on our operations, our value chain, and our community.

Scenarios analysis

At ARM, we have integrated climate-change considerations into our business and reporting strategies in response to and in keeping with the IFRS S2 recommendations (based on TCFD recommendations). We initiated this in F2021, with an assessment of the resilience of our business to climate-transition risks (risks related to actions in response to the threat of climate change) and physical climate risks (direct risks to operations and the supply chain, and indirect risks to value chains stemming from changing or extreme climate patterns) under five different scenarios. These scenarios, detailed in our F2022 report, ranged from supportive (tracking a 1.5°C average global temperature increase by 2100 with rapid changes to 2030 and net-zero GHG emissions (scope 1 and 2) from mining by 2050) to a business-as-usual scenario (tracking a 4°C average global temperature increase by 2100 and seeing dangerous climate change).

The results of these scenario analyses are used to inform strategic decisions on our portfolio and to explore opportunities for investing in low-carbon technology minerals, as we aspire to be below the 50th percentile of the global cost curve per commodity. This scenario-analysis process prompted our commitment to a long-term target to achieve net-zero scope 1 and 2 GHG emissions from mining by 2050 (see Figure 1: Our climate journey to date on page 11) and is the foundation for our climate-change strategy framework and development of operation-specific decarbonisation pathways.

Please refer to our 2023 climate change and water report for further details

Lastly, undertaking this scenario analysis has emphasised the need for ARM to participate in and drive efforts to ensure an enabling policy environment and that our ambition and commitments align with those of our joint-venture partners. Looking ahead to F2026, we plan a second scenario analysis that will consider including more quantitative aspects to further inform our strategy, targets, actions, and response to climate change.

Climate-resilient operations

One of our key objectives under the resilience pillar is to ensure our operations will continue to thrive under the risks and opportunities presented by climate change. We progressed somewhat in assessing risks and opportunities across our operations, including a series of engagements with internal stakeholders to raise awareness. We are continuing our work towards complying with GISTM and integrating climate change as part of our ERM process (please refer to see page 37 integrating climate change risk into ARM's ERM for further details). This is allowing us to work across functions to explicitly recognise the risks associated with physical climate changes, and to enable our operations to respond appropriately and in a structured, ongoing way.

Climate-resilient value chains

We are investigating climate-change exposure in our supply chains and determining appropriate responses. Given the challenges faced in moving products, particularly in the Northern Cape, we will focus predominately on transport.

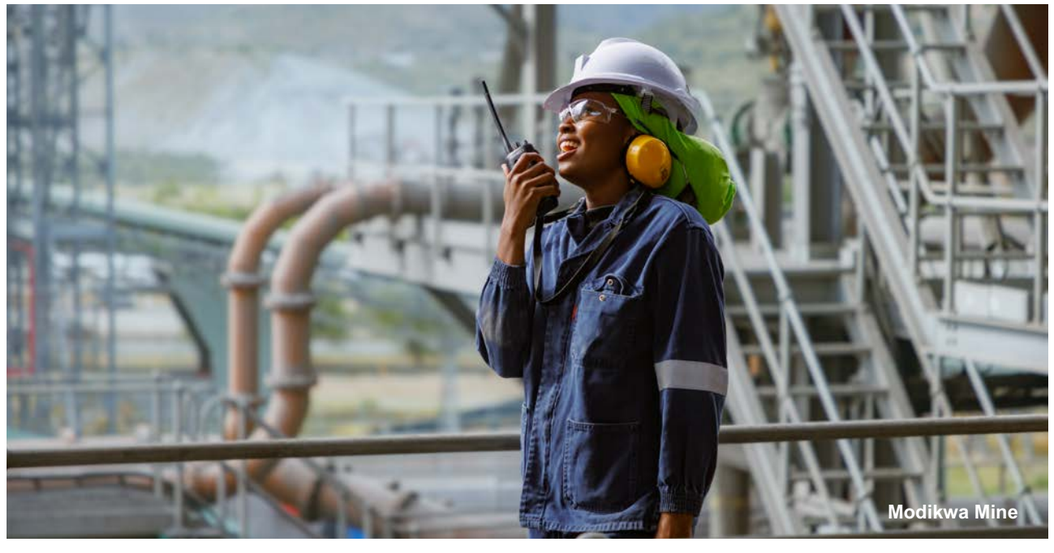
As part of our strategic approach to risk management, we are conducting supplier profiling and have been exploring climate and water risks in our supply chain. This is part of our broader climate-change strategy framework that includes a specific focus on resilience – of our operations, our community and our value chain. Under this framework, we are looking into performing, an initial assessment and mapping of supply-chain risks in F2025 across operations engaging with suppliers and developing appropriate mitigation measures to address the risks identified.

Enhancing community resilience

ARM is committed to fostering climate resilience and sustainability and contributing to a just energy transition. To this end, we are working to integrate climate change into our existing development programmes and transformation initiatives, with the goal of improving the resilience of our host communities to physical and transitional climate risks.

In F2023, to initiate this integration process, the sustainable development and community affairs teams from each operation participated in a workshop for an introduction to ARM's climate analyses, and discussion of options for improving collaborations between the teams and the benefits of doing so. These workshops highlighted the need for improved climate awareness, and for a climate lens through which they could view their development and transformation activities. Additionally, the workshops emphasised that, by exchanging knowledge across teams, all parties could leverage their collective expertise.

Moving forward, and as an integral part of our strategic actions towards resilience, we are exploring how we can apply a climate lens to our development spending to actively build the resilience of our communities to climate change. We will look to work on local economic development considering climate-change risks and opportunities, as informed by community engagement and an assessment of existing initiatives that can be leveraged.


Modikwa Mine

Risk management

The global transition to low-carbon energy and low-carbon industry presents both multiple risks and increased costs, as well as transition opportunities for ARM.

Risks include:
- Changing demands for platinum group metals (PGMs) and thermal coal
- Divestment from carbon-intensive activities
- The increased operating costs associated with carbon pricing
- Limited available mitigation measures and key energy sources
- Social unrest and disruptions
- Acute and chronic physical risks.

Yet, transition opportunities include:
- Increasing demand for portfolio commodities
- Including bulk and base metals
- Demand for zero- and low-carbon mining and metals products
- Increasing access to low-cost capital for activities aligned with global climate objectives.

Please refer to our 2022 and 2023 climate change and water reports for a detailed view of how demand for our current portfolio of products is expected to change under different climate scenarios.

The increasingly apparent physical impacts of climate change, including record-breaking temperatures and extreme weather events, suggest a more significant and rapid materialisation than anticipated.

All our operations are considered vulnerable and exposed to physical climate risks, with some mining sites already impacted by extreme weather events. Changing or extreme climate patterns pose direct and indirect risks to ARM, including: damage to fixed assets and equipment; compromised operational performance of facilities with long life spans (eg TSFs, water and waste-rock storage facilities); output disruptions and damage; and disrupted supply chains.

Climate change risks are increasingly material but do not typically change significantly year on year. There have been no significant changes to the risks, their causal factors, potential impacts and ARM's residual risk exposure since F2023. Evolving transition risks, such as developing domestic and international policy, technology development and shifting demands for mining and metal products, pose risks to our business. Internally we are responding through the product and decarbonisation pillars of our climate-change strategy framework under development. However, many of these are subject to global and regional dynamics related to trade, shifting geopolitics, financial market reform and other drivers over which we have no control. The potential impacts are material but there is significant uncertainty regarding the nature and timing of these impacts. Our efforts, therefore, aim to balance direct investments in risk treatments over which we have control and contributions to collective efforts to respond more systemically, through our participation in the ICMM, for example. Physical climate-change risks are also increasing but we have experienced no material impacts in the financial year. We are preparing for greater physical climate stressors and investing in the resilience of our operations, supply chains, and communities through the resilience pillar of our climate-change strategy framework as we continue to develop and progress this. Table 2 presents a summary of ARM's material climate change risks.

Additional detail can be found in our previous climate change and water reports.

Table 2: Responding to climate-transition and physical risks and opportunities

Risk	Causal factors and impacts	Risk treatment
Transition risks		
Policy and legal: Domestic policy in South Africa (promulgation of Climate Change Act in 2024, carbon tax, carbon budgets, and mandatory reporting)	The current residual risk is low given efforts to reduce emissions, build management and reporting systems and capacities, and proactive engagements with policy-makers and stakeholders.	• The product pillar of the climate-change strategy framework aims to ensure competitiveness of our existing products and to ensure our portfolio is resilient to shifting market conditions driven by the transition. We are investing in minerals critical to the energy transition • Our decarbonisation strategy sets out actions to ensure ARM is able to decarbonise and align with requirements and best practice. We have set short and medium-term scope 1 and 2 emissions targets to deliver on our long-term net-zero target. Significantly, we are investing in renewable energy across our operations to produce tangible and practical solutions. We also have executive incentives and operational KPIs linked to achieving those targets • We have set scope 3 emissions targets for material categories and included commitments outlining actions to achieve those targets, including setting quantitative targets in F2027 • We are rolling out a sustainability data management system which will provide greater clarity on our performance data, and integrate this with broader sustainability data for an enhanced view of our sustainability performance. • We have completed a climate scenario analysis and will update this in F2026 • We monitor and actively feed into policy processes, and advance collective efforts, through involvement in associations, such as our ICMM membership • With our focus on just transition we are understanding the impacts on our stakeholders, including proactively including community resilience in our strategy.
Policy and legal: International policy (trade measures such as the carbon border adjustment mechanism (CBAM) and financial market reforms)	The CBAM poses risks to the competitiveness of our ferrous division in Europe. Trade measures, such as the CBAM, are highly contested and subject to debate in multi-lateral processes, so the longer-term impacts are unclear. Other domestic and regional policies will impact markets and supply chains, but these will vary across regions and are subject to high degrees of uncertainty.	
Technology: Technology substitution associated with the energy transition (shifts to lower carbon or lower carbon-enabling technologies)	Technology substitution (electric vehicles) could lead to increased or decreased demand for PGMs, depending on the technology. Other markets will need to be found for those where demand drops.	
Markets: Increased demand for high-quality ores and concentrate (shifting demand towards products that enable customer decarbonisation)	Increased demand for high-quality products that are less emissions-intensive in their processing. ARM has an established pool of global long-term contract iron-ore customers that are considered as value-in-use customers as they derive additional value from our high-grade iron ore products.	
Markets: New and growing demand for our unknown critical minerals needed for the transition	The hydrogen economy is a positive demand driver for platinum but the scale and timing of its development, given uncertainties around viable end-use cases. The energy transition is a key driver of ARM's investment in Surge Copper Corporation and in line with our commitment to being a steward of minerals and metals that are critical to decarbonisation and sustainable development.	
Reputation: Increased stakeholder expectations and interest in climate change	Growing pressure from investors to proactively manage climate-change risks and opportunities, which are increasingly seen as material to shareholder value. Customers are increasingly requesting carbon-related data.	

Risk management continued

Risk	Causal factors and impacts	Risk treatment
Physical risks		
Acute: Increased severity of weather events (impacts on costs, production, sales, local stakeholders)	Droughts and reduction in water availability: greater risk of compromised water availability, paired with regional water infrastructure problems. These impacts could disrupt production, transport of product and supplies, and amplify safety risks. Flooding or high rainfall: Greater risk of more frequent and severe flash floods (particularly in the Northern Cape) with the potential to interrupt operations, destabilise TSFs, result in discharge and other non-compliance events. Extreme weather events: Exacerbating existing infrastructure risks (electricity, transport, bulk-water supply) posing risks to operations, suppliers and communities.	• ARM continues to monitor and develop systems capable of responding to physical climate events • Building awareness and capacity across our business and stakeholders • The resilience pillar of our climate-change framework is focused on ensuring that our business is resilient in the face of increasing climate risks, and we are in a position to respond as needed, and proactively engage with issues, including with catchment management agencies and other organisations designed to mitigate risks • In F2023 and F2024, ARM invested in better understanding the physical impacts of extreme temperature, extreme rainfall and evapotranspiration on each operation up to and beyond 2030 • Integrating climate-change risks into our ERM allows us to understand and plan for the future, considering the risks associated with climate change.
Chronic: Increasing social unrest related to climate-change impacts on wellbeing of communities in which we operate	Risk of social unrest and destruction of assets and infrastructure; compromised ability to source local workforces and secure mining rights; exacerbated employee relations issues; industrial action and production losses; and the need for additional capex or investments in decarbonisation and resilience.	
Chronic: Various: changing rainfall patterns in Vaal catchment	Changing rainfall patterns in the Vaal catchment: Hydrogeological balances in the catchment are projected to shift, threatening the long-term security of supply to our Northern Cape operations, potentially impacting operations (employee safety, production, expansion potential, etc), local suppliers and communities. Rising mean temperatures posing greater safety risks and risks of heat stress, impacting production and requiring additional cooling. Supply-chain interruptions due to climate change-induced events (storms, rainfall, high wind, supply-chain disruptions).	

ESG

Please refer to our ESG report for further details on our ERM processes.

ARM instituted a risk management strategy in 2018 to position the group as a mature, risk-intelligent and value-optimised organisation by 2025. On this journey, ARM continues to work on integrating the various parts of the risk department's strategic drive to integrate leadership effectiveness, strategy, risk management, asset management, resilience and assurance components. By assimilating and sustaining these processes, we strive to exceed the work of our peers in achieving greater levels of risk management maturity.

Our position as a group is reflected in the consideration of resilience to climate-change risks as a crucial pillar under our climate-change strategy framework, considering not only our operations but also the risks and opportunities our value chain and communities are exposed to. We have made significant progress on incorporating climate change into our ERM processes. We will continue to work on this over the next financial year during focused workshops and a second climate-scenario analysis, planned for F2026.

Integrating climate-change risk into ARM's ERM processes

The impacts and risks of climate change beyond our daily operations have become increasingly apparent. As evidenced by the scenario-analysis process, climate risks have real financial implications for our business, both through the potential capital investments for continued operations and possible interruptions of operations. Supported by these findings, we are acquiring detailed, quantified information in conjunction with a proficient risk severity scale, and will communicate and incorporate climate risk impacts at both operational and corporate levels.

We seek to assess climate-change risks and climate-change resilience in all relevant aspects of ARM, including existing processes, practices, standards and guidelines, in all phases (planning/design, operational and closure). Ultimately, these climate-change risks and opportunities will also be integrated into mainstream filings, including income statements, cash flow statements and balance sheets.

As part of the resilience pillar under our climate-change strategy framework, we have included the integration of climate-change risks into our ERM process as a key objective. Building from a roadmap developed in 2021, we have refined and developed further actions to achieve our objective.

In F2023, we began engaging with our operations to raise awareness about climate-change risks and opportunities and explore operation-specific impacts associated with projected physical climate changes. We held risk workshops with each operation to help employees understand current and future physical climate risks (to the business, and to the operation's supply chain and product transport system) associated with extreme temperature and extreme precipitation.

CCW

Refer to our 2023 climate change and water report for details

We also discussed some of the social aspects of these risks, given that communities within the examined geographical area are vulnerable to the same climate risks as the operations and that their responses to these risks can present additional risks for the operations.

The workshops and this initial engagement and assessment have been an important step in the integration of the climate-change risks in our ERM process. In F2025, we will continue with provisional corporate climate risk integration workshops between the risk and sustainability teams to collaborate on firmly situating climate within the ERM discussion and the overall ARM risk management process. These sessions will further explore the appropriate integration of high-level updates and evidence in our operational risk assessments and ensure the continued evolution of our mitigation measures and risk rating scales. Alongside this, we will maintain our work to ensure that climate-change considerations and evidence are fed into existing risk assessment processes.

We expect that the most significant update and evidence will stem from our second climate-scenario analysis, planned for F2026, and the risks identified, particularly the projected physical climate changes, will inform our future operational risk assessments as necessary.

Risk management continued

The impact of risks and opportunities on business and financial planning

Impacts on ARM's financial position and performance

In recent years, climate change has had an impact on ARM's financial position and performance. At Nkomati Mine, we faced exposure related to rehabilitation and water management post-closure. In F2023, we completed a study to determine the costs associated with constructing a water-management plant and are working to amend our WUL so that it permits us to decant the water. We have also had to respond to carbon-tax legislation. However, apart from Cato Ridge Works and Two Rivers Platinum Mine, most of our operations fall below the carbon-tax registration threshold, and our direct carbon-tax liability is approximately R3 million per year.

In F2024, apart from the capital required for the Vaal Gamagara water supply scheme (VGWSS) refurbishment project, no material adjustments were required for climate-related risks and opportunities. We are pre-empting climate-change risks and taking advantage of opportunities by investing in solar PV power at all our operations, working to reduce our reliance on Transnet, and working to produce zero- and low-carbon metals.

In the short term, given that most of our commodities go to countries that do not have stringent climate-related requirements (eg China and India), we do not expect climate-driven market changes to negatively affect our financial position and performance. On the positive side, market trends driven by climate change, among other issues, have seen an increase in demand for certain commodities. We continue to invest in PGMs and anticipate an increase in demand for platinum associated with hydrogen to reduce GHG emissions in the transport and hard-to-abate industrial sectors. Assmang has also recorded higher demand for better-quality iron and manganese ores as steel producers – most notably those in China – are driven to improve efficiencies, reduce emissions, and curb air pollution.

Climate-change risks and opportunities have also contributed to the impetus to invest in innovation. In our drive to pre-empt these risks and opportunities, including those from the energy transition, we are exploring low-carbon technology, such as our ongoing investigations and testing technology that may reduce energy requirements in the smelting process.

Given the relevance of financial impacts to our operations from climate risks and opportunities and considering that financial planning and budget allocation are key enablers of our climate-change strategy framework, we are committed to improving our disclosure on financial performance and capital allocation.

Disruption to operations, suppliers and communities

In recent years, our operations, suppliers and communities experienced disruptions related to climate change.

Please refer to our prior climate change and water reports for further details

In F2024, there was a veld fire at the start of the year, and Beeshoek Mine offered services to support the local community.

Some operations were affected by water-related events. Both Nkomati and Machadodorp Works, being in the same catchment area, experienced high rainfall in December 2023. As a result, this led to an emergency discharge and release of the Machadodorp Works dam 1 overflow. The team followed protocol in informing the relevant Inkomati-Usuthu Catchment Management Agency (IUCMA) department of the release, captured the volume, and assessed the contaminated water.

Cato Ridge Works experienced heavy rainfall from November 2023 until January 2024. This affected furnaces, batch plant operations, feed chute blockages, power losses, and downtimes, collectively resulting in about 1 480 tonnes of high-carbon ferromanganese production losses. Please refer to page 78 detrimental water-related impacts for details.

No significant disruptions were registered in F2024 across our other operations that affected their activities, suppliers or communities.

Considering climate-change risks in ARM's investments

ARM Coal

ARM's investment in coal includes an effective 20.2% share in the Participative Coal Business (PCB) and an effective 26.01% in Goedgevonden (GGV). Our partner, Glencore Operations South Africa (GOSA), owns the remaining stakes.

All the operations are open-pit with GGV mine producing around 7Mt of saleable thermal coal per year, with a life-of-mine of more than 20 years. PCB produces some 15.3Mt of saleable thermal coal per year and has a life-of-mine of approximately 12 years and consist of Impunzi Mine and Tweefontein Mine. Export coal is marketed and sold by Glencore International to various markets, mainly in India.

GGV is governed by a management committee controlled by ARM Coal, with representatives from ARM and GOSA. Operational management is contracted to GOSA. PCB is governed by a supervisory committee with representatives from both ARM and GOSA and is operated by GOSA.

Climate-change risks are assessed and tabled as appropriate at quarterly steering committee meetings. GHG emissions associated with the operations are measured and then consolidated by GOSA during its mandatory reporting for all its South African operations. ARM has reported on GHG emissions attributable to its investment in ARM Coal. See page 45.

ARM and Glencore have both committed to net-zero total emissions by 2050 and have decided to continue operating their coal mines until they reach the end of their economic lives. Initiatives continue to decarbonise PCB and GGV. Options include collaborating with supply chains, supporting uptake and integration of abatement, using technologies to improve resource efficiency, and transparency on reporting progress and performance. In addition, the operations have commissioned a 300kW solar project and are investigating additional projects with an estimated capacity of 60MW.

ARM recognises that while global emission-reduction initiatives and the move to cleaner mobility and energy are expected to put pressure on thermal coal demand, these also create opportunities for other commodities in our portfolio.

Harmony Gold

ARM owns 12.12% of Harmony's issued share capital. Harmony is run by its own management team, which is responsible for its mineral resources and reserves, reported annually. In F2022, we engaged with Harmony to report on our scope 3 emissions attributable to this investment and explored its approach to identifying and managing climate-related risks.

Currently, Harmony monitors and reduces energy use and GHG emissions. In line with its strategy of moving towards an alternative energy supply mix in the next five years, Harmony is actively reducing its grid-electricity consumption and GHG emissions with both year on year and multiyear targets.

The company has also completed a climate-scenario analysis and determined that its greatest physical climate impacts will be water related. Increasing temperatures – which could affect underground ambient temperatures, particularly in deeper-level operations – will also have an impact.

Harmony has identified climate transition risks that could increase business costs and undermine the long-term viability of operating deep-level mines. It continues to undertake robust business planning to consider these risks.

In F2023, Harmony published its fourth report on climate change in line with TCFD requirements.

Targets and performance

GHG emissions

Scope 1 and 2 emissions

Our GHG calculations are based on the GHG Protocol, first published by the World Resources Institute and World Business Council for Sustainable Development in March 2004. Our data-collection process also complies with the data-quality requirements set out in ISO 14044, as well as GRI Standards. Our total scope 1 and 2 GHG emissions are externally assured each year (See our decarbonisation strategy on page 28).

Our short- and medium-term targets presented in this report – use F2023 as a base year.

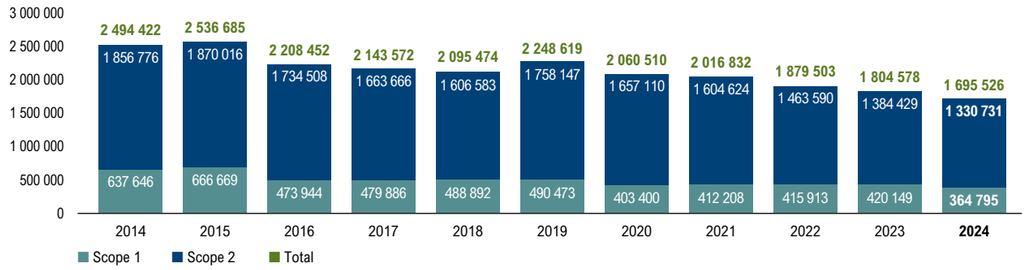
The emissions attributable to our operations primarily stem from the consumption of electricity produced by coal-fired power stations and the combustion of fossil fuels during our mining, load-and-haul, materials handling and processing activities. We monitor and report on our emissions data internally every quarter and discuss them at operational sustainable development committee meetings and at the ARM social and ethics committee quarterly meetings.

Scope 1 emissions primarily relate to diesel usage. Electricity consumption (scope 2 emissions) comprises 78% of our total carbon footprint.

GHG emissions changes over time

Over the past year, ARM's total scope 1 and 2 emissions have decreased by 6% compared to the F2023 baseline. This marks an overall 19.1% reduction from the previous baseline set in F2018 (Figure 7).

Figure 7: ARM's carbon footprint scope 1 and 2 (100% basis), measured in $MtCO_2e$



Scope 1 emissions decreased 13.2% year on year while scope 2 emissions decreased 3.9% year on year. The Eskom grid emission factor decreased by 4%. The carbon intensity of South Africa's grid remains a concern, as do the cost and security of supply drivers. We continue to explore lower-carbon power alternatives. Our electricity consumption (MWh) remained largely the same.

Changes in emissions year on year are primarily due to:

- Cato Ridge Works: Overall emissions decreased 27% compared to the previous year as production decreased by 13% due to Furnace 1 being decommissioned in February 2023 (ie a portion of F2023) and remaining non-operational during the whole of F2024.
- Two Rivers Platinum Mine: Diesel consumption decreased 30% due to new access to grid power and a change in market conditions. Previously, the mine relied on diesel-generated electricity as the Merensky project had limited access to grid power. The recent grid installation has reduced diesel reliance, resulting in a decrease in scope 1 emissions and increase in scope 2 emissions. Additionally, the Merensky project has been put on care and maintenance due to the current downward cycle in the PGM market, delaying the expected increase in electricity consumption (scope 2). These factors have led to a 31% decrease in scope 1 emissions and 3% increase in scope 2 emissions.
- Khumani Mine: Diesel use increased by 6% compared to the previous year due to higher waste-rock mining and power interruptions from the grid, leading to greater reliance on diesel-generated energy. As a result, scope 2 emissions decreased by 3%, while scope 1 emissions increased by 7%.
- Black Rock Mine: Total emissions decreased 8% compared to the previous year, due to a 15% reduction in production.
- Machadodorp Works: The metals recovery plant (MRP) was stopped in February 2024, resulting in a 57% decrease in scope 1 and 2 emissions year on year.
- GHG emission-reduction initiatives: New initiatives implemented in F2024 resulted in a reduction of 314tCO_2e.

Table 3: GHG emissions per operation

	F2024			F2023		
Operational control boundary (100% basis)	**Scope 1 (tCO_2e)**	**Scope 2 (tCO_2e)**	**Scope 1 and 2 (tCO_2e)**	**Scope 1 (tCO_2e)**	**Scope 2 (tCO_2e)**	**Scope 1 and 2 (tCO_2e)**
FERROUS DIVISION						
Beeshoek Mine	40 830	32 820	73 650	42 000	34 265	76 266
Khumani Mine	126 036	188 161	314 197	118 212	194 861	313 073
Black Rock Mine	21 701	143 955	165 657	23 317	157 716	181 033
Cato Ridge Works	136 386	327 821	464 207	188 215	407 976	596 191
Machadodorp Works	428	4 458	4 886	944	10 372	11 316
Total	**325 382**	**697 215**	**1 022 597**	**372 689**	**805 189**	**1 177 878**
PLATINUM DIVISION						
Nkomati Mine	380	4 626	5 006	583	6 854	7 437
Modikwa Mine	14 562	295 172	309 733	14 050	310 781	324 831
Two Rivers Mine	22 498	267 823	290 321	32 725	261 207	293 932
Bokoni Mine	1 914	65 480	67 394	–	–	–
Total	39 353	633 100	672 454	47 358	578 841	626 200
ARM corporate office	60	416	476	101	398	500
ARM total	**364 795**	**1 330 731**	**1 695 526**	**420 149**	**1 384 429**	**1 804 578**


Khumani Mine

Targets and performance continued

GHG emissions intensity

Scope 1 and 2 emissions intensity of high-carbon ferromanganese decreased from 4.98tCO_2e/tonne to 4.45tCO_2e/tonne and the medium-carbon ferromanganese scope 1 and 2 emissions intensity decreased from 0.348tCO_2e/tonne to 0.344tCO_2e/tonne.

Furnace 1 was decommissioned in February 2023, hence the drop in emissions for F2023 and further drop in F2024 as the furnace is still non-operational. Historically, furnace 1's emissions intensity has been higher than furnace 2, albeit lower than furnace 5. Consequently, removing furnace 1 from the equation also dropped the overall emissions intensity for Cato Ridge Works.

For F2024, we started reporting on dry raw material consumption to align with best practices. This was a historical oversight since the moisture in raw materials obviously does not contain any carbon, hence our carbon inputs have been incorrectly reported in the past.

Specific power consumption at Cato Ridge Works decreased from 3.36MWh/tonne hot metal in F2023 to 3.23MWh/tonne in F2024, decreasing scope 2 emissions intensity.

Scope 1 and 2 emissions per tonne of iron ore production decreased 2% year on year (Figure 8). This is due to increased energy use at Khumani Mine, prompted by power interruptions from the grid and higher waste-rock mining, leading to higher emissions.

Scope 1 and 2 emissions for manganese ore production increased 7.9% year on year (Figure 8). Scope 1 and 2 emissions for PGMs ore milled at our three primary platinum mines, Modikwa, Two Rivers and more recently, Bokoni, decreased by 5.9% year on year (Figure 8).

Figure 8: Scope 1 and 2 carbon emissions for PGM, iron ore and manganese ore, measured in tCO_2e/tonne produced or milled

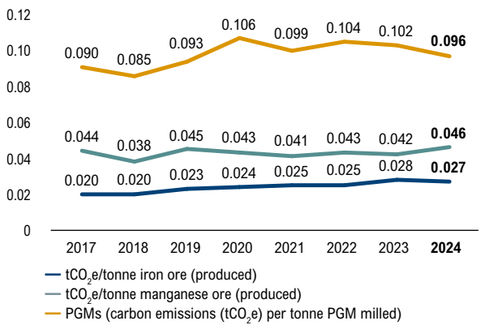


Table 4: Other GHG (scope 1 and 2) intensity metrics

Metric	F2024	F2023	% change
tCO_2e/full-time employee (FTE)	**79.82**	91.21	(12)
kg CO_2e/man-hour worked	**35.54**	45.50	(22)
tCO_2e/GJ	**0.23**	0.23	0
tCO_2e/MWh	**1.27**	0.84	52

Scope 3 emissions

IFRS S2 (TCFD-based) recommends that organisations assess the potential direct effects of climate change on their operations, as well as the potential second- and third-order effects on their supply and distribution chains. It explicitly recommends that organisations disclose scope 3 emissions, which refer to indirect emissions not included in scope 2 that occur in upstream and downstream value chains.

We calculate scope 3 emissions according to the GHG Protocol – corporate value chain (scope 3) accounting and reporting standard. We have now incorporated recommendations from the ICMM guidance on improving scope 3 emissions inventory (See section below), as well as incorporating the latest emission version factors from the United Kingdom Department for Business, Energy and Industrial Strategy, and source other emission factors from organisations such as the World Steel Association and International Manganese Institute.

Depending on the availability or the materiality of the scope 3 emissions category, we either gather or directly estimate source data. This evolving approach to addressing scope 3 emissions consistently looks to initiatives that could improve the completeness and accuracy of data gathering and reporting. These developments can make it difficult to compare emission values directly year on year (Table 5: Scope 3 emissions on page 43). In F2024, we focused on our material sources in line with our promise to collaborate with stakeholders to reduce emissions. Although emission data for categories 5 (waste generated in operations), 6 (business travel) and 7 (employee commuting) were not considered material for our organisation, we have continued to report for risk management purposes and completeness of reporting.

Table 5: Scope 3 emissions

	Category	F2024	F2023	F2022	F2021
1	Purchased goods and services	**813 383**	669 043	679 289	52 305
2	Capital goods	**529 568**	565 953	652 462	
3	Fuel and energy-related activities	**195 947**	200 023	220 413	211 774
4	Upstream transport and distribution	**886 487**	962 409	985 728	962 031
5	Waste generated in operations	**1 775**	1 528	1 371	1 724
6	Business travel	**1 596**	2 561	1 584	1 724
7	Employee commuting	**26 458**	24 642	13 613	14 637
8	Upstream leased assets	**–**	–	–	–
9	Transport and distribution	**338 778**	279 017	314 149	323 836
10	Processing of sold products	**52 728 825**	54 978 467	55 105 803	63 232 082
11	Use of sold products*	**–**	–	–	–
12	End-of-life treatment of sold products*	**–**	–	–	–
13	Downstream leased assets*	**–**	–	–	
14	Franchises*	**–**	–	–	–
15	Investments**	**879 593**	912 711	939 823	759 885

** Not relevant. ARM makes limited use of leased assets and associated emissions are estimated to be immaterial (category 8). ARM's products feeds into various end-uses, many of which are recycled, and we have limited influence over the end-of-use (categories 11 and 12). ARM has no leased assets (category 13). ARM does not have any franchises (category 14).*

*** This includes scope 1 and 2 emissions for ARM Coal and Sakura, and scope 1, 2 and 3 emissions for Harmony.*

Improved scope 3 emissions accounting

This year, we implemented the ICMM scope 3 Emissions Accounting and Reporting Guidance (2023) – see box below. ARM already had a mature scope 3 emissions measurement and reporting system in place, having made ongoing improvements since first reporting scope 3 emissions in F2014. Our inventory is also subject to external assurance (since F2022). However, significant improvements have been made this year in the scope 3 emissions inventory and measurements and reporting systems.

Applying the ICMM scope 3 emissions accounting and reporting guidance

The executive leadership team drove improvement of ARM's scope 3 emissions inventory. A series of engagements raised awareness and understanding of the requirements and expectations, discussed risks and opportunities, and determined an appropriate approach. Technical teams were mobilised to undertake the work in accordance with the ICMM guidelines.

The work included a detailed materiality assessment of each of the 15 scope 3 emissions categories, considering the scale of emissions, the level of risk inherent in those emissions and ARM's ability to influence those emissions. This process considered our historical scope 3 emissions inventory, the heat map included in the ICMM guidance, approaches of our peers and a broader review of the current situation.

For ARM, our most material categories include our supply chain (purchased goods and services and capital goods), fuel and energy-related emissions (emissions associated with delivering the energy that we consume in our operations), upstream and downstream transportation and distribution (particularly movement of our product to our customers by road, rail and ship), processing of sold product (which includes smelting and refining of our sold concentrate but more significantly the carbon-intensive processing of iron ore, manganese ore and ferromanganese in the iron and steel value chain), and finally emissions associated with our investments (ARM Coal, Sakura, Harmony and, going forward, our investment in Surge Copper Corporation). Table 6 summarises the status of ARM's current reporting relative to the ICMM guidelines requirements and improvements made in F2024, per category.

Targets and performance continued

Table 6: Reporting on material scope 3 emissions categories

Material scope 3 category	Status and improvements made in F2024
1 Purchased goods and services 2 Capital goods	• Included a proportion of emissions using a volume-based approach, coupled with the historically applied spend-based approach. Procurement spend data was analysed to determine (key categories) (according to spend and emissions intensity). Emissions factors, per product category, were calculated in SimaPro utilising the IPCC 2013 100-year global warming potential assessment methodology. As such, all emission factors are based on fifth assessment report (AR5) global warming potentials. Emissions from the remaining sources applied spend-based emissions factors (sourced from the Quantis GHG Protocol scope 3 Evaluator and the latest currency conversion rate) • Engagements with corporate and operational procurement departments were undertaken to raise awareness, identify improvement areas, and build capacity to improve reporting over time • ARM will increase the proportion of emissions calculated using product-level data (volume-based approach) and engage with stakeholders on including supplier-specific emissions values for material sub-categories.
3 Fuel and energy-related activities	• Existing reporting in line with guidance: no improvements necessary.
4 Upstream transport and distribution	• Existing reporting on emissions associated with transporting product to customers is in line with guidance: no improvements made.
9 Downstream transport and distribution	• Initiated processes to gather and report on material upstream transport associated with bringing supplies into ARM's operations (to be included in the future).
10 Processing of sold products	• Existing reporting on emissions associated with processing our ferrous division's product is in line with guidance: no improvements made • Emissions data for processing of our platinum division's products included for the first time. We engaged with platinum division customers (Anglo American Platinum and Impala Platinum) to determine emission factors associated with smelting and then refining PGMs concentrate sold • Emissions associated with processing of iron ore, manganese ore and ferromanganese represent our most material category in terms of the scale of absolute emissions. Given we have limited influence over these emissions, our work to improve reporting and to decarbonise these sources relies on collective efforts and forms a key element of our scope 3 decarbonisation strategy and targets (see page 49 scope 3 targets).
15. Investments	• Existing reporting is in line with guidance: no improvements made.

Emissions associated with waste generated in operations, business travel, employee commuting and upstream leased assets were identified as not material given that they have historically contributed less than 0.05% of our total scope 3 emissions inventory and do not represent material risk or opportunity areas for ARM. In line with the guidance, these non-material categories will be reassessed periodically (no longer than two to three years) to ensure that they are still non-material.

Emissions associated with the use of sold products, end-of-life treatment of sold products, downstream leased assets, and franchises are not relevant to ARM. Emissions from the use of coal associated with ARM's investment in ARM Coal (scope 3 emissions for those assets) will be included in future reporting, in line with the ICMM guidelines to include scope 3 emissions in non-operated joint-venture operations wherever fossil fuels are extracted.

Future improvements to scope 3 emissions accounting

ARM intends to continue improving our scope 3 emissions inventory over time, as reporting requirements and expectations evolve, technologies develop, and collective initiatives to measure and manage emissions across value chains progress. Planned and anticipated improvement areas include:

- Increasing the proportion of supply-chain emissions calculated based on a product-volume approach (as opposed to the spend-based approach) and moving to a supplier-specific approach. This will require engaging with suppliers and working with other partners (see page 49, scope 3 emissions targets)
- Improving traceability, particularly in our supply chain (categories 1 and 2) and transport and distribution (categories 4 and 9) emissions sources, by leveraging new technologies and relying on partners to provide data
- Improving comparability in line with industry standards (typically driven through the ICMM) and other frameworks working to ensure appropriate and comparable reporting of scope 3 emissions
- Improving completeness by including the recent investment in Surge Copper Corporation in our inventory (category 15).

Emissions associated with Sakura

Sakura Ferroalloys' smelter in Sarawak, Malaysia, is managed by Assmang. ARM owns 27% of Sakura (Assmang, in which ARM is a 50% joint-venture partner, owns 54%). Sakura is included in our scope 3 emissions inventory (category 15: investments).

Emissions are reported in proportion to ARM's 27% investment in the operation. Sakura includes two closed submerged arc furnaces producing high-carbon ferromanganese. Sources of emissions include: i) process emissions (calculated using a tier 3 approach); ii) mobile diesel combustion, acetylene used in workshops; and iii) electricity sourced from the Sarawak Energy Company.

The operation is highly mechanised and requires limited use of vehicles. Power from the Sarawak Energy Company is largely generated by hydro (with an emission factor of 0.33tCO_2e per MWh). Some of the carbon monoxide gas from the furnaces is used to cure ladles and has, in the past, been used to dry raw materials when needed.

To feed into initiatives to develop an operation-specific decarbonisation pathway, in F2023 Assmang collated material categories of Sakura's scope 3 emissions, and historical and projected scope 1, 2 and 3 emissions. It then assessed short, medium and long-term mitigation options, costs and implementation requirements. The pathway modelling considered a business-as-usual scenario (including incremental energy efficiency and renewable energy deployment) and a sustained case, which includes organic growth beyond the current life-of-asset plan as well as additional, more aggressive decarbonisation initiatives for achieving net-zero emissions.

ARM is actively involved in developing and driving Sakura's decarbonisation strategy.

Table 7: Sakura emissions year on year

tCO_2e – proportional basis	F2024	F2023
Direct (scope 1)	**73 626**	79 398
Indirect – purchased electricity (scope 2)	**35 482**	38 321
Total	**109 108**	117 719

Reporting on ARM's attributable GHG emissions associated with investments in coal

Scope 3 category 15 (investments) includes emissions associated with our direct investment in PCB, GCV, and our investment in ARM Coal. We are reporting GHG emissions associated with our effective 20.2% investment in PCB and our effective 26.01% investment in GGV. PCB includes Impunzi and Tweefontein. Glencore has operational control and reports its GHG emissions to the DFFE as part of reporting on all its operations in South Africa. After engaging with Glencore, we received GHG emissions-related data for the operations relevant to ARM. Data is associated with Glencore's financial year (1 January to 31 December 2023) but included in ARM's financial year reporting (1 July to 30 June 2024).

Table 8: Emissions associated with our coal investments

Operation tCO_2e attributable	F2024 direct	F2024 indirect	F2024 total	F2023 total
PCB	**40 804**	40 300	**81 103**	79 977
GGV	**31 437**	17 851	**49 289**	44 235
Total	**72 241**	58 151	**130 392**	124 212

Emissions include the following sources for each operation:

- Direct emissions (scope 1 for the operations): fugitive methane – production (underground) using an emission factor of 0.77m^3 CH_4 per tonne; fugitive methane – post-mining (underground) using an emission factor of 0.18m^3 CH_4 per tonne; and diesel (mobile) using an emission factor of 0.00315tCO_2e/litre for mobile combustion and 0.00268tCO_2e/litre for stationary combustion
- Indirect emissions (scope 2 for the operations): purchased electricity using a grid emission factor of 900gCO_2/kWh.

Fugitive emissions at the opencast operations are no longer reported by Glencore, in line with the South African legislative requirement (these were last included in F2021). Liquefied petroleum gas and petrol are not included as Glencore deems them immaterial to the footprint. Emissions have been apportioned to ARM, based on our effective shareholding in each operation.

Targets and performance continued

Reporting on emissions associated with ARM's investment in Harmony

We have a 12.12% investment in Harmony Gold. Emissions attributable to ARM have been calculated based on this shareholding and are included in our scope 3 emissions inventory (category 15: investments).

Table 9: Emissions associated with Harmony's investment

tCO_2e – proportional basis	**F2024**	F2023	F2022
Direct (Harmony scope 1)	**21 857**	24 283	21 819
Indirect – purchased electricity (Harmony scope 2)	**498 498**	520 637	557 566
Indirect – value chain (Harmony scope 3)	**119 738**	125 860	129 230
Total	**640 093**	670 780	708 616

Harmony's scope 1 emissions include those associated with diesel, petrol, explosives and fuel/heating oil, calculated using the annual Department of Environment, Food and Rural Affairs conversion factors for Papua New Guinea, and technical guidelines for monitoring, reporting and verification of GHG emissions by industry for South Africa: Investments.

Harmony's scope 2 emissions include those associated with purchased electricity in South Africa (1.04kg CO_2/kWh) and in Papua New Guinea (0.68kg CO_2/kWh).

Harmony's scope 3 emissions include those associated with a range of purchased goods and services (embodied emissions in explosives, cement, cyanide, caustic soda and lime), fuel and energy-related activities (transmission and distribution losses in South Africa and Papua New Guinea), and business travel (rental vehicles, and domestic, international, commercial and charter air travel).

Scope 2 emissions account for the bulk (77%) of Harmony's emissions. This is aligned with energy consumption in South Africa, where energy is sourced from the state power utility, Eskom.

Harmony's near-term target (2021 – 2036) was approved by the Science-based Targets initiative (SBTi) in 2023. Its target aligns with the SBTi business ambition for 1.5°C and aims to decrease Harmony's total emissions by 206kt CO_2e annually (a 4.2% reduction relative to the base year). This results in the following interim emission targets:

2026 3.9MtCO_2e

2031 2.8MtCO_2e

2036 1.8MtCO_2e

If the same rate of emission reduction continues beyond 2036, Harmony can achieve net-zero emissions in 2045. Based on emissions forecasts, Harmony is projected to meet 2026, 2031 and 2036 targets, provided that South Africa's grid decarbonises as projected in the integrated resource plan, and the company implements its planned initiatives. Beyond 2040, a range of challenges will need to be addressed, including considering further mitigation action needed outside of Harmony's value chain.

As part of the transition to renewable energy, Harmony secured significant green funds that will boost its journey to net-zero. These funds are linked to specific KPIs aimed at reducing emissions, water consumption and reliance on fossil fuels. Specifically, its phased decarbonisation strategy linked to this funding includes constructing a 30MW solar power plant (phase 1), a 137MW solar energy plant (phase 2), and a 56MW solar power plant with the possibility of 100MW through wheeling from renewable energy, predominantly wind and solar (phase 3).

Since 2016, Harmony has implemented over 240 energy-savings initiatives, yielding estimated savings of R1.7 billion, and reduced GHG intensity by 42% and produced 1.8MtCO_2.

Harmony also works to ensure that companies in its supply chain observe laws and regulations governing water and air quality and use all reasonable measures to avoid polluting and degrading the environment. It has engaged with its top 20 suppliers on their carbon and water footprints, with the intention of improving their processes and building their resilience to climate change.

GHG targets and emission-reduction initiatives

Figure 9: GHG targets and emission-reduction initiatives*

Scope 1 and 2 emissions targets **(See our decarbonisation strategy on page 28)**

Short-term target: 15% absolute reduction in scope 1 and 2 GHG emissions by F2026 relative to F2023 base year.

Medium-term target: 30% absolute reduction in scope 1 and 2 GHG emissions by F2030 relative to F2023 base year.

Long-term target: net-zero GHG emissions from mining by 2050.

Caveats:

- The targets include operations within ARM's operational control boundary as well as the board approved early ounces project at Bokoni Mine. It excludes Nkomati Mine and Machadodorp Works which are on care and maintenance
- The baseline year and targets will be adjusted for any material acquisitions and divestments, material changes to planned operating conditions, and to reflect progressive refinement of GHG reporting methodologies Adjustments are expected following the detailed feasibility study at Bokoni Mine and following a board decision on future activities at Machadodorp Works.

** This includes ARM's scope 1 and 2 emissions associated with operations under direct or joint direct operational control.*

Two Rivers Mine

Targets and performance continued

Metals and minerals are critical for transitioning to a low-carbon climate-resilient economy, especially the transition to clean energy and transport systems. However, scaling up the supply of these products while achieving decarbonisation ambitions of these value chains is a significant challenge.

ARM has set our scope 1 and 2 (direct footprint) strategic ambition and taken actions to deliver on that ambition. However, we recognise that the majority of emissions in the value chains in which we participate, are outside our direct operational control.

As an ICMM member, we have committed to "accelerate action and report scope 3 GHG emissions by the end of 2023, and to set scope 3 emission targets, if not by the end of 2023, then as soon as possible." In line with this commitment, we have further improved our scope 3 emissions inventory and developed qualitative scope 3 emissions targets.

There are challenges associated with measuring and reducing our value chain emissions due to a diversity of stakeholders, varying levels of maturity and availability of technologies that enable us to measure and trace those emissions through the value chain. Additionally, we have limited direct control over many of those sources (most significantly for our largest scope 3 emissions source: processing of our ferrous products). Metals processing requires high-temperature heat and, in the case of iron and steel for example, carbon-intensive process inputs. There are limited viable, alternative technologies for these applications, making these energy and process emissions "hard-to-abate". Heavy-duty transportation (shipping, aviation, and heavy-duty trucks) is also considered challenging to decarbonise ("hard-to-abate"). Many decarbonisation solutions are not available at scale or cost parity. Until buyers pay premiums or costs come down, there is no viable pathway to reduce emissions. Systemic and technological interventions that require collective action and partnerships are needed.

However, as an ICMM member, we take seriously our commitment to play an appropriate and active role in decarbonising our value chain in line with the Paris Agreement. More significantly, however, we recognise the inherent climate risk and opportunities associated with our scope 3 emissions.

There are reputational risks as stakeholders, particularly investors and, increasingly, customers are starting to place significance on those emissions. But more than this, we are seeing markets shifting at the value-chain level, driven by dynamics related to the carbon intensity of those products relative to alternatives. We are seeing cost and price risks as carbon pricing, for example, will impact our supply chains in varied ways that we need to understand and respond to. Our investments are subject to risks that require an appropriate understanding of them to respond appropriately. This is evidenced in our position not to invest in any new coal assets and to continue running existing assets to the end of their current economic lives, as well as in our new investment in copper. Our investment in Surge Copper Corporation is driven, in large part, by the demand and supply dynamics linked to the energy transition and the transition to net-zero greenhouse gas emissions.

Beyond risk mitigation, we expect benefits from improved understanding of, and relationships with, stakeholders across our value chains. We expect this improved understanding and positioning to unlock opportunities associated with access to markets and finance that can deliver greater shareholder value. Our initiatives are also preparing us for increasing compliance requirements in jurisdictions implementing related reporting amendments.

To mitigate these risks and capitalise on opportunities associated with the transition to net-zero and its impact on our value chains, we need to engage collectively. This is being driven in large part through the ICMM where work is focused on collective actions through advocacy, supplier engagement, downstream partnerships, product development and other forms of collaboration, which we actively support.

Improving our scope 3 emissions inventory and setting scope 3 emissions targets through our participation in the ICMM

The ICMM and its members have committed to reaching net-zero scope 1 and 2 GHG emissions by 2050 or sooner, which is in line with the ambitions of the Paris Agreement. Members have also committed to reporting on scope 3 emissions by the end of 2023 and setting reduction targets, if not by the end of 2023, as soon as possible. They have committed to playing a leading role in advancing partnerships that enable credible target setting and emission reductions across value chains.

In September 2023, the ICMM published scope 3 Emissions Accounting and Reporting Guidance to aid this effort, establishing a standardised framework for mining and metals companies to calculate and disclose their value-chain emissions. This was followed by December 2023 ICMM guidance on setting scope 3 emission reduction targets.

The ICMM is facilitating work to better understand the mining sector's scope 3 emissions challenges, progress and opportunities for coordinated or collective action. ARM is actively involved in these processes through the ICMM climate change working group.

Our improved scope 3 emissions inventory can be found on page 43 and our scope 3 emissions targets on page 49, both informed by the ICMM guidelines.

Scope 3 emissions targets

The process of setting targets was driven by the executive leadership team and has considered the ICMM guidance, a review of peer targets and commitments and engagement in ongoing processes through, for example, involvement in the ICMM climate change working group. There is currently no prescriptive approach or clear reference point against which to measure the appropriateness of scope 3 targets. Our approach has been to set an initial target that outlines our value-chain decarbonisation ambitions and details the steps we are taking to deliver on those ambitions. This enables flexibility in responding to evolving requirements and expectations, technology developments, changes in the market and other variables driving value-chain emissions risks and opportunities.

In line with our updated scope 3 emissions inventory (see page 43), we have focused on material scope 3 emissions categories. We are setting three qualitative targets covering the seven material categories of scope 3 emissions. This follows the new ICMM guidelines on scope 3 accounting and target setting, allowing the setting of either quantitative or qualitative targets material to the company, based on common characteristics such as our ability to influence emissions and the level of risk inherent in those emissions sources. We are including a series of commitments such as specific actions we are going to undertake towards these targets, culminating in setting quantitative targets by F2027. Targets apply to ARM as a group, but the commitments will be driven by different parts of the business where the target applies. For example, emissions associated with the processing of sold products are more material for the ferrous division.

The value-chain decarbonisation component of our climate-change strategy framework, includes the detailed actions we will undertake, as part of the commitments, to deliver on our targets. The framework includes enablers necessary to deliver those actions, including resourcing, capacity building, establishing governance structures, engagement and partnering.

We are responsible for meeting the commitments tied to our initial targets. These commitments detail the steps we will take to achieve those ambitions. This includes setting specific short- and medium-term qualitative targets that align with an appropriate pathway, ensuring we contribute to Paris Agreement-aligned value-chain decarbonisation. These will be tailored to our unique circumstances and aligned with the ICMM guidance while upholding the ambition of our initial targets.

Figure 10: Scope 3 emissions targets and commitments

		Targets	Commitments	Conditions
Upstream	Supply chain (1 and 2) and Transport (4 and 9)	**Target 1: Reduce supply-chain and transport emissions (indirectly controllable):** Partner/engage with key suppliers to identify and implement reduction pathways	• Complete supplier survey and segmentation • Assess decarbonisation targets and plans of key suppliers and transport service providers • Assess options to reduce transport needs • Engage partners • Refine qualitative commitments • Craft agreements with key suppliers and key product categories • Include CO_2e element into request-for-proposal evaluation for high-spend categories; consider including penalties/incentives in supplier contracts • Assess options to avoid high-emission vessels • Set quantitative targets by F2027.	ARM recognises that decarbonisation of our value chains needs to consider fairness and equity, in line with the Paris Agreement. The transition to a low-carbon society must reduce inequality and contribute to sustainable development. A just and equitable transition requires collective action. ARM does not have direct control over our value-chain emissions. Achieving our targets requires: • Partnerships and collaboration • Access to markets • Financial, technical and other support for the developing country governments across our value chains.
Downstream		**Target 2: Contribute to collective actions to reduce customer emissions (limited influence):** Alignment of customer decarbonisation targets with ARM's ambition	• Develop deeper understanding of customer decarbonisation targets and plans • Incorporate customer commitments into ARM scope 3 targets (will evolve over time) • Develop and implement the Assmang iron ore (in process) and manganese decarbonisation roadmaps • Monitor and contribute to ICMM efforts • Set quantitative targets by F2027.	
	Investments (15)	**Target 3: Align current and future investments with ARM's decarbonisation ambition**	• Develop Paris Agreement-aligned targets for existing investments by F2027 (where not assessed to already be in place) • Develop a framework for aligning future investments with ARM's decarbonisation ambition • Set quantitative targets by F2027.	

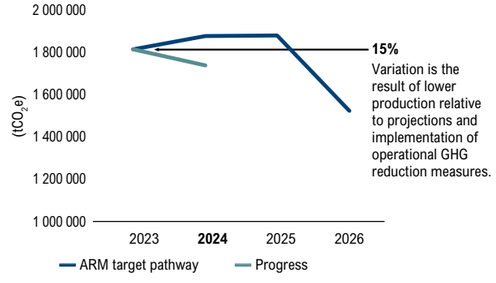
Targets and performance continued

Driving emission reductions
Our strategic focus on cost efficiencies and operational cost-reduction projects supports our initiatives to reduce energy consumption and emissions. Our energy and climate-change management strategy aims to identify and develop opportunities for long-term achievable emission reductions. It does this by investigating energy-efficiency initiatives, alternative energy sources, and new technologies, and considering our diversification into less energy-intensive products. Our decarbonisation pathway development process is ramping up these initiatives, recognising that we need urgent, more ambitious reductions to achieve our net-zero commitment. This process spans multiple financial years and involves feasibility or product comparisons, budgeting, capital allocation and, finally, procurement or construction, depending on the nature of the project. We drive investment in emission-reduction activities in the following ways:

- **Remuneration incentives:** Our 2018 conditional share plan and 2018 cash-settled conditional share plan connect corporate executive share incentives to our GHG emission-reduction target. The plan has been updated to include yearly executive incentive targets aligned with pathways to achieving our group target. At our operations, remuneration incentive packages for engineers and production employees are linked to energy efficiency and GHG emission reductions. The F2024 awards, measuring performance from F2024 to F2026, align with ARM's short-term emission-reduction targets.
- **Internal carbon price:** We have taken steps to establish an internal carbon price for evaluating new projects and acquisitions. The pilot exercise provided some insight into the financial implications of a project that reduces carbon-tax liability, and generated lessons for integrating an internal carbon price into our new projects and acquisitions. In F2023, we also considered carbon price in our investigations on appropriate alternative energy solutions (eg in the Northern Cape).
- **Climate-scenario analysis:** This analysis demonstrated the importance of identifying an appropriate decarbonisation pathway in line with the global 1.5°C climate goal.
- **Dedicated budget:** We have a capital allowance for energy-efficiency projects at our operations. In our new emission-reduction targets, we are allocating additional budget for more ambitious reductions and their associated projects.
- **Energy-efficiency plans:** Our operation-specific decarbonisation pathways include incremental short-term energy-efficiency improvements and are being refined to drive operation-specific projects.
- **Leveraging incentives and innovative models:** We have benefited from the section 12L energy-efficiency incentives offered by the South African government, and we continue to explore direct support opportunities and engage with third parties on innovative models for procuring renewable energy.
- **Research and development and supply-chain engagement:** We are exploring, internally and with our partners, innovative technologies that deliver low-carbon products or help our operations by indirectly reducing their energy consumption and environmental impacts.
- **Sustainability data management system:** We have been refining our data management system to serve a more proactive function, enabling planning, assigning clear roles and responsibilities for implementation, tracking progress and performance, and facilitating reporting.

Performance relative to targets
We are on track to meet our short-term target of a 15% reduction in scope 1 and 2 emissions by F2026 relative to F2023, as shown in Figure 11. A significant contributor is the reduction in scope 1 emissions in Cato Ridge as described in section (in page 41). The operations are implementing emission-reduction initiatives as part of their plans in line with meeting their operation-specific targets, which aggregates to deliver the ARM Group target. This includes ongoing investments in energy efficiency as well as progress on bringing in significant renewable energy in the platinum division. Additional measures, such as renewables in the ferrous division and introducing additional new energy vehicles, are underway.

Figure 11: ARM's short-term scope 1 and 2 emissions targets



GHG savings from new initiatives per year
Additional savings and carbon emission-reduction initiatives were implemented in F2024. The most significant include replacing existing lights with LED lights at the end of their lifespans, and the replacement of existing air-conditioning units with more efficient inverter types. Many of the projects implemented in F2024 have a payback period of less than three years. No new renewable energy was deployed or consumed during the year. However, significant progress has been made in leveraging renewable energy.

As detailed in Table 10, new initiatives implemented in F2024 resulted in a reduction of 314tCO_2e and 414 311kWh.

Table 10: New GHG savings initiatives

New initiatives implemented in F2024	Additional savings per year (tCO_2e)	Energy savings (unit per year) (kWh)
Energy-efficiency initiatives at Beeshoek: installing LED lights in plants and offices and replacing air-conditioning units with inverter types, once existing become defective; shortening discard spreader distance; and implementing equipment load-management measures (ensuring equipment doesn't operate without load)	267	267 271
Energy-efficiency initiative at Bokoni: installing LED lights.	47	47 040

Energy and carbon audits
Our platinum division mines, Two Rivers and Modikwa, continue to implement the action plan resulting from energy and carbon audits of F2022 to identify and quantify mitigation options. We will do the same for Bokoni Mine once its plans have been finalised. These audits will not be done for Nkomati Mine as it is on care and maintenance.

Energy and carbon audits were conducted at all ferrous operations in F2023, and a range of decarbonisation initiatives were explored. These audits focused on interventions that could reduce electricity consumption, process emissions (from smelters), and diesel combustion in mobile fleets. For each operation, they determined the blend of initiatives that would need to be implemented over the short term (2024 – 2026), medium term (2027 – 2030) and long term (2031 – 2050) to achieve net-zero GHG emissions by 2050. The audits also determined the capital and operating expenditure associated with the initiatives.

These audits have yielded long lists of mitigation options, each with marginal abatement cost curves (which consider the net-present value of costs over the net-present value of emission reductions over the life of the initiative) to aid decision-making. Mitigation plans were developed for each operation, and we are currently implementing plans and strategies. Targets will likely be based on the bottom-up decarbonisation pathways.

The ferrous division's key objective in F2023/F2024 was to develop carbon footprint plans for each operation. These plans were largely concentrated on the short- to medium-term basis. To date, all operations have completed their energy-efficiency improvement projects, with timelines and capital requirements.

The energy supply conversion, which considers the transition from traditional fossil energy to renewable energy, is underway, with optionality considerations. These options include renewable energy sources, baseload considerations, own-built or independent power producer, and liquid nitrogen gas as a transition energy that can support baseload requirements.

Niche technology in the energy use conversion space has achieved measurable success in underground operations, where primary mining equipment is now commercially viable. The ferrous division introduced battery electric vehicles (BEV) in 2021 for its Nchwaneng 3 Black Rock operations. These machines have yielded good results in the carbon-reduction strategy for Black Rock, and more development in the market is required to improve their operational reliability. The ferrous division is scouting the global market for opencast new energy vehicles. This includes keeping abreast with the global trend in new energy vehicle development, and groundbreaking achievements in different technologies that support this initiative. Khumani Mine will be testing a battery electric load and delivery vehicle for personnel transportation.

Targets and performance continued

Improving our sustainability data management system

Investing in data systems is necessary for two reasons. The first relates to increasingly stringent reporting requirements for carbon and energy, and the need for more robust, structured and streamlined processes that support the accurate use of data for diverse outputs. The second relates to improved performance in GHG emissions.

In F2020, we started developing a formal data system that identifies, prioritises, implements and reports on measures that save energy and GHG emissions. Over time, we have refined the system to serve a more proactive function, enabling planning, assigning clear roles and responsibilities for implementation, tracking progress and performance, and facilitating reporting.

In F2022, we began exploring data solutions that could improve the functionality of the system and that would ultimately enable us to integrate wider sustainability-relevant metrics and related management activities. At the same time, and continuing into F2023, we began incorporating financial metrics into the system to inform the prioritisation of decarbonisation measures and to aid the development of our decarbonisation pathway. Going forward, we will use the system to track the progress of targets associated with operation-specific decarbonisation plans and to identify cost-effective opportunities for improving energy and emissions performance.

We began implementing an automated sustainability data management system in F2024. The system gathers data from the operations, automatically consolidates it, performs the required calculations and reports on the outputs.

This gives us a view of our energy use, GHG emissions, water use, waste generation and health and safety metrics at the click of a button to ensure comprehensiveness. We are also able to view the metrics at operational or group level, analyse trends and identify anomalies for further investigation, improving accuracy. Another benefit of the system is that we are able to measure our environmental and health and safety performance against our targets. Our emission-reduction projects can be integrated into the system, their performance tracked and impact on emissions measured. This will be useful in our journey to net-zero.

We are already seeing the benefits of the system. It makes tracking, identifying anomalies and reporting much easier, and we anticipate further benefits once the system is fully implemented in F2025.

Energy

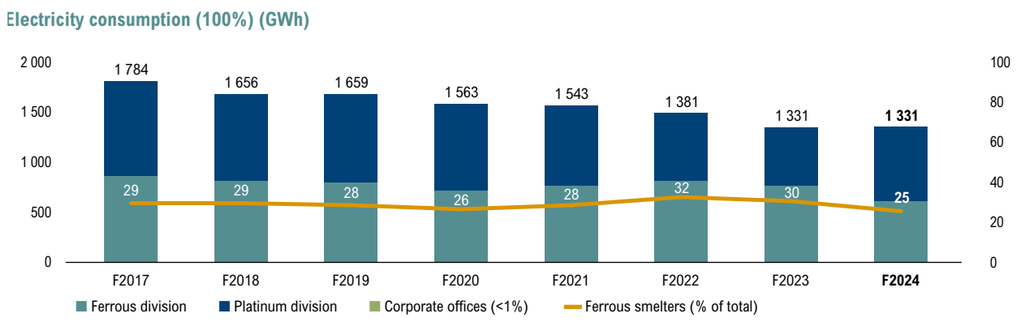
The primary sources of energy consumed in our value chain are electricity and diesel. Electricity is used in mining activities to power ventilation fans, pumps for processing and dewatering, conveyor belt motors and machines that crush and mill ore. Diesel is used to power mobile equipment (trackless machines and vehicles used for mining, loading, hauling and logistics) and standby electricity generators. The energy used for heating is one of the biggest cost inputs in the smelting process at Cato Ridge Works.

Total energy consumed in F2024 was 7 400 278GJ (including diesel, electricity, liquefied petroleum gas, petrol, acetylene and paraffin).

Total electricity consumed by the ARM operations was 1 331GWh (Figure 12: 100% basis), a below 1% decrease compared to F2023. The ARM ferrous division contributed 52% to total group electricity consumption: the three ARM Ferrous mines contributed 26%, Cato Ridge Works contributed 25%, and Machadodorp Works contributed less than 1%. ARM platinum division accounted for 48% of total electricity consumption: Modikwa Mine accounted for 22%, Two Rivers Mine 20%, Bokoni 5% and Nkomati less than 1%.

Corporate offices accounted for less than 1% of electricity consumption.

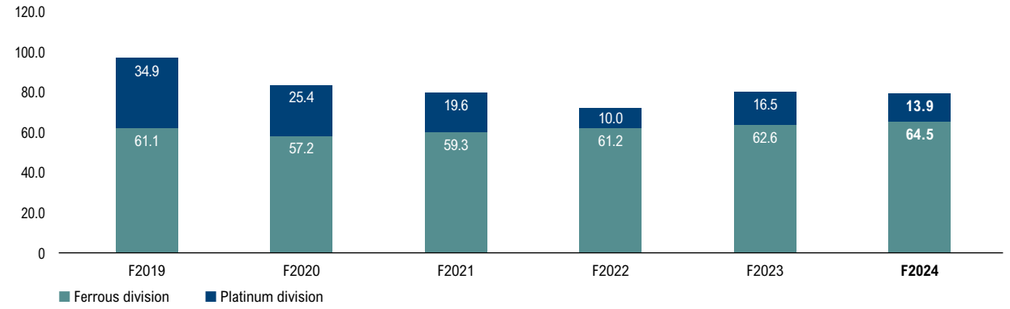
Figure 12: Electricity consumption by division (100% basis) measured in GWh



Diesel consumption contributed 57% to total scope 1 carbon emissions in F2024. Total group diesel consumption decreased by 1% to 78.4 million litres in F2024 (Figure 13).

The biggest diesel consumers were Khumani Mine (53.6%) and Beeshoek Mine (18.8%). The increase in diesel consumption at Khumani is due to an increase in waste rock mined in F2024. At Two Rivers Mine, diesel consumption decreased by 30% due to new access to grid power and changes in market conditions. Corporate is included but accounts for minimal consumption.

Figure 13: Diesel consumption by division (100% basis) measured in millions of litres



Energy consumption intensity (100% basis)

Table 11: Energy consumption for each product type in F2024

Type	F2024	F2023	Metric
Iron ore	**0.19**	0.20	GJ/tonne iron ore
Manganese ore	**0.21**	0.19	GJ/tonne manganese ore
Manganese alloy	**8.04**	8.69	GJ/tonne FeMn (high-carbon, medium-carbon and recovered metal)
PGMs	**0.39**	0.42	GJ/tonne milled

Energy consumption is expected to increase at many of ARM's operations. Khumani and Beeshoek mine at deeper levels and mine lower-quality ore, which increases stripping ratios.

Two Rivers Mine has invested in: a new mill, which increases energy demand by 3.5MW; more ancillary equipment; and a new TSF, which has increased electricity for pumping requirements by 1.7MW.

The electricity demand at Two Rivers Mine is set to remain around 40MVa, following the increase in F2023 with the completion of the new 132/11kV substation in August 2023 (originally planned for March 2023). Diesel generators were previously installed in the plant to supply the shortfall between the available 35MVA and required 40MVA and to power the Merensky project, which has subsequently stopped following its switchover to Eskom supply in December 2023. They are now available for standby power or to supplement power to the grid during Eskom load curtailment.

As Bokoni Mine began operations in September 2022, there is notably high energy consumption – and it is expected to remain high for the next four to five years – due to the demands of startup operations and increased capacity over time.

Energy production

ARM currently produces and consumes less than 1% of its power needs from renewable sources. This will change significantly, given the renewable energy plans in the platinum division and research underway in the ferrous division.

Future climate-change focus areas

Progress made on the areas of focus detailed in our F2023 report is provided under our climate-change journey to date.

Our climate-change strategy framework, under development, will drive our areas of focus for F2025 (please refer to climate-change strategy framework and transition planning section on page 28 for detailed insights).

Overall, these include:

- Finalising operation-specific decarbonisation action plans, which will formalise emission-reduction measures, include assigned roles and responsibilities, and have allocated budgets. We will also put in place refined systems and sufficient resources to ensure plans are achieved and that, ultimately, emission-reduction targets are met
- To progress and consolidate our climate-change strategy framework and associated roadmaps for our three pillars (decarbonisation, product/portfolio and resilience), including explicitly aligning our future capital expenditure with our decarbonisation goals
- We are taking action to decarbonise our value chain. This year, we have set scope 3 emissions qualitative targets and are planning to revise these in F2027, in line with our climate-change strategy framework and the ICMM's guidance on improved scope 3 emissions reporting and target setting
- Continuing to prepare for the South African carbon budget legislated phase 2 requirements
- Finalising and rolling out our sustainability data management system
- Continue to improve the resilience of our operations, value chain and communities, in line with our climate-change strategy framework and building on actions initiated this year:
  - Better understanding the physical impacts of climate change and developing appropriate responses for our operations while beginning the process of understanding the risks and responses for our broader value chain
  - Continuing to investigate and implement means of leveraging our LED and CSI spending to enhance community resilience to climate change
  - Continuing to assess climate-related risks in our supply chain and to implement the roadmap to integrate climate change into our ERM process fully
  - Working towards a second scenario analysis in F2026, which may consider including more quantitative aspects.

Modikwa Mine

TCFD/IFRS S2 index

In F2024, we updated our approach to disclosures and reporting – with references provided below – following industry updates. We continue to consider the TCFD recommendations as the foundation for the newly released and adopted IFRS S2 climate-related disclosures guidance.

	TCFD recommendation	Reference to disclosure	IFRS S2 corresponding[5, 6]	Page number
Governance Disclose the organisation's governance on climate-related risks and opportunities	(a) Describe the board's oversight of climate-related risks and opportunities	Governance Board-level oversight and management responsibility	6(a)	18 and 19
	(b) Describe management's role in assessing and managing climate-related risks and opportunities	Governance Board-level oversight and management responsibility	6(b)	18 and 19
Strategy Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's business, strategy and financial planning where such information is material	(a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term	Risk management Material climate-change risks Material climate-change opportunities	9(a), 10(a),10(c), 10(d), 13(b)	34
	(b) Describe the impact of climate-related risks and opportunities on the organisation's business, strategy and financial planning	Risk management The impact of risks and opportunities on business and financial planning	9(b), 9(c), 9(d), 13(a), 15(a), 15(b), 16(a), 16(d), 22(b)	34 38
	(c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	Our scenario analysis	9(e), 22(a)	32
Risk management Disclose how the organisation identifies, assesses and manages climate-related risks	(a) Describe the organisation's process for identifying and assessing climate-related risks	Risk management Integrating climate change into the risk management process	25(a)	34 37
	(b) Describe the organisation's processes for managing climate-related risks	Risk management Integrating climate change into the risk management process	–	34 37
	(c) Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management	Strategy Integrating climate change into the business strategy Carbon pricing Risk management Integrating climate change into the risk management process	25(b), 25(c)	28 38 31 34 37
Metrics and targets Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material	(a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process	Metrics and targets GHG emissions	29(b), 29(d), 29(f)	37 and 40 40
	(b) Disclose scope 1, scope 2 and, if appropriate, scope 3 GHG emissions and the related risks	Metrics and targets GHG emissions Energy	29(a), 29(g)	40 to 43 52
	(c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets	Metrics and targets GHG emissions-reduction targets Emissions-reduction initiatives	14(c), 28(c), 33, 34, 35	11 and 40 11 and 29 51

[5] *IFRS S2 paragraphs/questions 1 – 5, 7, 8, 11, 12, 17 – 21, 23, 24, 26 – 28a, 30 – 32 and 37 can be considered guidance as opposed to a specific disclosure item, and so have not been included in this list.*

[6] *IFRS S2 sections 14(b), 16(b), 16(c), 28(b), 29(c) and 29(e) do not directly correspond to TCFD sections, and so have not been included.*

Water

The global pressure on **life's most important resource** cannot be overemphasised. Water systems worldwide are **under threat from rising consumption**, pollution, weak governance and climate change. We are seeing shifting weather patterns, changes to water supplies, and an increase in extreme weather events such as floods and droughts.

Two Rivers Mine

Our position on water

Our water-stewardship policy recognises that:

- Water is a precious shared resource with high social, cultural, environmental and economic value. Access to water is recognised as a human right that is integral to the wellbeing, and livelihoods, as well as spiritual and cultural practices of many communities. It is also essential to the healthy functioning of ecosystems and the services they provide
- Water is a vital input for all mining and metals operations. It is required for the health and wellbeing of employees and at every stage of an operation's life cycle, including closure. The dependency and impact on a shared resource creates a material risk for ARM's operations that requires effective management
- Water challenges are increasing around the world. Freshwater resources are finite and under pressure from industrialisation, urbanisation, climate change and the needs of a growing global population
- These challenges are shared across countries, industry sectors and society. To meet demand, a change is needed in the way water is used, managed and shared. This will require collaboration and concerted action from all parties, including government, civil society, business and local communities
- Through the United Nations' Sustainable Development Goals, world leaders have publicly acknowledged the urgency of using and managing water sustainably. ARM can play a significant role in supporting this approach, including ensuring access to clean water, sanitation and hygiene for employees in the workplace. There is further opportunity to support government initiatives by leveraging capital or expertise to improve community access to clean water, sanitation and hygiene, and other water-related outcomes
- Water-related risks and impacts are predominantly experienced by people and ecosystems at local or catchment levels. Therefore, we look beyond traditional operations-based water management to the dynamics and interactions of water users in the wider catchment
- ARM plays an important role in the sustainable management of water resources where we operate. Proactive and holistic water-management strategies will create a substantial competitive advantage by reducing water-related risks, identifying opportunities, attracting investment, and building trust through improved transparency.

We also commit to:

- Applying strong and transparent corporate water governance by:
  - Publicly disclosing our approach to water stewardship through this report, as well as through our ESG and integrated annual reports
  - Allocating clear responsibilities and accountabilities for water, from the board to our operations
  - Integrating water considerations in business planning – including ARM's strategy, life-of-asset and investment planning
  - Publicly reporting our water performance, material risks, opportunities and management response using consistent industry metrics and recognised approaches
- Managing water at our operations effectively by:
  - Maintaining a water balance and understanding how it relates to the cumulative impact of other users at each operation. All operations maintain a water balance, considered in the context of a catchment balance
  - Setting context-based targets or objectives for operations with material water-related risks
  - Proactively managing water quantity and quality to reduce potential socio-environmental impacts and realise opportunities. ARM began reporting publicly on water quality in F2019
  - Ensuring all our employees have access to clean drinking water, gender-appropriate hygiene and sanitation facilities at their workplaces.

Collaborating to achieve responsible and sustainable water use by:

  - Identifying, evaluating and responding to catchment-level water-related risks and opportunities
  - Identifying and engaging proactively and inclusively with stakeholders who may influence or be affected by our operations' water use and discharge
- Actively engaging on external water governance issues, with governments, local authorities and other stakeholders, to support predictable, consistent and effective regulation that underpins integrated water-resource management
- Supporting water-stewardship initiatives that promote better water use, effective catchment management and contributing to improved water security and sanitation.

ARM's water reporting in relation to frameworks

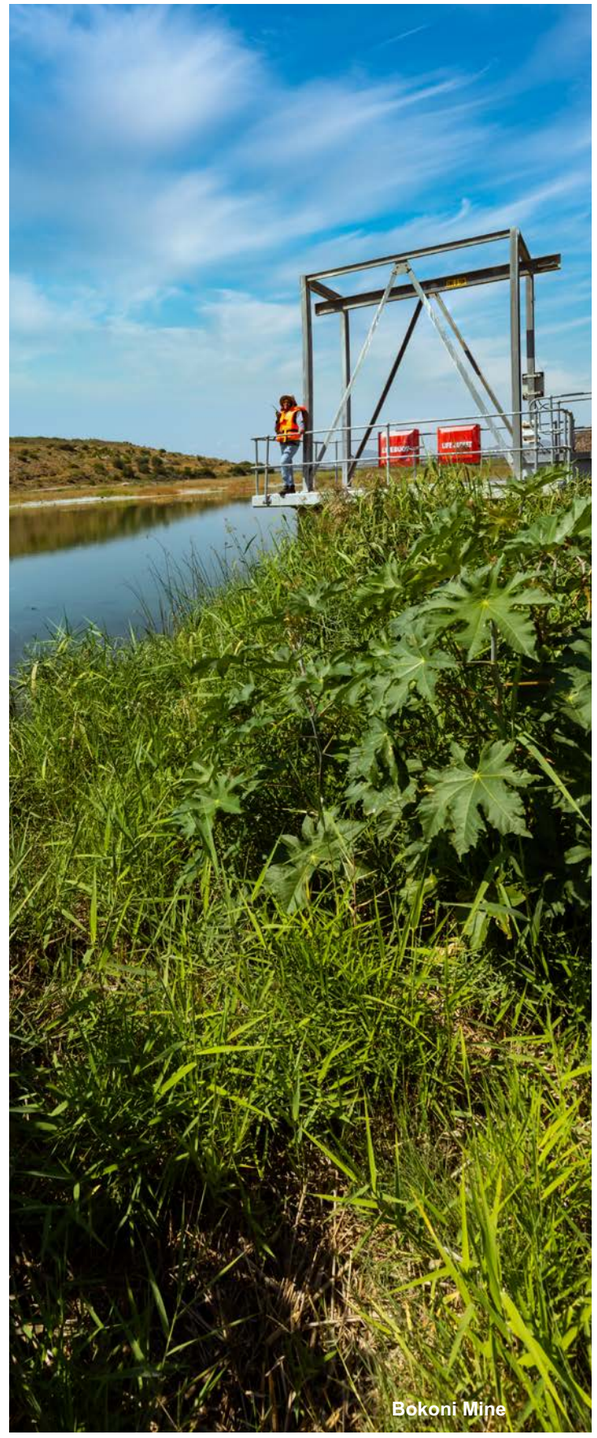
ARM's water reporting is designed to correspond and align with the ICMM WAF, as well as relate to other frameworks such as IFRS S2's core standard and mining and metals-specific guidance and the compliance requirements of our water use licences. We do this by reviewing and understanding our alignment with these key frameworks and tailoring our reporting to address their requirements.

We support the ICMM position statement on water stewardship and report our performance against the commitments in this report. We recognise the importance of transparency on water, given the increasing pressure on these resources, growing societal concerns about water access, and rising expectations on the stewardship of this vital resource.

We regard transparency on our water dependencies and performance as foundational for effectively engaging stakeholders and enabling informed decision-making. Therefore, we support and have started to implement the ICMM's updated practical guide to consistent water reporting.

Water-related terminology

- **Operational water withdrawal:** Water that is used to meet operational water demand
- **Other managed water:** Water that is actively managed (eg physically pumped, actively treated or has material consumptive losses) without intent to supply operational water demand
- **Output:** Includes flows to surface water and groundwater, and supply to third parties (volume of water removed from the operational facility after it has been through a task, treated or stored for use)
- **Consumption:** Includes evaporation and transpiration, water incorporated into product and/or waste streams, and other operational losses
- **Reuse efficiency:** The volume of untreated water used in tasks that has already been worked by the site as a percentage of total volume of all water used in tasks. Reuse efficiency varies across operations and is underreported as some operations do not measure flows of worked water back into tasks
- **Discharge:** Refers to unauthorised flows into the natural environment, as defined by operation WULs
- **Change in storage (delta storage):** The net change (positive or negative) in the volume of water in storage (operational water and other managed water) in the reporting period.



Bokoni Mine

How we use and manage water

At ARM's operations, water is used in milling, beneficiation, cooling and for dust suppression during blasting, on haul roads, and at ore-transfer points. It is also a critical component in our supply-chain commodities, including electricity, chemicals and explosives. Additionally, our employees need access to water for drinking, sanitation, and hygiene purposes. Focusing on water management and use, beyond a compliance basis, is integral to our climate-change strategy framework.

Operations withdraw water from a range of sources defined in the terms of their WULs, which include rivers, boreholes and municipal supplies. Water is also essential for users in our wider catchments. As a result, all our operations have water management plans in place.

Water uses at our operations have not changed significantly over time, except at Bokoni Mine, Nkomati Mine and Machadodorp Works, which moved to care and maintenance in F2021.

Evaporation is high at Cato Ridge Works, which requires water to cool its furnaces.

However, only two of its six furnaces are currently operating (furnace 1 was shut in F2023 and remained so for F2024). Our Northern Cape mines are exposed to high evaporation rates (linked to dry, hot and windy conditions), and a number of these operations supply water to third parties, such as villages and farms.

The reporting metrics in tables 12 and 13 include Cato Ridge Works (which is not a water-stressed operation). We undertook a process to prepare Bokoni Mine, which started operating in September 2022, for reporting according to the ICMM's WAF and update guidelines, and the resulting metrics are now included in this report.

Khumani Mine

Table 12: Main operational water activities across our operations

Operations	Catchment	Main operational[7] water activities
Beeshoek Mine (iron ore)	Vaal Water Management Area (WMA)	• Dewatering • Dust suppression • Ore processing • TSF management.
Khumani Mine (iron ore)	Vaal WMA	• Dewatering • Dust suppression • Ore processing • TSF management.
Black Rock Mine (manganese ore)	Vaal WMA	• Dewatering • Dust suppression • Mining, screening, and washing • TSF management • Domestic use (village and irrigation).
Cato Ridge Works (ferroalloys)	Pongola-Umzimkhulu WMA	• Cooling • Dust suppression • Scrubbing (air-quality requirement) • Jigging (in metals recovery plant).
Machadodorp Works *On care and maintenance*	Inkomati-Usuthu WMA	• No operational water activities due to care and maintenance status.
Nkomati Mine (nickel, PGMs and chrome) *On care and maintenance*	Inkomati-Usuthu WMA	• Dewatering • Ore processing (stopped in last quarter of F2021) • Dust suppression (ad hoc, under care and maintenance) • TSF management.
Modikwa Mine (PGMs)	Olifants WMA	• Dewatering • Water in underground processes (drilling) • Dust suppression • Ore processing • TSF management • Domestic use in mine villages and farms/third parties.
Two Rivers Mine (PGMs)	Olifants WMA	• Dewatering • Dust suppression • Ore processing • TSF management.
Bokoni (PGMs)	Olifants WMA	• Dewatering • Water in underground processes (drilling) • Dust suppression • Ore processing • TSF management • Domestic use (villages/sports and leisure/third parties and irrigation).

[7] *Operations under joint control or operational control.*

How we use and manage water continued

Table 13: ARM F2024 ICMM water-reporting metrics

Metric	Source/destination/type	Volume of water by quality: High (ML)	Low (ML)	Total (ML)
All sites				
Operational water withdrawal	Surface water	2 609	2 455	5 064
	Groundwater	3 881	8 679	12 560
	Seawater	0	0	0
	Third-party water	5 629	0	5 629
	Total	12 119	11 134	23 253
Other managed water (OMW)		547	703	1 250
Total output	Surface water	15	294	308
	Groundwater	0	1 079	1 079
	Seawater	0	0	0
	Third-party water	547	575	1 122
	Total	1 109	2 650	3 759
Total consumption				8 258
Operational water reuse/recycle				48 669
Operational water use				62 755
Change in storage (delta storage)				1 090
Sites situated in water-stressed areas				
Operational water withdrawal	Surface water	2 609	2 455	5 064
	Groundwater	3 881	8 679	12 560
	Seawater	0	0	–
	Third-party water	5 474	0	5 474
	Total	11 965	11 134	23 099
Other managed water (OMW) withdrawal		547	703	1 250
Total output	Surface water	0	294	294
	Groundwater	0	1 079	1 079
	Seawater	0	0	0
	Third-party water	547	575	1 122
	Total	1 094	2 650	3 744
Total consumption				8 047
Operational water reuse/recycle				48 537
Operational water use				62 469
Change in storage (delta storage)				1 090
Water stress exposure				
Proportion of sites in water-stressed areas			No sites	8

Table 14: ARM water-balance summary (comparative)

Metric	Source/destination/type	Volume of water by quality: F2024 High (ML)	F2024 Low (ML)	F2024 Total (ML)	F2023 High (ML)	F2023 Low (ML)	F2023 Total (ML)	F2022 High (ML)	F2022 Low (ML)	F2022 Total (ML)
Withdrawal	Operational surface water	**4 712**	**2 455**	**7 167**	5 940	2 527	8 467	6 086	925	7 011
	Operational groundwater	**7 407**	**8 679**	**16 086**	6 095	3 730	9 825	7 078	3 304	10 382
	Operational withdrawals			**23 253**			18 292			16 804
	Other managed water	**547**	**703**	**1 250**	550	2 433	2 983	NA	NA	NA
	Total withdrawal	**12 666**	**11 837**	**24 503**	12 585	8 689	21 275	13 164	4 229	17 394
Output	Surface water	**15**	**294**	**308**	27	118	145	32	164	196
	Groundwater	**0**	**1 079**	**1 079**	0	24	24	0	31	31
	Supply to third party	**547**	**575**	**1 122**	550	15	564	0	16	16
	Total output	**561**	**1 947**	**2 508**	577	157	733	32	211	243
Consumption	Evaporation	**209**	**5 227**	**5 436**	266	4 087	4 353	312	4 840	5 152
	Entrainment	**140**	**1 463**	**1 603**	0	2 317	2 317	0	4 123	4 123
	Other	**0**	**129**	**129**	0	(69)	(69)	0	133	133
	Change in storage	**0**	**151**	**1 090**	0	2 598	2 598	NA	NA	NA
	Total consumption	**349**	**6 969**	**8 258**	266	8 934	9 199	312	9 097	9 408
Reuse efficiency	Total of all flows to tasks (ML/a)	**9 688**	**53 067**	**62 755**	7 821	54 713	62 534	9 608	69 068	78 676
	Total worked water flows to tasks (ML/a)	**N/A**	**48 669**	**48 669**	N/A	48 979	48 979	N/A	62 507	62 507
	Reuse efficiency (%)	**N/A**	**N/A**	**77.55**	N/A	N/A	78.3	N/A	N/A	79
Diversions	**Water diverted to neighbouring communities, farms and other users**	**N/A**	**N/A**	**N/A**	N/A	N/A	N/A	590	0	590

Strategy

Water stewardship

At ARM, water stewardship is integral to our business strategy. Our approach is catchment-based and aims to be collaborative in delivering on our strategic objectives. For example, at Khumani Mine, we engage in project management, engineering and maintenance issues for the provision of water, which in turn supports our growth objectives.

For operations where water availability is constrained, relevant operation-level KPIs have been introduced. Operations invest in technology to reduce their water requirements and consider these investments as part of new or expansion projects to reduce water dependency and competition with other water users. Khumani Mine was designed with severely restricted water availability as a material consideration. As a result, and compared to conventional Tailings Storage Facility (TSF) disposal facilities, its TSF paste-disposal facility was designed to minimise water use and discharge, ensure maximum recycling, and significantly reduce evaporation losses.

We also believe that water-related challenges should be owned collectively. These issues are shared, and to be appropriately resolved, they require collaboration by governments, civil society, the private sector and local communities. We therefore continue to manage water impacts at our operations while regularly engaging with our partners and other stakeholders on water stewardship and holistic risk mitigation at catchment level.

Our operations participate in forums that discuss issues on sustainable water supply in their regions, including ways that climate change and shifts in regulation could potentially influence the availability and cost of water.

Water-related forums in which ARM operations participate or interact, include:

- Gladdespruit Forum
- Inkomati-Usuthu CMA
- Lebalelo water users association (WUA)
- Kgalagadi Catchment Management Forum
- Manganese Leadership Forum (engaging on the appropriate design of the VGWSS)
- Northern Cape Mines Leadership Forum
- Olifants River Water Resources Development Project
- Tshiping WUA
- Tubatse Environmental Forum
- Vaal-Orange CMA.

We are assessing the processes and outcomes of piloting the ICMM water stewardship maturity framework (see page 67). Based on this, and as the broader programme unfolds in the ICMM, we updated our water-stewardship approach in F2024.

Our operations also engage with catchment-level forums that estimate current and future catchment balances. The Inkomati-Usuthu CMA, where Nkomati Mine and Machadodorp Works operate, is effective in facilitating this and meets quarterly. The proposed Vaal-Orange CMA will assume responsibility for the catchment where our Northern Cape operations are situated. In addition, the Tshiping WUA and relatively new Kgalagadi Catchment Management Forum in the Northern Cape contribute reasonably well to this function. The latter is still developing relationships with mines. Other forums or CMAs are less effective and catchment-level water availability and quality are not understood as well. At the Black Rock and Khumani mines, there are concerns about the security of the water supply. The Vaal Central Water Board is unable to supply operations with contracted volumes due to the condition and capacity of infrastructure, as well as the managerial challenges of the pipeline. This is impacting the ability of Khumani Mine to meet business objectives. Assmang – under the leadership of ARM Ferrous division – and other stakeholders are engaging with the Vaal Central Water Board and DWS for a plausible and sustainable solution.

Mines also make direct investments in improving water supply. For example, in F2022, Khumani invested over R200 000 and provided other non-financial resources to support the Vaal Central Water Board in fixing valves, fixing leaks and improving data systems. Several new mines have been developed near Black Rock Mine, but this has had a limited impact on the water supply to the mine to date. In F2024, Black Rock Mine had no water issues reported on account of the new pipeline installed in F2023. However, catchment-level management will be critical to ensure security of supply as these operations ramp up, given that Black Rock remains dependent on Kumba Iron Ore. Khumani Mine is using excess water from Kumba Iron Ore for dust suppression (see case study on the next page). In addition, Beeshoek Mine also regularly engages with Kumba Iron Ore's Kolomela Mine to ensure any challenges at that mine, with the potential to disrupt the water supply to Beeshoek Mine, are addressed as early as possible. As such, Black Rock Mine and Kumba Iron Ore are discussing ways that Kumba Iron Ore can be better equipped when it faces water challenges. For example, in F2022, there were two instances where Kumba Iron Ore had issues with pump stations that affected Black Rock Mine's water supply, resulting in potable water restrictions in the village. There were no such incidents in F2023 and F2024, and communication between the two entities remains strong.

Modikwa Mine engages through a quarterly environmental forum established to support the local municipality with service-delivery issues. Along with other stakeholders in the area, Modikwa Mine also responds to the municipality's requests where possible.

Case study: Collective action to address water scarcity

To collaboratively tackle water-scarcity challenges, Khumani Mine is pursuing a solution to secure 2.1 million m^3/year from neighbouring Sishen Mine (Kumba Iron Ore). This amount would offset some 50% of Khumani Mine's current supply from the Vaal Central Water Board.

In F2023, the DWS issued a directive permitting the once-off use of this amount of water, and Khumani Mine has put in place the necessary infrastructure on its side. A portion of the total amount (345 104m^3) was transferred between January and June 2023, before the water in the Sishen South pit dried up. To access the remaining 1.7m^3 of authorised water, we are proceeding with phase 2, which, by December 2023, included the installation of a booster tank at the pit and a pipeline to Khumani Mine. Before the ongoing 2.1 million m^3/year can be secured, Sishen Mine needs to amend its WUL. However, both mines remain committed to the process.

In F2024, water security in the Northern Cape remained a challenge. The public-private collaboration between the commercial users and the DWS has made significant progress. To date, key agreements have been reached (pending final sign-off) which underpin refurbishment of the pipeline. The refurbishment project is earmarked to be completed within seven years from inception date. To cater to their capital liability, the commercial users are considering various funding options and have created a funding model which is going through optimisation for approval. The second phase of the Sishen-to-Khumani water transfer has been commissioned. The process water is being pumped from Sishen to Khumani at 125m^3/h.

Strategy continued

Case study: Viable public-private partnership helps meet catchment needs

ARM is represented on the Lebalelo WUA by Two Rivers and Modikwa mines. Through this representation, we are involved in securing adequate water supply for our mines and for other users in the catchment, including local communities, while ensuring costs are suitably apportioned.

Involvement in the Lebalelo WUA is also important from a strategic expansion perspective, as it provides the potential flexibility to enable our growth in the area. The combined demand for potable water at ARM's Modikwa and Two Rivers mines is expected to increase marginally primarily due to production from the Two Rivers Merensky project; however, the project is currently on care and maintenance. These mines need bulk raw water at a transparent, predictable and cost-effective tariff to maintain and expand their operations. The south extension 2 (SE2) pipeline was completed in March 2024. This pipeline now provides Two Rivers with 5Ml/day of water from Lebalelo. This ensures the sustainability of water supply to Two Rivers.

Investment in research and development to mitigate water-related risks

Two Rivers and Modikwa mines have collectively invested R13.9 million in a feasibility study for a project in Limpopo province. The project sees a partnership between Lebalelo WUA and the DWS and is focused on providing potable water to host communities, and raw water to mining companies.

Community water

In F2024, facilitated by the ARM Rural Upliftment Trusts, we invested in 31 new boreholes for the community across different areas where we operate, with a total cost of over R6.5 million. In F2023, we had already invested in seven new community boreholes at a cost of R1.6 million, and repaired three boreholes at a cost of R32 962.

In F2022, to provide water to 5 500 households in Kuruman and surrounding areas, Khumani Mine, in partnership with the Ga-Segonyana local municipality, Kumba Iron Ore and Black Rock Mine constructed a 13.5km pipeline with a diameter range of 300 – 500mm. Khumani Mine contributed R34 million towards the total project cost of R110 million.

In F2024, in response to ongoing water scarcity, through its social engagement, Bokoni Mine initiated a social labour plan to support its proximate Brakfontein community. The Monametsi-Mokgotho (Brakfontein) project is now complete and assists with water scarcity alleviation for the two communities. In addition, through SLP 3, Bokoni Mine is implementing an additional 12 boreholes, equipping and reticulation in Baroka ba Ga-Nkwana, Ga-Maisela-Manotwane and Ga-Selepe communities, seven of these are in progress and close to completion.

After flooding in the Beeshoek Mine community (Boichoko) in F2021/22, Assmang committed R6.5 million through SLP 3 following a Section 102 process with the DMPR to assist the Tsantsabane local municipality in constructing stormwater channels. This commitment is underway (53% completed at end of June 2024) and once finalised in September 2024, it is estimated to have benefited 18 248 community members and created 20 temporary jobs.

Case study: Piloting the ICMM water stewardship maturity framework

In November 2023, the ICMM launched a water stewardship maturity framework. This framework is preceded by the ICMM's water stewardship position statement (2017), A Practical Guide to Catchment-based Water Management for the Mining and Metals Industry (2015) and Water Reporting Good Practice Guide (2021). The water stewardship maturity framework was developed to further support organisations in evaluating their water-management practices, benchmarking their water-stewardship performance, identifying areas for improvement, implementing targeted actions, and investing in actions that will improve overall catchments and business outcomes.

The framework was first piloted at ARM operations in F2023 and further rolled out at Beeshoek and Bokoni in F2024.

As a member of ICMM, ARM is committed to reporting water use and management practices according to the ICMM WAF. We view the latest framework as supporting the effective management of water as a shared resource, to understand and integrate our water use across our diverse agendas (eg, climate resilience, cultural heritage, nature-positive approaches, social performance and inclusion, operational excellence), and to ensure that our reporting is standardised and aligned with industry best practices.

Two Rivers Mine

Risk management

ARM's water risks

All our operations are exposed to context-based, water-related risks. Operations can be impacted by too much water in a short period (flooding), not enough water over an extended period (droughts), and the respective impacts of these natural hazards on ground and surface water. Consequently, our strategic objectives at group and operational levels include various water considerations, including the availability, protection and management of water sources and the use of appropriate technologies and other mitigating factors to address water needs or manage water impacts.

Direct water risks and mitigation measures

Our operations use water balances to manage and optimise water use. Where appropriate, KPIs incentivise improvements to water efficiency.

To the extent possible, all operations run closed-circuit water systems to maximise reuse and minimise discharge into the environment. Dirty and clean water are separated, and operations implement a hierarchy of use to ensure that dirty or process water is recycled and reused before clean water is abstracted from the natural environment. Where appropriate, technologies such as reverse osmosis have been implemented to clean process water.

The commissioning of a reverse osmosis plant at Machadodorp Works has been completed and fully operational since April 2024. It treats and cleans all contaminated water with high chrome-6 from dam 1, the borehole below the slag dump and the river dam. This clean water will be regularly released to the wetlands. When possible, there will be clean water stored in dams following the treatment of dirty water. A reverse osmosis plant will also be commissioned by Cato Ridge Works by the end of Q1 F2025.

We continue to investigate natural, sustainable alternatives, such as wetland formation, particularly for our mine-closure plans.

Surface and groundwater quality are monitored to measure compliance with WUL conditions, assess our impact on the receiving environment, and flag the need for mitigation actions. Biomonitoring of aquatic and riverine environments is performed as per the conditions of each operation's WUL.

Finally, various measures are in place to reduce water consumption, increase storage and mitigate production downtime, including the use of dust-suppression surfactants to reduce evaporation.

Table 15: Main water measures at ARM's operations

Operation	Measures
Beeshoek Mine	• To provide greater flexibility as areas are mined out, Beeshoek Mine has applied for an amendment to its WUL to allow for additional dams and new boreholes. These measures would help reduce reliance on water from Kolomela Mine via the Vaal Central Water Board. The outcome of this application is pending an external process. The new stormwater dam, commissioned in F2020, enabled the mine to better separate clean and dirty water during flooding events in F2021. In F2022, additional investments were made in pumping capacity, and road designs were revised to improve water drainage. Previously, the mine has also invested in mobile pumps and software to optimise dust suppression using water trucks, as well as the addition of two tunnels within the plant where additional suppression points will be included. These will form part of the feed – as sourced from stockpiles – to reduce dust.
Khumani Mine	• In addition to a design that uses paste technology for TSF disposal (recovering up to 85% of water), Khumani Mine has invested in long-term, on-site water storage and built additional stormwater trenches and dams. These initiatives reduce safety risks during extreme weather and limit production downtime • The mine has upgraded the return-water line between its King and Parsons plants, and the line carrying Sishen Mine water. Improvements are being made to stormwater management at the mining sections: Bruce improvements are 90% complete, and improvements at King are underway. The load-out and pollution-control dam pumping system at Parsons (to speed up pumping and reduce seepage losses) and the paste disposal facility's pumping systems have been upgraded. The mine has also implemented a turret decant system at the TSF that allows the decanting/removal of excess water off the tailings dam from smaller-sized pools. Upgrades to filling points to reduce losses (spillages) are planned but have not yet started • The mine is securing 2.1 million m^3 water from neighbouring Sishen Mine, which will offset an estimated 50% of Khumani Mine's current supply from the Vaal Central Water Board. A portion of the total amount (345 104m^3) was transferred between January and June 2023, before water in the Sishen South pit dried up. Before any further progress can be made, Sishen Mine needs to amend its WUL. However, both mines remain committed to the process.
Black Rock Mine	• ARM's Ferrous division invested in and successfully commissioned two high-density thickening units at the Black Rock mines (Nchwaning and Gloria). The Assmang project team completed the Nchwaning thickening unit in early 2020 and the Gloria thickening unit in 2021. Both units are currently in operation and form an integral part of optimal process-water clarification and recovery at these mines • Black Rock Mine reuses process water for gland services at the Nchwaning plant. The mine has invested in pipelines to do the same for the Gloria plant, which will start in December 2024. Following a discharge after an extreme rainfall event in F2021, the mine developed a new stormwater-management plan to encourage better separation of clean and dirty water, and to improve the reuse of captured water. The new Gloria lined TSF is complete and operational and is adding to overall improved water performance by reducing loss through seepage. The mine has allocated significant capital expenditure to water metering, with 54 new flow meters being installed in F2023 and the ability to provide continuous water data electronically. The operational water balance is in place and the mine is working on refining individual dam variances to minimise water losses • Black Rock Mine is also investing in a combined sewage treatment plant that, subject to authorisation, will treat effluent using the reverse osmosis plant to provide potable water for the village and reduce the quantity of potable water withdrawals from the Vaal Central Water Board. However, approval for this licence is still pending. In the interim, the mine is focused on constructing the centralised wastewater system, which will generate 1 000m^3 per day of water for irrigation and process use and reduce the mine's withdrawals from the Vaal Central Water Board.
Cato Ridge Works	Cato Ridge Works plans to install the reverse osmosis plant by the end of Q1 F2025 and will subsequently measure its effectiveness at reducing municipal water consumption. Studies related to this are in the design phase. Based on this, it will set a revised water-management plan from F2026. It has started to use impacted stormwater from the dams as a replacement for municipal water for furnace cooling.
Machadodorp Works	Machadodorp Works has constructed cut-off trenches, and, since April 2024, has had a fully operational water-treatment plant to mitigate the risk of discharges to the environment.
Nkomati Mine	Nkomati Mine has desilted existing stormwater pollution-control dams and trenches to ensure proper separation of dirty and clean surface runoff, ensuring protection of the water resource. Numerous studies have been commissioned to address water challenges while the mine is under care and maintenance and, ultimately, planning for closure. In particular, an update on the geohydrological assessment and geochemical assessment to understand and evaluate the risk associated with positive water balance and pollution preferential flow paths, water balance and risks associated with pollution plumes following care and maintenance. Nkomati Mine is currently evaluating the long-term water-management solution to manage positive water balance within the mine. A water-treatment plant has been considered as a long-term strategy to manage excess water. Application for the water use licence and environmental authorisation for these water uses are in progress.
Modikwa Mine	In F2022, Modikwa Mine drilled scavenger boreholes to intercept potential pollution plumes as part of initiatives to rehabilitate contaminated water. This water will be reused in the process, pending approvals. To inform the approvals process, the mine is investigating ways of monitoring the movement of the water and better understanding the water balance. This is currently being assessed in an ongoing geohydrological study to assess water quality, the direction of the plume, with more expected completion in early F2025. As part of its ongoing biodiversity management plan, it is also continually removing alien vegetation to improve water availability for other catchment users.
Two Rivers Mine	Two Rivers Mine has lined its new TSF to reduce water seepage. The mine started using the new TSF in March 2022. The pollution-control dams are now all lined. With the development of the Merensky project, the mine has upgraded its pumping system to improve integration and transfer of water between the old and new TSFs. Other initiatives include treating sewage water so that it can be used as service water; removing silt from settling dams; and more active cleaning of pollution-control dams, buffer and settling dams to build capacity for more-frequent big rainfall events.
Bokoni	In F2024, Bokoni Mine installed a water-treatment plant to improve potable water quality. It has limited capacity of 1 megalitres, to be phased up to 6 megalitres. The mine also plans to line its return-water dam (dam 10) and pollution-control dam (dam 11) to limit seepage into a nearby water source.

Risk management continued

Water and TSFs

We currently have 13 TSFs at our operations: four at Black Rock Mine, two at Nkomati Mine (Onverwacht and Co-disposal), two at Two Rivers Mine (De Grooteboom and Old TSF), two at Bokoni Mine (one operational and another on care and maintenance, both of which undergo dust suppression (dam 5 and dam 6), and one each at our Beeshoek, Khumani and Modikwa mines. Black Rock Mine is commissioning a fifth facility.

We apply the GISTM approach to our TSFs management. GISTM is the first global standard on TSF management and focuses on achieving the goal of "zero harm to people and the environment. It requires companies (operators) to take responsibility by prioritising the safety of their TSFs through all phases of the mine life cycle"[8]. This goal is well aligned with ARM's values, policies and standards.

We have produced a public GISTM disclosure document that confirms ARM operations have implemented effective risk management processes and systems. These systems ensure the effective management of the TSFs and that any risks to people and the environment are identified and mitigated. Along with our joint-venture partners, we have adopted GISTM at all our operations and good progress has been made in achieving full conformance.

In the process of implementing GISTM, the level of awareness of mine personnel and surrounding communities of risks posed by TSFs was elevated.

Along with our joint-venture partners, we will build on this foundation and ensure TSFs continue to be operated safely and responsibly to the benefit of all stakeholders.

For more information, refer to the report on conformance to GISTM on the ARM website.

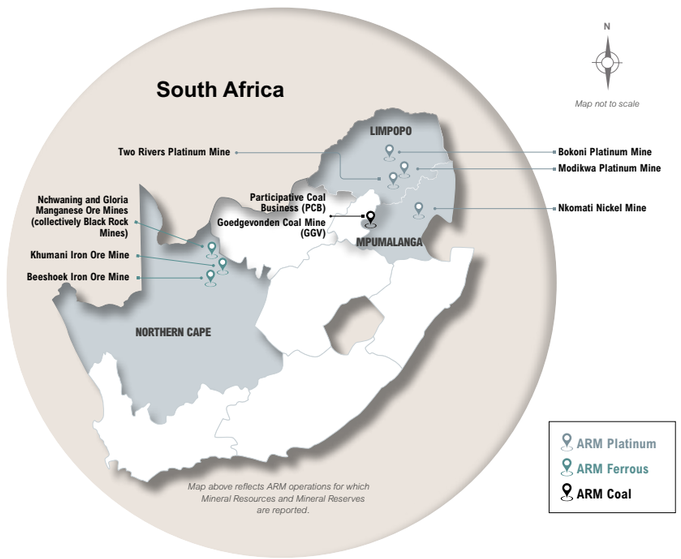
Indirect water risks and mitigation measures

In F2019, to better understand water risks associated with our supply chain, we assessed risks faced by each operation's top five suppliers (by spend). Our F2021 scenario analysis then considered the projected physical impacts of climate change on water supply and identified critical areas that require additional investigation and collective efforts. These areas include the projected impacts of climate change on the Vaal River that feeds supply to our Northern Cape mines, as well as on other areas depicted in Figure 14 below.

Between F2025 and F2026, as part of our climate-change strategy framework and transition planning, we plan to conduct an initial assessment and mapping of supply-chain risks across operations, engage with suppliers and identify appropriate mitigation measures to address the risks. Please refer to the climate-change resilience section for more on how we consider risks and opportunities in our supply chain.

We are also working to better integrate our water risks into our ERM processes. Please refer to page 77.

Figure 14: South African water management areas as they relate to our areas of operation



[8] *Global Industry Standard on Tailings Management, August 2020, page 4. (https://globaltailingsreview.org/global-industry-standard/).*

Catchment-level risks

Water management is a material matter across the group, although for varying reasons at different operations. Some key risks to our business value and performance relate to potential non-compliance with WULs, especially where mines have a positive water balance and risk discharge events; adequate water supply; and climate-change and water-related disruptions that cause production stoppages.

Our primary concerns are the availability of water, uncertainty in the existing policy environment, the state of existing water infrastructure, and the socio-economic impacts of these risks. On the residual risk dashboard in our 2024 ESG report, the unreliability of water supply in the Northern Cape is classified as one of our top ten risks (impact: critical; likelihood: almost certain).

We anticipate that the likelihood and impact of our water-related risks will increase over time as climate change results in more extreme weather events (particularly floods and droughts). We continue to take steps to mitigate these risks as best possible.

Corporate

In the Northern Cape, we have played a leading role in securing long-term bulk-water supplies (see case study below). This is in addition to our operations' investment in water purification and storage, and various efficiency measures implemented. In Limpopo, an ARM executive participates in the Lebalelo WUA, a section 12 entity set up by mining companies to supply bulk raw water to member mines and other clients.

Case study: Leading collective investments in bulk-water infrastructure in the Northern Cape

The increasing cost and unreliable supply of water in the Northern Cape present a material risk to our operations in the area. We are participating in a process to proactively mitigate this risk.

Phase 2 of the Vaal Gamagara Water Supply Scheme (VGWSS) refurbishment project has reached consolidation stage. Commercial users are seeking mandates from their boards to commit their 56% portion of the capital funding. This project is a public-private collaboration between the government (DWS), the Vaal Central Water Board (previously Bloem Water), and commercial users.

Key milestones in the previous financial year include the development of the contract to appoint the professional services provider that will design, perform specialist studies and supervise construction, the conclusion of the memorandum of agreement (pending approval by the commercial users), the development of the funding model, and the formation of the Vaal Gamagara Water User Association. This body will manage the phase 2 projects and develop the operations and maintenance risk mitigation strategies.

In addition to the financial support already received from Assmang in 2022, further financial support from the Northern Cape Mine Leadership Forum in 2023 has been invaluable in addressing significant pipeline failures that were affecting water delivery in the region. This work was completed in March 2024, and increased the pumping capacity of the Vaal River system to 67% of its design capacity.

The design work of the phase 2 project, pending the completion of all outstanding agreements, is earmarked to start in Q3 of F2024.

Risk management continued

Operations

Eight of the nine operations under our direct or joint control are in water-stressed areas, namely: Beeshoek Mine, Khumani Mine and Black Rock Mine (in the Vaal WMA); Two Rivers Mine, Modikwa Mine and Bokoni Mine (in the Olifants WMA); and Nkomati Mine (under care and maintenance) and Machadodorp Works (in the Inkomati-Usuthu WMA).

The risk registers indicate the water-related risks and/or opportunities for each of these mines except Cato Ridge Works (which is in the Pongola-Umzimkhulu WMA and therefore not in a water-stressed area).

In the risk registers, we provide an ARM risk rating (based on ERM methodology) for the respective WMA and indicate catchment stress and operational risks. We used the WWF water risk filter[9] to determine ratings and indexes for catchment stress, and ratings for operational risks. For catchment stress, we provide an overview of potential risks at the WMA scale. For operational risks, we detail primary and secondary risks associated with each operation.

In future risk reviews, we will consider including additional sources, and increasing consideration of climate aspects such as floods, droughts and supply of surface and groundwater.

Risk register for the Olifants WMA

		Catchment stress		
Operation	**ARM risk rating**	**Rating**	**Description**	**Index**
Modikwa	Medium	Moderate	There is a limited catchment management (no effective CMA)	Physical risk: 3.92
			Operations technically need to contribute to the establishment and effective functioning of a CMA as part of their WULs, but failure to achieve this is mainly due to governance challenges and capacity constraints of the regulator	Regulatory risk: 2.35 Reputational risk: 3.12
		Operational risk		
	High		**Primary risk** Physical: Water shortage (driven more by socio-economic dynamics in access to water and services than drought); indirect risks related to water and its impacts on TSF stability	Physical risk: 4.31 Regulatory risk: 3.5
			Secondary risk Physical: Underground flooding due to positive-water balance underground Regulatory: Lack of established CMA Reputational: Vandalism of Lebalelo pipeline	Reputational risk: 3.6
Two Rivers	Medium	Moderate	There is a limited catchment management (no effective CMA)	Physical risk: 3.18
			Operations technically need to contribute to the establishment and effective functioning of a CMA as part of their WULs, but failure to achieve this is mainly due to governance challenges and capacity constraints of the regulator	Regulatory risk: 2.48 Reputational risk: 3.42
		Operational risk		
	High		**Primary risk** Physical: Water scarcity; extreme weather events, including increased spillages	Physical risk: 4.31
			Secondary risk Regulatory: Lack of established CMA, poor catchment management (Dwarsrivier Catchment Management Forum, of which the mine is a part, is conducting a study to determine a sub-catchment balance)	Regulatory risk: 3.5 Reputational risk: 3.6
Bokoni	Medium	Moderate	There is a limited catchment management (no effective CMA)	Physical risk: 3.77
			Operations technically need to contribute to the establishment and effective functioning of a CMA as part of their WULs, but failure to achieve this is mainly due to governance challenges and capacity constraints of the regulator	Regulatory risk: 3.54 Reputational risk: 3.07
		Operational risk		
	Moderate		**Primary risk** Physical: Water scarcity; extreme weather events, including increased spillages; seepage from unlined pollution-control dam and underground flooding due to positive water balance underground	Physical risk: 3.92 Regulatory risk: 3.5
			Secondary risk Physical: Lack of immediately available potable water Regulatory: Lack of established CMA Reputational: Vandalism of Olifants pipeline	Reputational risk: 3.6

Water availability is at risk at Modikwa Mine for socio-economic reasons rather than drought. Community unrest and vandalism could impact the water supply to the mine, however, the risk is low as the Lebalelo pipeline is underground and Modikwa has access to its own water resources. Inadvertent discharge also presents a regulatory and reputational risk. This risk is being adequately managed and guided by the water use license.

Two Rivers Mine has a lower degree of exposure to water-supply risks, but the area faces poor catchment management, and initiatives to develop a sub-catchment balance have been unsuccessful. In F2020, water in the Dwarsrivier, the mine's main supply source, fell to very low levels, and a pipeline was installed to secure an alternative water supply. The new Two Rivers Merensky project requires additional water, and the mine has entered into an agreement with the Lebalelo pipeline to ensure the pipeline will supply water to Two Rivers as needed.

[9] *WWF's water risk filter (https://waterriskfilter.panda.org/) is an online tool that helps companies and investors assess and respond to water-related risks facing their operations and investments across the globe. The tool rates operational and basin risk on a scale of 1 to 5 and considers physical, regulatory and reputational water risks. Aggregated risk scores for catchment stress are computed by applying industry-specific weightings. Operational risks scores are calculated based on operation-specific responses to the WWF water risk filter questionnaire.*

Risk management continued

Risk register for the Inkomati-Usuthu WMA

	Catchment stress			
Operation	**ARM risk rating**	**Rating**	**Description**	**Index**
Nkomati	High	Moderate	The catchment has one of the few effective CMAs in the country, which helps to mitigate overall catchment risk	Physical risk: 3.2 Regulatory risk: 2.08 Reputational risk: 2.82
		Operational risk		
		High	**Primary risk** Physical: Surface-water contamination (too much water, inadequate storage/space) Regulatory: Challenge in obtaining amended WUL as the mine has moved into care and maintenance **Secondary risk** Reputational: Managing stakeholder concerns on care and maintenance, and ultimately closure	Physical risk: 4.39 Regulatory risk: 4.0 Reputational risk: 3.0

	Catchment stress			
Operation	**ARM risk rating**	**Rating**	**Description**	**Index**
Machadodorp Works	Medium	Moderate	The catchment has one of the few effective CMAs in the country, which helps to mitigate overall catchment risk	Physical risk: 2.82 Regulatory risk: 1.37 Reputational risk: 3.12
		Operational risk		
		Moderate	**Primary risk** Physical: Surface-water contamination (limited production activities to manage high rainfall events)	Physical risk: 4.34 Regulatory risk: 3.0 Reputational risk: 2.8

Nkomati Mine has a net-positive water balance. As the mine is on care and maintenance, it is accumulating excess water. Surface-water contamination for the two reported discharge incidents at Nkomati Mine resulted in an increase to ARM's total output. This water will, ultimately, need to be discharged to maintain this balance, and the mine has applied to mitigate these via short-term controlled water discharges (especially during the rainy season), in addition to the long-term water treatment plant construction. In the interim while awaiting approval, the mine will continue to conduct studies on other long-term efficient, effective and sustainable ways to maintain the water balance.

Machadodorp Works is on care and maintenance. Any rainwater therefore runs the risk of controlled discharge and associated non-compliance with waste management and the WUL.

Risk register for the Vaal WMA

	Catchment stress			
Operation	**ARM risk rating**	**Rating**	**Description**	**Index**
Black Rock	High	Moderate	ARM's company-specific risk assessment rates the basin higher, as the Vaal Central Water Board pipeline infrastructure requires investment, and the source catchment faces water stress There is limited catchment management as there is no CMA for this WMA. Improvements are expected with the proposed establishment of the Vaal-Orange CMA	Physical risk: 2.61 Regulatory risk: 3.65 Reputational risk: 3.62
		Operational risk		
		High	**Primary risk** Physical: Water shortage (including future depletion of underground source – particularly in shallow aquifers (boreholes)); discharge events due to heavy rainfall (resulting in directives from DWS) **Secondary risk** Regulatory: Limited catchment management, but improvements are expected given the proposed inclusion of the Tshiping WUA; heavy rainfall events leading to surface-water contamination affecting neighbouring farmers; flooding affecting bulk-water infrastructure. A new stormwater-management plant was approved, but implementation is pending financing	Physical risk: 3.88 Regulatory risk: 4.0 Reputational risk: 4.4

	Catchment stress			
Operation	**ARM risk rating**	**Rating**	**Description**	**Index**
Khumani	High	Moderate	ARM's company-specific risk assessment rates the basin higher, as the Vaal Central Water Board pipeline infrastructure requires investment, and the source catchment faces water stress There is limited catchment management as there is no CMA for this WMA. Improvements are expected with the proposed establishment of the Vaal-Orange CMA	Physical risk: 3.38 Regulatory risk: 2.52 Reputational risk: 2.97
		Operational risk		
		High	**Primary risk** Physical: Water shortage (need for long-term supply and storage) **Secondary risk** Regulatory: Limited catchment management	Physical risk: 3.88 Regulatory risk: 3.5 Reputational risk: 4.4

Risk management continued

Operation	ARM risk rating	Catchment stress: Rating	Catchment stress: Description	Catchment stress: Index
Beeshoek	High	Moderate	ARM's company-specific risk assessment rates the basin higher, as the Vaal Central Water Board pipeline infrastructure requires investment, and the source catchment faces water stress There is limited catchment management as there is no CMA for this WMA. Improvements are expected with the proposed establishment of the Vaal-Orange CMA	Physical risk: 2.57 Regulatory risk: 3.3 Reputational risk: 3.02
		Operational risk		
		High	**Primary risk** Physical: Water shortage (need for long-term supply and storage) Regulatory: Reliance on our agreement that neighbouring Kolomela Mine, which has reduced Beeshoek Mine's groundwater supply by dewatering, provides water to the mine via the Vaal Central Water Board (this agreement is not formally included in each mine's WUL, but Kumba Iron Ore reconfirmed its commitment to this agreement in F2022). **Secondary risk** Physical: Flooding (resulting in production disruptions) and other extreme weather events and periodic excess of supply	Physical risk: 3.95 Regulatory risk: 3.5 Reputational risk: 4.6

At our Beeshoek, Black Rock and Khumani mines in the Northern Cape, issues with water scarcity have the potential to affect current operations and future expansion or growth plans. There is also the relatively minor risk of flooding during extreme weather events. Water remains a core concern for our local communities and employees in this region.

Beeshoek Mine has an agreement that secures water from neighbouring Kolomela Mine. If Kolomela Mine faces challenges, then the supply of water to Beeshoek Mine via the Vaal Central Water Board can be affected, as happened in F2021. Good relationships and communication with Kolomela Mine, together with work to formalise this agreement in each mine's WUL, are aimed at mitigating this risk.

Assmang has offered to contribute a portion of the capital required for the VGWSS infrastructure upgrade (page 71). Due to this capital infrastructure cost, our Northern Cape mines are trying to reuse water as much as possible.

Black Rock Mine is focused on encouraging local villages, which currently consume around 50% of potable water supplied by the Vaal Central Water Board, to use water treated by the mine's reverse osmosis plant.

However, the plant approvals have been delayed, and, in the interim, the mine is focused on constructing a centralised wastewater system. In F2022, Black Rock Mine had to institute water restrictions in the villages. Extreme rainfall events have, over the past two years, contaminated surface water flowing into a neighbouring farm and caused the overflow of sewage-treatment plants. The mine is in the final stages of receiving design approval for a central sewage plant. If all goes according to plan in terms of authorisation, construction and financing, the sewage plant is expected to be operational in the next two to three years. There is limited catchment management in the area. However, in May 2022, the Minister of Water and Sanitation signed the gazette proposing the establishment of the Vaal-Orange CMA by extending the boundaries and operational area of the Vaal River CMA. While the Tshiping WUA and Kgalagadi Catchment Management Forum mitigate this risk, there is not a good understanding of the catchment-level water balance, and there are concerns on future supply from the Vaal River. This is evidenced by instances where the Vaal Central Water Board is unable to supply water to meet mine allocations (in addition to instances caused by infrastructure and management challenges).

Joint ventures and investments

ARM has an effective 20.2% share in PCB and an effective 26.01% share in GGV. Glencore Operations South Africa owns the remaining stakes. Where appropriate, water risks are considered and reported on during PCB and GGV's quarterly steering committee meetings.

Integrating water risk into ARM's ERM processes

We are working to integrate identified water risks in the ERM process, as a key objective of our climate-change strategy framework. In F2022, we redefined our risks to align with ARM's risk assessment methodology and rerated the risks to an ARM-specific risk prioritisation methodology. We expanded this in F2023 by using detailed projections to understand the impact of climate change on the resilience of our business, which included considering different water-related futures (eg projected average annual rainfall, peak rainfall intensity, evapotranspiration, and droughts) for each of our operations. We improved employee awareness and began working with them to explore the operation-specific and geographically informed impacts associated with projected physical climate changes in workshops on current and future physical climate-change risks, including social aspects. These workshops were a fundamental aspect of defining the integration of risks into our ERM process. While we will continue with the engagement, in F2025, we will expand this to assess the operations-based climate-impact thresholds, mitigation measures, and adjustments to the risk rating scales to include climate-specific impacts. At the corporate level, we are identifying risks associated with critical suppliers that may impact our business and operations' continuity. Our initial investigations reveal that, other than the direct supply of water, our supply chain does not present significant water-related risks to our organisation.


Khumani Mine

Risk management continued

Water-discharge incidents

While all operations run closed-water circuits to maximise recycling and reuse, discharges are unavoidable in certain instances, such as heavy rainfall. ARM categorises these discharges using level 1 to level 5 classifications of environmental incidents which are based on the size/scale of the impact, sensitivity of receiving environment, and remediation/clean-up requirements. Level 1 to level 3 incidents (insignificant to moderate impact) are reported internally at operations; level 4 (high impact) and level 5 (major impact) incidents are reportable to the relevant authorities.

Detrimental water-related impacts

ARM recorded the following detrimental water-related impacts in F2024:

- High rainfall led to increased pumping costs at Beeshoek Mine (to dewater pits), although this process has improved in F2024 with increased dewatering rates in addition to other benefits (eg greater availability of water for mining and reduced dependence on water from Kolomela Mine)
- Extremely high rainfall on 25 December 2023 – a "1-in-50 years" flooding and rainfall event – in the Machadodorp Works and Nkomati Mine catchment areas led to an emergency discharge and release of the Machadodorp Works dam 1 overflow. The Machadodorp Works team followed protocol in informing the relevant IUCMA department of the release, captured the volume, and assessed the contaminated water
- Khumani Mine recorded stoppages due to the impact of rain on loading and hauling, but these did not affect production targets or add costs
- Excessive regional rainfall impacted production at Cato Ridge Works from November 2023 to January 2024. This affected furnaces, batch plant operations, feed chute blockages, power losses and downtimes, which collectively resulted in about 1 480 tonnes of high-carbon ferromanganese production losses
- A legacy of excessive rainfall and flooding in the Olifants WMA catchment area in 2016/17 has led to persistent issues of wash away and poor road quality, impacting Bokoni Mine
- The newly operational Bokoni Mine has experienced legacy-based seepage from its unlined pollution-control dam (dam 11) and return-water dam (dam 10) into a proximate stream (mitigation actions are included as part of its water targets).

ARM's water opportunities

As part of improving our operational efficiencies, we focus on identifying opportunities to reduce water use. Some of these opportunities are cost-effective. For example, by decreasing water consumption, we minimise the need for costly investments in bulk-water schemes (which have the potential to increase costs 4 times to 5 times). We also recognise that our catchment-based approach provides an opportunity to improve community relations and strengthen our social licence to operate.

Some operation specific examples include:

- Bokoni has identified the need for a water treatment plant to improve water quality. This process is underway and has a maximum capacity of 1ML
- As part of its social and labour planning engagement, Beeshoek has met with the DWS to provide an update on the water projects it has invested in over recent years and to actively seek any investment plans in the area that Beeshoek can partner with
- Following a discharge after an extreme rainfall event in F2021, Black Rock has developed a stormwater-management plan to encourage better separation of clean and dirty water, thereby improving the reuse of captured water.

Beeshoek Mine

Targets and performance

Progress towards ARM's water targets

As a member of the ICMM, ARM is committed to setting water-related targets that are in line with the relevant ICMM guidance. Given that our operations are based in diverse water contexts in various water catchment areas, we have focused on setting water-reduction targets and measures at the operational level that can rather address the specific needs of that context and operation, as opposed to targets set at company level. While facilitating tailored action and mitigation, collectively, these context-based targets and measures ultimately contribute to company-level reductions in water use and reduced exposure to water-related risks. These are reflected in Figure 15 on the next page.

In F2021 and F2022, we collaborated with our operations and technical teams to develop process-oriented targets, including commitments for stakeholder engagement and detailed collective action to address community access to water. We also set context-based water targets, which can include quantitative and/or qualitative (eg process steps) targets and commitments. By F2022, we had set context-based water targets for 75% of our operations. As of F2023, the previously excluded Cato Ridge Works and Machadodorp Works had targets set – based on the uncertainty of future activities and not classified as being in a water-stressed area (please refer to Figure 3: Our water journey to date on page 13).

Targets have been set for all our operations – including Bokoni Mine, which started operations in September 2022 – and we have reported progress for all those set prior to F2024. The newly-acquired Bokoni Mine set targets in F2024, including:

- Upgrade flow meters and complete hydrogeological baseline studies to inform a baseline by F2025, and then set an appropriate quantitative target by F2026
- Line return-water dam (dam 10) and pollution-control dam (dam 11) by F2025
- Develop a rehabilitation plan to mitigate erosion affecting the Rapolo stream
- Have two reverse osmosis plants approved and operational by F2025
- Undertake audits and studies to determine opportunities to improve operational water management
- Contribute to improved understanding and collective management of catchment risks, through the Olifants Catchment Forum.

Figure 15 outlines our progress towards context-specific targets. Bokoni progress will be captured in F2025 reporting. All our operations, with the exception of Cato Ridge Works, are in water-stressed areas.

Two Rivers Mine

Figure 15: Progress on operational water targets

Key: Target met | On track | Target not met | Target set in F2024

MINE	TARGET	STATUS	DETAILS
BEESHOEK	1.0m³ water/tonne run-of-mine fed to the crushing plants.	Target met	0.89m³ water used.
	1.5m³ water/tonne product.	Target met	1.49m³ water used.
	0.6m³ make-up water/tonne run-of-mine.	Target met	0.5m³ water used.
	1.0m³ make-up water/tonne product.	Target met	0.83m³ water used.
	Not to exceed the volumes as per the agreement to receive water from Kolomela via Sedibeng Water.	Target met	The installation of auto valves ensures that Beeshoek Mine does not exceed its allocated volumes.
	To maintain the good relationships and agreement with Kolomela.	Target met	The relationship with Kolomela remains very good and has improved further since the installation of the auto valve.
KHUMANI	0.064m³ water/tonne mined (including waste/stockpiled material).	Target met	0.058m³ water used.
	0.22m³ water/tonne run-of-mine fed to the crushing plants.	Target met	0.229m³ water used.
	0.319m³ water/tonne product.	Target met	0.312m³ water used.
	To continue supporting collective actions to help the Vaal Central Water Board manage water supply more effectively.	Target met	Water board assisted financially and with technical expertise (eg artisans and boilermakers).
BLACK ROCK	Not to exceed groundwater dewatering and abstraction volumes as per the WUL (1 126 486m³/year).	Target met	Groundwater dewatering and abstraction volumes maintained as per the WUL.
	To establish a baseline in F2023 (following the deployment of additional flow meters).	Target not met	The mine is working towards refinement in the dam balances. The baseline will be set in F2025 when it will have been possible to record one year of data.
	To set a quantitative target in F2024.	Target not met	After one year of data has been recorded and a baseline has been established, it will then be possible to develop a quantitative target in F2026.
NKOMATI	Monitor water quality over time to understand longer-term impact of water in pits on salts.	Target met	Ongoing monitoring of water quality on monthly (surface water) and quarterly (boreholes) intervals.
	Undertake progressive rehabilitation.	On track	The mine is implementing the rehabilitation plan in a phased approach. In F2022, the rehabilitation of the top wall of the TSF at Onverwacht was completed. The construction of the stormwater channel is 82% complete. The mine is tendering for capping and vegetation of waste-rock dump area 13.
	Explore alternative water management options.	On track	The mine is acquiring and constructing a water-treatment plant (environmental authorisation and WUL for the plant is in progress).
	Engage with the authority to determine the necessary long-term water management strategy.	On track	While an ongoing process, engagement with the relevant authorities has reached a decision-making point and the approval of a water-treatment plant (see above).

Targets and performance continued

Key: Target met; On track; Target not met; Target set in F2024

MINE	TARGET	STATUS	DETAILS
TWO RIVERS	Set F2024 KPIs for the general manager, linked to the target.	Target met	Complete.
	Educate the staff on the importance of saving water through meetings, posters, water conservation campaigns and community engagements.	Target met	Posters and notices were placed in change houses, public spaces and bathrooms.
	Implement water-management measures to prevent water leakages and unnecessary water use.	On track	Water-management measures such as early detection of leaks and curtailing unnecessary water use are controlled through ongoing maintenance and inspection as well as encouraging stewardship through monthly water-saving champions. Stormwater management measures are almost complete, which will also ensure the separation of clean and dirty water. A mine-wide push/pull pumping system to increase water recycling opportunities is expected to be undertaken in F2027.
	Implement improved water management, monitoring and reporting by F2024, with the aim to develop a plan to reduce water importation.	On track	The installation of water meters is almost complete, with one meter outstanding on a new borehole. These meters allow for monitoring the water balance which will aid with achieving water targets.
	0.5m³ water/tonne milled.	Target met	0.24m³ water/tonne milled.
MODIKWA	Undertake a water audit and gap analysis in F2023.	Target met	Complete.
	Develop a new water management plan based on the gap analysis and audit by F2023.	Target met	Developed and being implemented.
	Revise the target and qualitative commitments including contributions to collective actions in the catchment by F2023.	On track	The target will be re-evaluated in F2025.
	Set F2023 KPIs for the general manager, linked to the targets.	Target met	KPI has been allocated to the engineering manager who is the custodian of water management.
	0.5m³ water/tonne milled.	Target not met	Submitted actions plans that detail what is needed to meet the targets. The target will be re-evaluated in F2025.
MACHADODORP WORKS	Not to exceed abstraction levels of 195 000m³/annum from the Leeuspruit and 225 000m³/annum from the boreholes as per the WUL condition.	Target met	Abstraction levels have not been exceeded in F2024.
	Commission a water-treatment plant by October 2023 and have it fully operational by January 2024.	Target met	The plant was commissioned in January 2024, and was fully operational in April 2024.
	Develop an integrated water management strategy based on the outcomes of the reverse osmosis monitoring plan. This strategy will prioritise use of affected and recycled water and consider catchment level stewardship requirements.	Target met	The plant has formalised and communicated its integrated water management strategy to the relevant authorities, which will begin once the plant is operational. Through the reverse osmosis process, eventually the river dam will contain only clean water and stormwater dam 1 will remain as a stormwater dam, under continuous monitoring.
	Endeavour to minimise water consumption with technologies employed for future production expansions.	Target met	Measures to minimise water consumption have been considered in future plans, to be implemented when the plant becomes operational.
CATO RIDGE WORKS	Commission a reverse osmosis plant by the end of the first quarter of F2025 and measure its effectiveness at reducing municipal water consumption. Based on this, set a revised water management plan in F2026.	On track	Developing water and salt balance studies related to the commission of the reverse osmosis plant by the first quarter of F2025.
	Reduce reliance on the municipal source (Umgeni water via eThekwini municipality).	On track	
	Use impacted stormwater from the dams as a replacement for municipal water for furnace cooling.	Target met	Impacted stormwater now in use for furnace cooling.
BOKONI MINE	Upgrade flow meters and complete hydrogeological baseline studies to inform a baseline by F2025, then set appropriate quantitative target by F2026.	Target set in F2024	The progress against these new targets will be evaluated in F2025.
	Line return-water dam (dam 10) and pollution-control dam (dam 11) by F2025.	Target set in F2024	
	Develop a rehabilitation plan to mitigate erosion affecting the Rapolo stream.	Target set in F2024	
	Have two reverse osmosis plants approved and operational by F2025.	Target set in F2024	
	Undertake audits and studies to determine opportunities to improve operational water management.	Target set in F2024	
	Contribute to improved understanding and collective management of catchment risks, through the Olifants Catchment Forum.	Target set in F2024	

Water withdrawals

Operations withdraw water from a range of sources defined in the terms of their WULs, which include rivers, boreholes and municipal supplies. In F2024, total water withdrawals (including operational water and other managed water) increased by 16% year on year (Figure 16). This increase was largely related to a shift in the way we report on water withdrawals. In line with the new ICMM water reporting good practice guide, we now include a breakdown of operational and other managed water withdrawals and report on the change in storage at operations. As a result of this shift, in F2023 we included water in the pit at Nkomati Mine in our calculations (to prevent overflow or discharge while the mine is on care and maintenance).

Figure 16 below represents the total water withdrawal by division, which includes other managed water (OMW), while Figure 17 focuses on total operational water withdrawal, covering only the combined ground and surface water withdrawals, excluding OMW.

Total water withdrawals at the platinum division (Figure 17) increased by 40% due to the introduction of Bokoni Mine in F2024, which contributed to 37% of total water withdrawals, and a change in Nkomati water management due to heavy rainfall reported in November 2023. At Nkomati, water withdrawal decreased by 88%, due to reduced water usage as the mine remains under care and maintenance. Additionally, there was a 95% reduction in other managed water withdrawal, as the water was diverted to storage to prevent discharges of mine-impacted water into the natural environment.

Water withdrawals by the ferrous division decreased 6% due to efficiency measures, production disruptions and significant changes at Black Rock.

At Black Rock, total water withdrawal decreased by 25%. This reduction was driven by a significant decrease in surface-water withdrawal, partially offset by an increase in groundwater withdrawal. Surface-water withdrawal dropped by 55%, in F2024. This decline is attributed to inflated figures in F2023, when technical difficulties with flow meters led to the use of higher average readings for approximately six months. These issues were resolved with the completion of the flow meter project in November 2023, resulting in more accurate water measurements. Conversely, groundwater withdrawal increased by 35%, in F2024. This increase is primarily due to enhanced dewatering activities necessary for safe mining operations and improved flow data availability, with comprehensive data now covering the entire year, compared to only three months in the previous fiscal year.

Figure 16: Total water withdrawal by division (100% basis) measured in m³ million

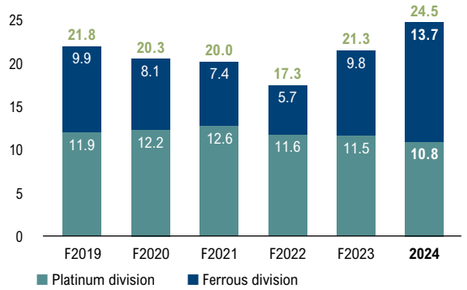
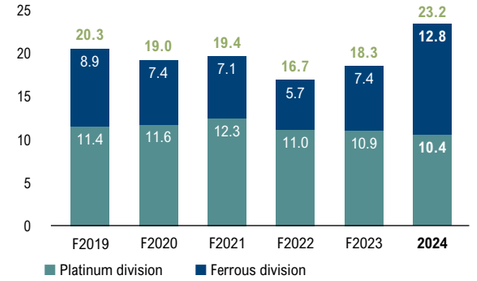


Figure 17: Total operational water withdrawal by division (100% basis) measured in m³ million



Targets and performance continued

Beeshoek Mine accounted for 19% of total group water withdrawal. Khumani and Modikwa mines accounted for 16% each. When considering only operational withdrawals, Beeshoek Mine accounted for 20%, Khumani and Modikwa mines for 17%.

Total operational water withdrawals increased by 27% (Figure 17 on page 83). This excludes what was previously reported as "diversions" (water diverted to neighbouring communities, farms and other users) and water in the pit at Nkomati Mine. The main driver of the increase was due to groundwater withdrawals at Bokoni (included for the first time this year).

We achieved an overall water-reuse efficiency of 78% through further improvements in implementing the ICMM's WAF and water stewardship maturity framework (page 67), and greater focus to reuse water. This reuse efficiency level is comparable to what we achieved in F2023 (78%), F2022 (79%) and from F2021 (78%) when the metric was introduced. Reuse efficiency is a KPI used in monitoring and managing consumption and losses.

Water-balance summaries

Following the process started in F2023, we continue to report according to the new ICMM guidelines. The key difference is a distinction between operational water withdrawals and other managed water (previously called diversions; see terminology definitions on page 59).

See our 2023 climate change and water report for details.

Table 16: Water-balance summary for ARM operations in the Vaal WMA*

		VOLUME OF WATER BY QUALITY								
		F2024			F2023			F2022		
Metric	**Source/destination/ type**	**High (ML)**	**Low (ML)**	**Total (ML)**	High (ML)	Low (ML)	Total (ML)	High (ML)	Low (ML)	Total (ML)
Withdrawal	Operational surface water	**1 948**	**287**	**2 235**	2 964	468	3 432	2 724	893	3 618
	Operational groundwater	**6 102**	**1 872**	**7 974**	5 803	1 408	7 212	6 330	1 351	7 681
	Other managed water	**333**	**0**	**333**	550	0	550	N/A	N/A	N/A
	Total withdrawal	**8 383**	**2 159**	**10 542**	9 317	1 877	11 194	9 054	2 245	11 299
Output	Operational surface water	**0**	**71**	**71**	0	118	118	0	164	164
	Operational groundwater	**0**	**19**	**19**	0	24	24	0	31	31
	Supply to third party	**332**	**1**	**333**	550	15	564	0	16	16
	Total output	**332**	**91**	**423**	550	157	706	0	211	211
Consumption	Evaporation	**106**	**2 201**	**2 307**	106	2 133	2 239	117	2 058	2 175
	Entrainment	**0**	**1 035**	**1 035**	0	1 685	1 685	0	782	782
	Other	**0**	**129**	**129**	0	(69)	(69)	0	133	133
	Change in storage	**0**	**0**	**0**	0	0	0	N/A	N/A	N/A
	Total consumption	**106**	**3 365**	**3 471**	106	3 750	3 855	117	2 973	3 090
Reuse efficiency	Total of all flows to tasks (ML/a)	**5 026**	**41 564**	**46 590**	4 507	42 279	46 787	6 519	56 847	63 367
	Total worked water flows to tasks (ML/a)	**N/A**	**38 466**	**38 466**	N/A	38 878	38 878	N/A	53 165	53 165
	Reuse efficiency (%)	**N/A**	**N/A**	**83**	N/A	N/A	83	N/A	N/A	84
Diversions	**Water diverted to neighbouring communities, farms and other users**	**N/A**	**N/A**	**N/A**	N/A	N/A	N/A	590	0	590

** Includes Beeshoek, Khumani and Black Rock mines.*

Table 17: Water-balance summary for ARM operations in the Pongola-Umzimkhulu WMA*

		VOLUME OF WATER BY QUALITY								
		F2024			F2023			F2022		
Metric	**Source/destination/ type**	**High (ML)**	**Low (ML)**	**Total (ML)**	High (ML)	Low (ML)	Total (ML)	High (ML)	Low (ML)	Total (ML)
Withdrawal	Operational surface water	**154**	**0**	**154**	199	0	199	255	0	255
	Operational groundwater	**0**	**0**	**0**	0	0	0	0	0	0
	Other managed water	**0**	**0**	**0**	0	0	0	N/A	N/A	N/A
	Total withdrawal	**154**	**0**	**154**	199	0	199	255	0	255
Output	Surface water	**15**	**0**	**15**	27	0	27	32	0	32
	Groundwater	**0**	**0**	**0**	0	0	0	0	0	0
	Supply to third party	**0**	**0**	**0**	0	0	0	0	0	0
	Total output	**15**	**0**	**15**	27	0	27	32	0	32
Consumption	Evaporation	**103**	**109**	**211**	160	96	256	195	60	254
	Entrainment	**0**	**0**	**0**	0	0	0	0	0	0
	Other	**0**	**0**	**0**	0	0	0	0	0	0
	Change in storage	**0**	**0**	**0**	0	0	0	N/A	N/A	N/A
	Total consumption	**103**	**109**	**211**	160	96	256	195	60	254
Reuse efficiency	Total of all flows to tasks (ML/a)	**154**	**132**	**286**	199	96	296	255	60	315
	Total worked water flows to tasks (ML/a)	**N/A**	**132**	**132**	N/A	96	96	N/A	60	60
	Reuse efficiency (%)	**N/A**	**N/A**	**46**	N/A	N/A	33	N/A	N/A	19
Diversions	**Water diverted to neighbouring communities, farms and other users**	**N/A**	**N/A**	**N/A**	N/A	N/A	N/A	0	0	0

** Includes Cato Ridge Works (note that the operation is not in a water-stressed area).*

Targets and performance continued

Table 18: Water-balance summary for ARM operations in the Inkomati-Usuthu WMA*

		VOLUME OF WATER BY QUALITY								
		F2024			F2023			F2022		
Metric	Source/destination/ type	High (ML)	Low (ML)	Total (ML)	High (ML)	Low (ML)	Total (ML)	High (ML)	Low (ML)	Total (ML)
Withdrawal	Operational surface water	**0**	**40**	**40**	0	32	32	0	32	32
	Operational groundwater	**42**	**176**	**218**	48	218	266	44	160	204
	Other managed water	**0**	**117**	**117**	0	2 433	2 433	N/A	N/A	N/A
	Total withdrawal	**42**	**332**	**375**	48	2 683	2 731	44	192	235
Output	Surface water	**0**	**222**	**222**	0	0	0	0	0	0
	Groundwater	**0**	**0**	**0**	0	0	0	0	0	0
	Supply to third party	**0**	**0**	**0**	0	0	0	0	0	0
	Total output	**0**	**222**	**222**	0	0	0	0	0	0
Consumption	Evaporation	**0**	**44**	**44**	0	7	7	0	78	78
	Entrainment	**0**	**0**	**0**	0	27	27	0	45	45
	Other	**0**	**0**	**0**	0	0	0	0	0	0
	Change in storage	**0**	**(8)**	**(8)**	0	2 548	2 548	N/A	N/A	N/A
	Total consumption	**0**	**36**	**36**	0	2 582	2 582	0	123	123
Reuse efficiency	Total of all flows to tasks (ML/a)	**42**	**0**	**42**	48	53	101	44	97	140
	Total worked water flows to tasks (ML/a)	**N/A**	**0**	**0**	N/A	16	16	N/A	33	33
	Reuse efficiency (%)	**N/A**	**N/A**	**0**	N/A	N/A	16	N/A	N/A	23
Diversions	**Water diverted to neighbouring communities, farms and other users**	**N/A**	**N/A**	**N/A**	N/A	N/A	N/A	0	0	0

* *Includes Machadodorp Works and Nkomati Mine.*

Table 19: Water-balance summary for ARM operations in the Olifants WMA*

		VOLUME OF WATER BY QUALITY								
		F2024			F2023			F2022		
Metric	Source/destination/ type	High (ML)	Low (ML)	Total (ML)	High (ML)	Low (ML)	Total (ML)	High (ML)	Low (ML)	Total (ML)
Withdrawal	Operational surface water	**2 609**	**2 128**	**4 737**	3 107	0	3 107	1 778	1 348	3 126
	Operational groundwater	**1 263**	**6 631**	**7 894**	705	1 793	2 498	207	2 062	2 269
	Other managed water	**215**	**586**	**800**	N/A	N/A	N/A	N/A	N/A	N/A
	Total withdrawal	**4 087**	**9 345**	**13 432**	3 812	1 793	5 605	1 986	3 409	5 395
Output	Surface water	**0**	**0**	**0**	0	0	0	0	1	1
	Groundwater	**0**	**1 060**	**1 060**	0	0	0	0	0	0
	Supply to third party	**215**	**574**	**789**	0	0	0	33	0	33
	Total output	**215**	**1 634**	**1 849**	0	0	0	33	1	34
Consumption	Evaporation	**0**	**2 874**	**2 874**	0	2 645	2 645	0	2 624	2 624
	Entrainment	**140**	**428**	**568**	0	3 297	3 297	0	2 606	2 606
	Other	**0**	**0**	**0**	0	0	0	0	0	0
	Change in storage	**0**	**158**	**1 098**	N/A	N/A	N/A	N/A	N/A	N/A
	Total consumption	**140**	**3 459**	**4 539**	0	5 941	5 941	0	5 229	5 229
Reuse efficiency	Total of all flows to tasks (ML/a)	**4 466**	**11 371**	**15 837**	2 790	12 064	14 854	1 232	13 376	14 608
	Total worked water flows to tasks (ML/a)	**0**	**10 072**	**10 072**	N/A	9 249	9 249	N/A	9 432	9 432
	Reuse efficiency (%)	**N/A**	**N/A**	**64**	N/A	N/A	62	N/A	N/A	65
Diversions	**Water diverted to neighbouring communities, farms and other users**	**N/A**	**N/A**	**N/A**	0	0	0	0	0	0

* *Includes Modikwa, Two Rivers and Bokoni mines.*


Bokoni Mine

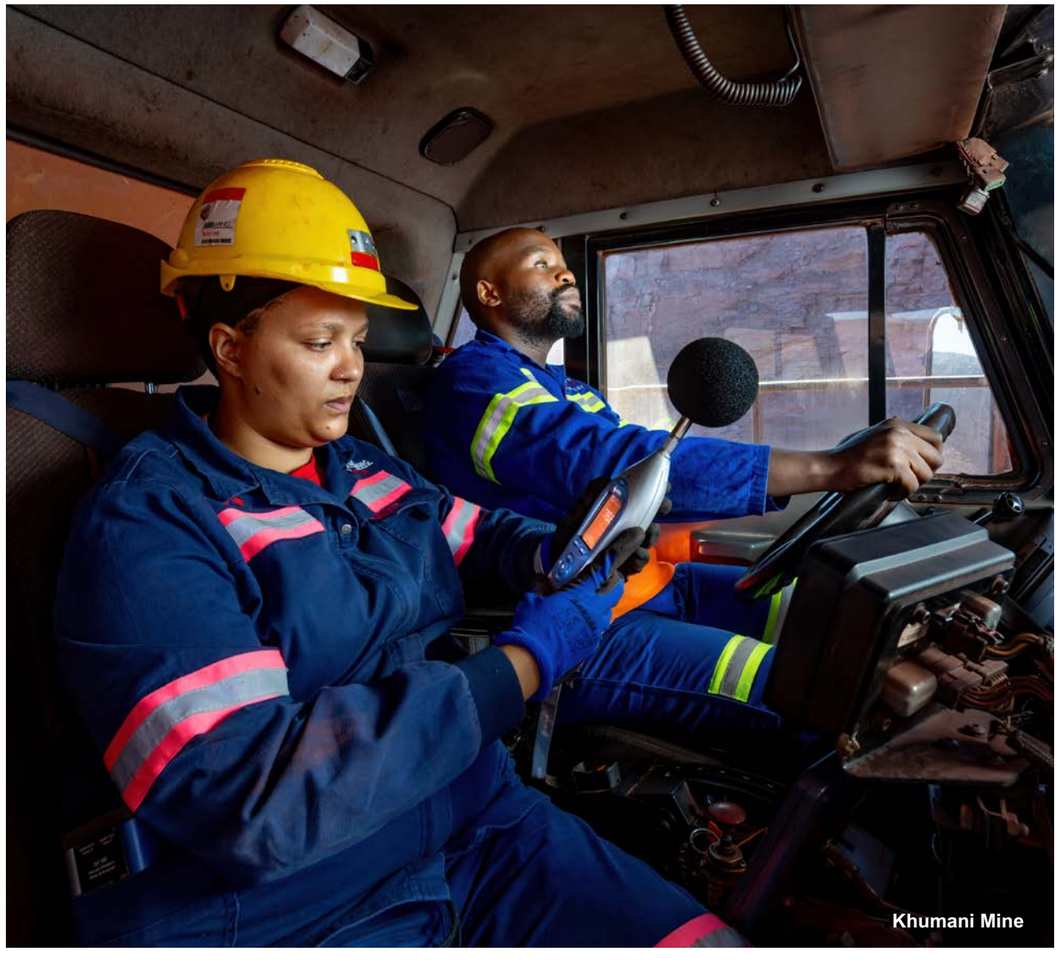

Khumani Mine

Future water focus areas

Our water journey to date (Figure 3 on page 13) details progress made on areas of focus set in our previous reporting year.

Areas of focus in F2025 include:

- Continue to ensure achievement of context-based water targets set for ARM's operations, aiming for continuous improvement of our water management
- Further roll out the ICMM's water stewardship maturity framework as part of ongoing work to improve our water-stewardship approach
- Further investigating and implementing ways in which we can leverage our LED and CSI spending to enhance community resilience to climate change and associated impacts on water
- Continuing the processes initiated in F2021 of leveraging preliminary results of the climate-scenarios analysis to inform a revised assessment of water- and climate-related risks in our supply chain and implementing the roadmap to fully integrate climate change into our ERM process while working towards a second scenario analysis in F2026.



Khumani Mine

Acronyms

ARM	African Rainbow Minerals
BEV	Battery electric vehicles
CBAM	Carbon border adjustment mechanism
CDP	Carbon Disclosure Project
CEO	Chief executive officer
CMA	Catchment management agencies
CSI	Corporate social development
CSP	Conditional share plan
CRW	Cato Ridge Works
DFFE	Department of Forestry, Fisheries and the Environment
DMPR	Department of minerals and petroleum resources
DWS	Department of Water and Sanitation
ED	Enterprise development
EF	Emission factor
ERM	Enterprise risk management
ESG	Environmental social governance
GGV	Goedgevonden
GHG	Greenhouse gas
GISTM	Global Industry Standard on Tailings Management
GOSA	Glencore Operations South Africa
GRI	Global Reporting Initiative
ICMM	International Council on Mining and Metals
IFRS	International Financial Reporting Standards
IFRS S2	International Financial Reporting Standards Climate-related Disclosures
ISSB	International Sustainability Standards Board
IUCMA	Inkomati-Usuthu Catchment Management Agency
KPIs	Key performance indicators
LED	Local economic development
LTIPs	Long-term incentive plans
MCSA	Minerals Council South Africa
NDCs	Nationally determined contributions
OMW	Other managed water
PCB	Participative Coal Business
PGMs	Platinum group metals
PV	Photovoltaic
SBTi	Science-based Targets initiative
SHEQ	Safety, health, environment and quality
TCFD	Climate-related financial Disclosures
TPT	Transition Plan Taskforce
TSF	Tailings storage facilities
VGWSS	Vaal Gamagara water supply scheme
WAF	Water accounting framework
WMA	Water Management Area
WUA	Water users' association
WUL	Water use licence

Two Rivers Mine

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The Standard Bank of South Africa Limited
Nedbank Limited

Sponsor
Investec Bank Limited

Transfer secretaries
Computershare Investor Services Proprietary Limited
Rosebank Towers
15 Biermann Avenue
Rosebank 2196

Private Bag X9000, Saxonwold 2132
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Email: web.queries@computershare.co.za
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Directors
Dr PT Motsepe (executive chairman)
VP Tobias (chief executive officer)
F Abbott*
TA Boardman*
AD Botha*
JA Chissano (Mozambican)*
WM Gule*
B Kennedy*
AK Maditsi*
TTA Mhlanga (finance director)
PJ Mnisi*
DC Noko*
B Nqwababa*
Dr RV Simelane*
JC Steenkamp*

** Independent non-executive.*

Forward-looking statements

Certain statements in this document constitute forward-looking statements that are neither financial results nor historical information. They include but are not limited to statements that are predictions of or indicate future earnings, savings, synergies, events, trends, plans or objectives. Such forward-looking statements may or may not take into account and may or may not be affected by known and/or unknown risks, unpredictables and other important factors that could cause the actual results, performance and/or achievements of the company to be materially different from the future results, performance or achievements expressed or implied by such forward-looking statements. Such risks, unpredictables and other important factors include, among others: economic, business and political conditions in South Africa; decreases in the market price of commodities; hazards associated with underground and surface mining; labour disruptions; changes in government regulations, including environmental regulations; changes in exchange rates; currency devaluations; inflation and other macro-economic factors; and the impact of the health-related epidemics and pandemics in South Africa.

These forward-looking statements speak only as of the date of publication of these pages. The company undertakes no obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances after the date of publication of these pages or to reflect the occurrence of unpredictable events.