

MINING WITH PURPOSE

CLIMATE-RELATED FINANCIAL DISCLOSURES
2023

Reporting under the Recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD).

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This Climate-Related Financial Disclosures 2023 report covers the reporting period ending 30 June 2023 (FY23).


Report navigation


We use icons throughout this report to aid navigation and connectivity.


Our key icons include:


Referencing


 Cross reference to information elsewhere in the report.


 Information online at www.harmony.co.za.

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MINING WITH **PURPOSE**

Mining with purpose is how we create shared value. It is the golden thread that connects our purpose, strategy and business model. Shared value drives our pursuit of operational excellence, includes stakeholders, and determines the way we manage our six capitals. Guided by sustainable development principles in delivering our strategic objectives, we preserve shared value by ensuring the sustainability and profitability of our business.

We understand our role in contributing to broader sustainable development issues. We have identified areas where we can lessen our negative impacts and increase our positive impacts through targeted efforts. These include reducing dependency fossil-fuelled energy consumption, ending poverty, efficiently managing our use of scarce natural resources such as water and land, while protecting biodiversity and observing human rights.

Harmony has identified and prioritised 15 SDGs that we can meaningfully impact:

- Eight SDGs directly align with our business strategy and its four pillars (direct SDGs)
- Seven SDGs indirectly align to our business strategy whereby we can meaningfully contribute through our sustainable development framework and by meeting our socio-economic development commitments.

Many of the SDGs are interconnected, and collaboration is a key SDG to all the others. SDG 17 calls for partnerships, and pooled efforts and resources to bring sustained beneficial change to our people.

We meaningfully impact:

Directly



Indirectly



Collaboration



Climate change in context at Harmony

One cannot dispute the growing evidence of climate change – as populations across the globe struggle with record-breaking heatwaves and intense rainfall, we too at Harmony have felt its impact in recent years and it promises further disruptions in future through major supply chain disruptions and rising operational costs on the horizon. Today's climate crisis has urged Harmony to pause, rethink and innovate for our business, our host countries' economy, our people and our communities. While it presents very real threats, our business has seen great opportunities and it refocused us in redefining sustainability to the core of our business.

We support the United Nations Framework Convention on Climate Change and the Paris Agreement, and we embrace the role we must play in the collective action to meet our global goals for temperature rise. We acknowledge the role we play in mitigating the impact and have taken purposeful and decisive steps to decarbonise our operations. We acknowledge the role we play as a responsible mining company in producing minerals and metals critical for a global transition and we have re-engineered our portfolio of assets to be relevant to this shift.

We acknowledge that we have a duty of care to our communities and host country economies and will own our part in their just transition.

INTRODUCTION

Harmony Gold Mining Company Limited (Harmony, the group, or the company) is a leading global gold producer with a growing copper footprint.

Our embedded commitment to sustainable development drives integrated risk-based decision making, which creates shared value for all our stakeholders. We recognise the importance of our role in contributing towards the transition to a low-carbon economy, in the context of the mining and minerals industry. Responsible stewardship is our first strategic pillar, and decarbonisation principles are fundamental to our strategy, business processes and decision making. As a testament to this, Harmony began decarbonising its operations in 2008. We pre-empted regulations and started our journey proactively.

As part of our comprehensive strategy, we are dedicated to decarbonising our direct footprint (scope 1 and 2 emissions) and actively supporting the global low-carbon transition. Our approach involves providing essential minerals and metals to facilitate the growth of renewable energy technologies while mitigating the physical and transitional risks associated with climate change. We also extend our commitment to sustainability beyond our operations by assisting and supporting our suppliers in their decarbonisation efforts. Moreover, we aim to build resilient communities and contribute to the economic development of the countries in which we operate. With our ambitious climate agenda, we strive to achieve net-zero emissions by 2045, contributing to a greener and more sustainable world.

Our journey to bolster our climate change policies and strategy began in 2021 following board approval of our decarbonisation strategy. In January 2022, we submitted a science-based target (SBT) to the Science Based Targets Initiative (SBTi) for validation. We set a robust emission reduction target by joining the Business Ambition for the 1.5°C campaign.

Harmony supports the climate change commitments of our host countries, South Africa, Papua New Guinea and Australia. We also align with the South African Minerals Council of South Africa's Climate Change Position Statement. The first step of our net-zero strategy is to reduce greenhouse gas (GHG) emissions through operational efficiency initiatives and, recently, our switch to renewable energy. To address latent or residual emissions reductions that may not be feasibly achievable through other means, our approach at Harmony is to utilise land under our control for carbon removals, effectively achieving the neutralisation of our carbon footprint.

Part of the Harmony strategy is to re-engineer our portfolio through value-accretive acquisitions.

We acquired Mine Waste Solutions – a reclamation business that is high volume with low energy consumption. This coupled with the acquisition of Moab Khotsong and Mponeng operations in 2018 and 2020 respectively, led to the GHG intensity of gold production to increase by approximately 14% in those years. Despite these recent acquisitions, the overall GHG intensity of our operations is decreasing, on a milling of ore basis. The implementation of our decarbonisation strategy will facilitate Harmony's net-zero journey while we pursue growth objectives.

We initiated Phase 1 of our renewable energy programme in 2016.



Our renewable energy and efficiency rollout plan

2016 – 2045



Implementing energy mix and portfolio re-engineering initiatives to **reduce GHG emissions** to be net zero by 2045 (including carbon removal, agriculture, forestation and water beneficiation)



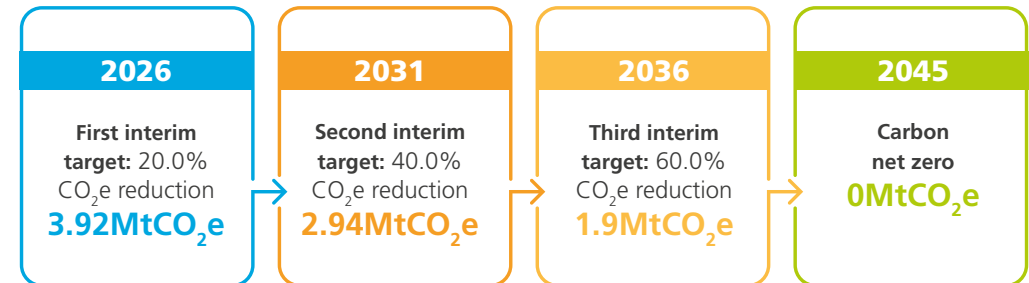
A **phased strategy** that includes solar PV, wheeling wind energy and hydropower and energy-efficiency projects

Our renewable energy plan:

Decarbonising Harmony while reducing our electricity costs

FY23 Phase 1: 30MW	FY25 – FY26 Phase 2: 137MW	FY26 Phase 3: 56MW	FY26 Phase 4: 140MW
Energy generated per annum: 70GWh <small>Carbon reduction of 62 000tpa</small>	Energy generated per annum: 316GWh	Energy generated per annum: 130GWh	Energy generated per annum: 510GWh <small>Additional wind renewable energy project to augment phases 1, 2 and 3</small>

Our journey to net zero



Cost savings – Decarbonising Harmony

FY23 Phase 1	FY25 – FY26 Phase 2	FY26 Phase 3 and 4
<ul style="list-style-type: none"> • Cost saving over 15 years: R340 million (US\$21.0 million) • Capital investment: R5 million (US\$0.3 million) funded by power purchase agreement. 	<ul style="list-style-type: none"> • Estimated NPV over 15 years: R3 billion (US\$159.4 million) • Capital investment: R1.7 billion (US\$114 million) on own build component • Cost saving: R425 million (US\$26.2 million) per annum for phase 1 and 2. 	<ul style="list-style-type: none"> • Capital investment: Funded by power purchase agreement • Cost saving: R171 million (US\$10.5 million).

Our energy efficiency plan:

2008 – 2023	2023	2023 – 2026
<ul style="list-style-type: none"> • Ventilation optimisation • Compressed air network optimisation • Time of use optimisation • Excess capacity utilisation • Closed deep-level and energy-intensive shafts • Increased portfolio of surface assets • Secured hydropower increase at Hidden Valley • Eva Copper acquired to supply vital metal for low-carbon economy. 	<ul style="list-style-type: none"> • Reduction 1.6TWh • Investment R220 million (US\$11.7 million) • Cumulative savings: R1.7 billion (US\$114 million) and 1.8MtCO₂ 	<ul style="list-style-type: none"> • Planned energy reduction: 1.5% per annum • Estimated investment: R73.4 million (US\$4.5 million) per annum • Estimated savings: R70 million (US\$4.3 million) per annum

Note: US dollar figures for forward looking information converted at R16.22/US\$.

STRATEGY

Corporate strategy

Climate change has presented a significant business opportunity for Harmony because we have the metal portfolio to supply the growing demand for critical minerals shown in Figure 2. Our growth strategy has been focused on bolstering our copper portfolio through the acquisition of the Eva Copper Project. This adds to the resources of our existing Wafi Golpu Tier 1 copper-gold asset.



Figure 1: Metals portfolio



* Orebodies include gold.

Figure 2: Critical materials in the transition to cleaner energy



Asset portfolio balance

From FY08 to FY23, we closed some of our energy-intensive shafts that reached the end of life-of-mine due to resource depletion or economic non-viability. Our increased focus on copper with the acquisition of the Eva Copper Project, and processing uranium as a general by-product of gold mining, strengthens and diversifies our portfolio and can supplement the global transition to a low-carbon economy.

Our Mponeng operation, which has a better energy emission intensity when compared to our existing portfolios, have certainly enabled us to bank better performances overall. Mine Waste Solutions, our surface reclamation operation in the North West province in South Africa, also has a very low demand for energy and a much better intensity profile. The impact of these acquisitions form part of our overall strategy, as presented in Figure 3.

Decarbonisation strategy

Harmony has proactively positioned itself to address climate change since 2008. The company has taken significant strides in lowering its emissions and managing energy and water use across its operations. We decided to redirect capital towards projects that will progress our objectives of decarbonising our portfolio and addressing climate change.

In October 2021, we updated our climate change and energy policy and our climate change policy and energy efficiency strategy. Achieving the objectives of the Paris Agreement necessitates physical changes to our societal and economic mobilisation. While much progress was made through to the end of FY21, FY22 was a significant year in the evolution of Harmony's policy and corporate commitments. These were formalised in the validation of our SBTs by the SBTi in FY23.

Policy statement and strategy

Harmony's energy efficiency and climate change policy statement evolved in response to the physical and transition risks and impacts of climate change. The strategy to implement the policy statement focuses on the following key areas:

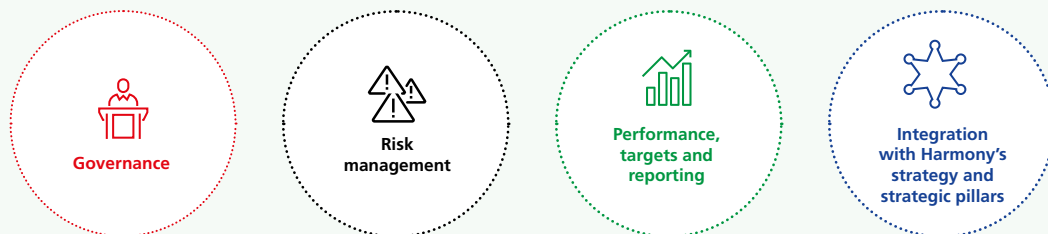


Figure 3: Strategy focus key areas

Our strategy considers climate change-related risks and opportunities, rebalancing our asset portfolio, driving energy efficiency, improving the reliability and sustainability of our energy mix, as well as adaptation to climate change. These points outline the background to the key performance indicators, which in turn set out the targets and their implementation at an operational level, as shown in Figure 5. We seek perpetual improvement at the meeting point of climate change and technological innovation. Our timeline of continuous improvement is shown in Figure 6.

Harmony's transition pathway is founded on five pillars, reflecting our comprehensive approach to navigating the challenges and opportunities presented by the global shift towards a low-carbon economy.

Figure 4: The five pillars representing Harmony's transition pathway

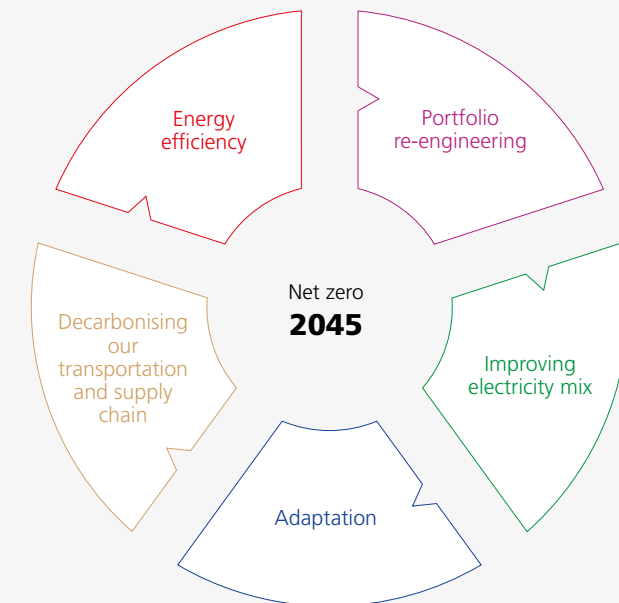


Figure 5: Strategy to implement policy

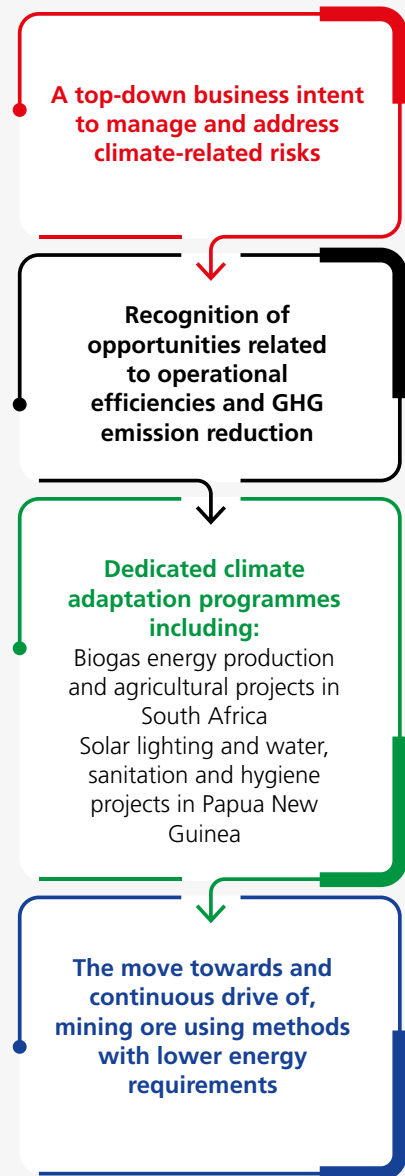
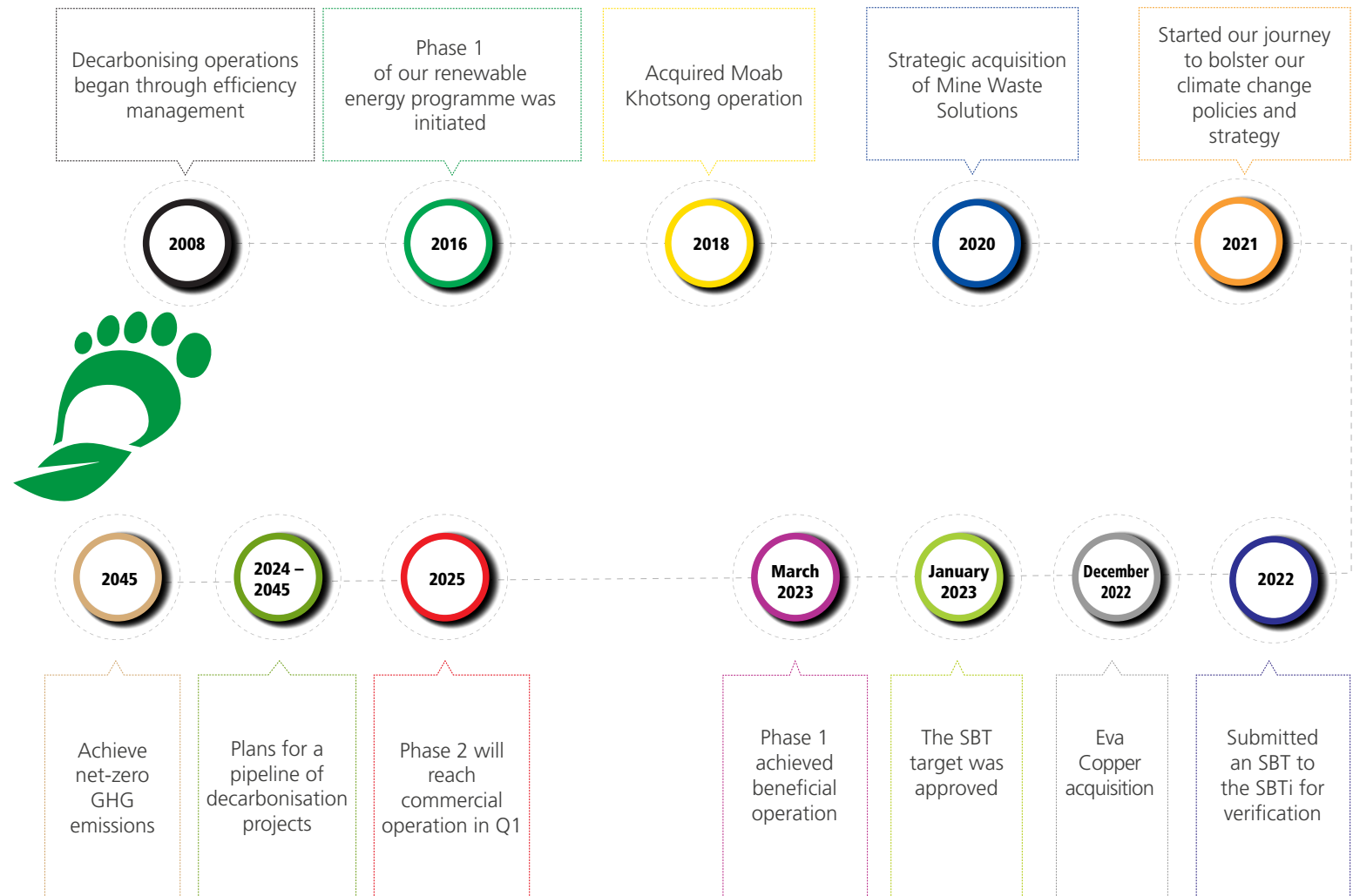


Figure 6: Timeline of continuous improvement*



* The years indicated in this figure are calendar, not for our financial year ended 30 June.

GOVERNANCE

Historically, we focused on low-cost gold production. However, over the past decade, the energy intensity of production has played an important role in our strategy.

This shift in focus allowed us to achieve a 28% reduction in GHG intensity (against ore treated) over the past six years. Our strategic focus informs our net-zero commitment and is developing towards zero-emission gold and growing our re-engineered portfolio, including copper and uranium.

Harmony is led by a unitary board of directors that subscribes to the principles of good corporate governance. Our duty to be a responsible corporate citizen is fully supported by our directors and their commitment to ethical leadership.

The group executive management team, headed by the chief executive officer (CEO), is responsible for executing our board-approved strategy, policy and operational planning.

The following table shows the different areas of governance relating to climate change:

Table 1: Governance

Governance					
<p>The board of directors is responsible for aligning our business strategy with our climate change objectives. The board recognises that achieving our target of net-zero GHG emissions by 2045 is mission-critical.</p>	<p>The board’s social and ethics committee has strategic oversight regarding climate change within the group. The committee is primarily guided by our overarching responsibility to mine responsibly. In developing our strategy, the committee is guided by relevant and developing environmental legislation and our host countries’ international climate change commitments. Our strategy also considers internationally peer-reviewed science.</p>	<p>The CEO is responsible for strategy implementation. He takes ownership of Harmony’s climate change policy and strategy. The CEO leadership role includes being responsible for all day-to-day management decisions, and for implementing the group’s long- and short-term plan.</p>	<p>The CEO is supported by the senior executive for sustainable development, who is responsible for the climate change policy and environmental strategy’s execution. South Africa and South-east Asia executives are responsible for this strategy’s engineering, operational delivery and project management.</p>	<p>The audit and risk committee assists in the assessment of emerging climate change risks, their financial impacts and their mitigation.</p>	<p>The investment committee reviews investments in energy efficiency and capital programmes contributing to climate change mitigation.</p>

Harmony has integrated the recommendations of the TCFD into the corporate reporting approach. Transparent reporting on our climate change strategies and actions informed our approach to repositioning our business as a climate-resilient operation.

RISK MANAGEMENT

Harmony places a high priority on risk management through an integrated approach to risk-based decision making. We continuously monitor risks and opportunities, with a specific focus on climate change risks at both company and asset levels. Our risk management aligns with ISO 14001, ISO 31000, and ISO 50000 standards, ensuring that we identify and manage climate and energy initiatives according to international standards.

To assess climate change risks, we have conducted a comprehensive scenario analysis in line with TCFD recommendations. This analysis encompasses both physical and transition risks, considering factors such as chronic and acute weather outcomes, policy changes, technological advancements and market shifts.

We considered the Intergovernmental Panel on Climate Change (IPCC) reports, including Representative Concentration Pathways (RCPs) in our 2020 scenario analysis. In the update to our scenario analysis this year we considered the more recent Shared Socioeconomic Pathways (SSPs) from the IPCC's Sixth Assessment Report (AR6). These scenarios project global socio-economic changes up to 2100 and link physical risks from the RCPs to global climate policies and potential transition risks. Our approach to the scenario analysis is summarised in Figure 7.

Figure 7: The main steps applied in the climate change scenario analysis



Select reference scenarios



Identify risks



Determine risk materiality



Risk responses

Scenarios used to assess climate risks

Reference scenarios 1, 2 and 3 capture different possible pathways based on the associated SSPs, RCPs, radiative forcing by 2100, average global temperature increase, shell scenarios, and others where applicable (Table 2).

Table 2: Scenario summary

Scenario	Scenario 1	Scenario 2	Scenario 3
IPCC RCP	RCP8.5	RCP6.0	RCP2.6
Radiative forcing by 2100	8.5W/m ²	6.0W/m ²	2.6W/m ²
Average global temperature increase	over 4°C	2.7 to 3.7°C	below 2°C (B2DS)
SSP	SSP5 (Fossil-Led Development)	SSP3 (Regional Rivalry)	SSP1 (Sustainability)
Shell scenario	Island	Waves	Sky
Other	Unmitigated scenario	Nationally Determined Contributions (NDCs)	High mitigation scenario

Scenario 1 is unmitigated, characterised by the high emissions trajectory of IPCC's RCP8.5, and represents a future where GHG emissions continue to increase without significant mitigation efforts. It depicts a world in which radiative forcing reaches 8.5W/m² by the end of the century, resulting in an average global temperature increase of over 4°C. This scenario includes the Island scenario from the Shell scenarios. In terms of the SSPs, the unmitigated scenario aligns with SSP5 (Fossil-Led Development). SSP5 portrays a future where socio-economic development is heavily reliant on fossil fuel-based energy sources, with limited emphasis on climate change mitigation measures. This scenario encompasses high population growth, slow technological advancements and fragmented global co-operation on climate issues.

Scenario 2 is described by outcomes of the NDCs which represent emission reduction targets under the UN Paris Agreement. If achieved, radiative forcing might stabilise at 6.0W/m² by 2100. The current policy scenario falls short of the 1.5°C global warming target, leading to 2.7 to 3.7°C warming. These conditions relate to the outcomes of SSP3 (Regional Rivalry) and the 'Waves' Shell scenario.

Scenario 3 relates to high mitigation conditions, which aim to limit global warming to below 2°C (B2DS) based on the alignment of climate change mitigation goals. B2DS represents a best-case scenario from a climate perspective and considers revised and more ambitious NDC and technological advancements to achieve the 1.5°C target. The high mitigation scenario and B2DS are associated with RCP2.6, which represents a low GHG emissions trajectory also aimed at limiting global warming to below 2°C. In terms of the SSP, the high mitigation scenario and the B2DS are linked to SSP1 (Sustainability). SSP1 portrays a future characterised by sustainable development, strong global co-operation, socio-economic equality and environmentally friendly practices. This shared linkage to SSP1 implies that both scenarios envision a world where sustainable practices and global co-operation play a significant role in achieving climate goals and transitioning to a low-carbon economy. Furthermore, this scenario also aligns with the Sky 1.5 scenario as described by the Shell scenarios.

Implications of scenarios for Harmony

As a mining entity operating in varied regulatory settings, Harmony is exposed to multiple transition risks and opportunities across different sectors such as labour, consumables, and energy and water management. The proactive management of these risks, coupled with capitalising on the opportunities embedded within the SSP reference scenarios, can bolster Harmony's long-term sustainability, enhancing its reputation as a responsible mining operation.

Harmony has identified key physical climate risks in its operations, including increased temperatures, water scarcity and extreme weather events. Tackling these risks necessitates resilient storage facilities, proactive water management and robust contingency plans. These risks echo those found in the energy and water sectors, highlighting the need for collaboration, regulatory compliance and climate resilience measures. We have identified physical and transition risks as part of the scenario analysis, which are presented in Figure 8 and Figure 9. These figures outline material climate-related risks, intermediate drivers, and their potential financial impact.

The vulnerability of Harmony's labour force to climate change is crucial to evaluate and address. Health issues and decreased productivity can stem from chronic risks such as heatwaves, rising temperatures, water scarcity and elevated dust levels. Immediate threats to workers and their safety are posed by acute risks such as wildfires and flooding, underlining the importance of resilient infrastructure, effective contingency plans, and robust water management practices. Labour vulnerability is further aggravated by insufficient global co-operation. Although some protection is offered by the high mitigation scenario, also known as scenario 3, addressing climate-related risks remains crucial. Regarding transition risks in the labour domain, Harmony understands the importance of upskilling and reskilling its workforce to adjust to new technologies, the integration of renewable energy, and

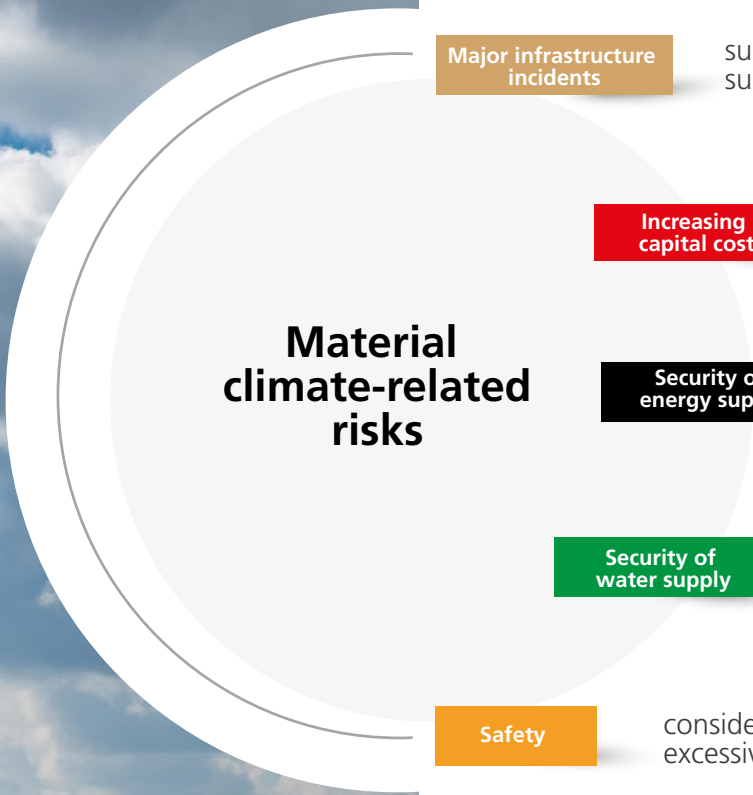


shifting market dynamics. By investing in comprehensive employee development programmes, Harmony can alleviate potential labour-related risks and present itself as a desirable employer in the evolving green economy.

The implications of physical climate risks are significant for the revenue and cost aspects of mines, particularly in relation to consumables. Chronic issues such as droughts, water scarcity and increased temperatures can hinder the availability and performance of consumables. Furthermore, acute risks like extreme weather events, wildfires and landslides can disrupt supply chains and damage infrastructure. Harmony recognises the need to reassess consumption patterns and place greater emphasis on the sustainable sourcing and usage of materials to mitigate transition risk to consumables. While initial challenges may arise, embracing sustainable consumables can lead to long-term benefits including reduced resource dependencies, cost savings, and an enhanced reputation as an environmentally responsible mining company.

Harmony acknowledges the importance of proactively managing risks related to the availability and use of energy and water. Harmony can bolster operational resilience, lessen environmental impacts, and contribute to climate change mitigation by investing in energy-efficient technologies, optimising water management practices, and embracing the integration of renewable energy. It is vital for Harmony to modify its practices and engage in meaningful dialogue with stakeholders to navigate transition risks to energy and water effectively and capitalise on associated opportunities. By aligning its operations with evolving regulations, investing in responsible resource management, and collaborating with local communities, Harmony can reinforce its reputation as a socially responsible mining entity.

Lastly, in terms of capitalising on opportunities, Harmony can leverage its gold and copper reserves during the transition to a low-carbon economy. This strategic positioning allows Harmony to contribute to the global shift towards clean energy, thanks to the growing demand for copper in renewable energy technologies.



Material climate-related risks

Major infrastructure incidents

such as flash flooding and potential supply chain disruptions

Increasing capital cost

requirements to lessen the impact of weather/climatic changes

Security of energy supply

to the operations, which could be disrupted by extreme climate change events, such as tornados

Security of water supply

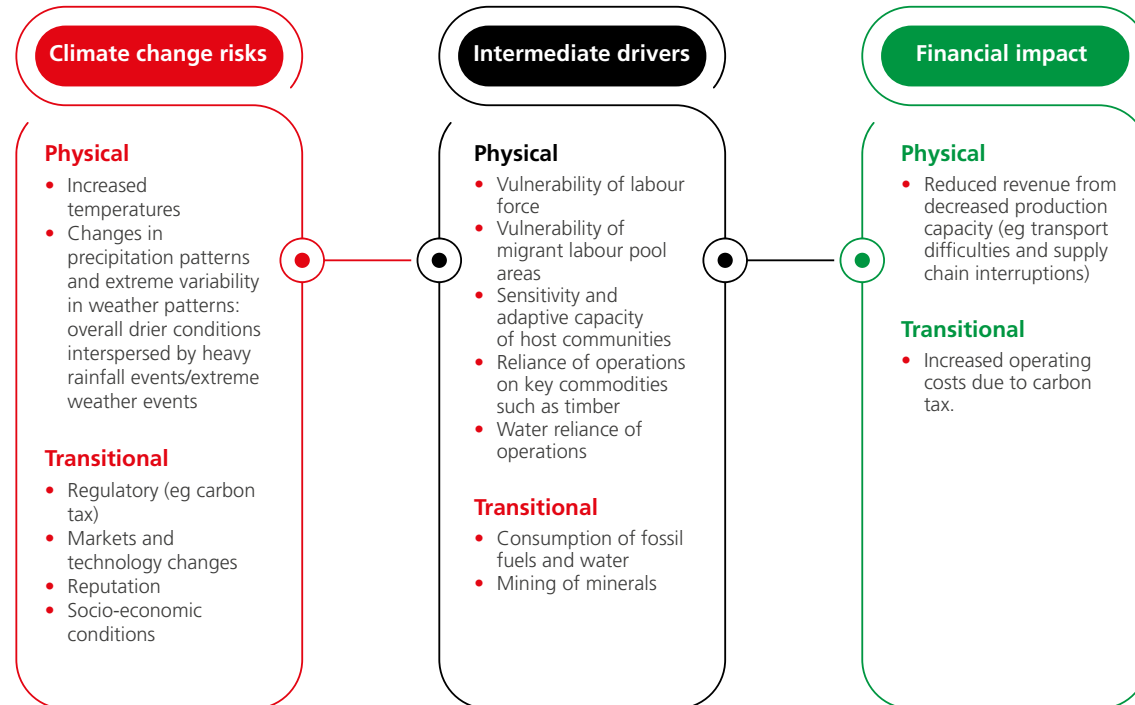
to the operations, which could be disrupted by climate change events such as prolonged drought periods

Safety

considering increasing ambient temperatures, excessive rainfall and flash flooding

Figure 8: Material climate-related risks

Figure 9: Climate change risks identified during the climate change scenario analysis



Overall, recognising and proactively managing climate-related risks and opportunities is of paramount importance for Harmony's long-term growth, resilience and sustainability efforts. Diversifying operations, enhancing data collection, and investing in new technologies can reduce risks and create avenues for growth and resilience. By aligning with low-carbon regulations and strategies, and seizing clean energy opportunities, Harmony can effectively navigate the challenges posed by climate change while positioning itself as a forward-thinking and responsible mining company.

CASE STUDY

During FY22, Harmony took proactive measures to support the landowner communities surrounding Hidden Valley's operation who lacked access to reticulated power in their villages. We provided solar lighting kits and biomass stoves to more than 300 families. These solar lighting kits not only reduced their reliance on open fires and kerosene lamps but also enabled activities such as studying and small income-generating ventures. Additionally, there are notable health benefits associated with reducing exposure to fossil and wood fuel burning. The kits also helped families save on fuel expenses and minimise domestic and manual labour.

Over the past several years in the host villages of the Wafi-Golpu Project, we have progressively implemented water, sanitation and hygiene projects aimed at improving water security and reducing domestic labour burdens. In FY23, our focus included new water supply systems to support 450 residents and school students in Papas and Wongkins communities. Additionally in FY23, our solar street lights programme established 61 lights in 42 village locations in proximity to the Wafi-Golpu Project footprint, with a combined population of 20 000 people.

Considering climate variability, our operations may face increased risks of water scarcity and intense rainfall leading to floods. In 2023, some operations were affected by excessive rainfall, particularly the floods in Queensland following intense rainfall in March. However, the impact was assessed as low for all operations. Meanwhile, areas of Papua New Guinea experienced La Niña-influenced drought in FY23 that affected the hydroelectric power supply of the Ramu grid. This led to an increase in diesel usage at Hidden Valley to combat these potential disruptions in production.

To strengthen our response strategy and improve excessive rainfall management, we invested R96 million in upgrading our stormwater controls on-site in some South African operations.

Climate resilience and adaptation remain crucial priorities for the wellbeing of our host communities. We are particularly mindful of the Climate Change Management Act in Papua New Guinea, which places a strong focus on building community resilience in the face of climate-related challenges.



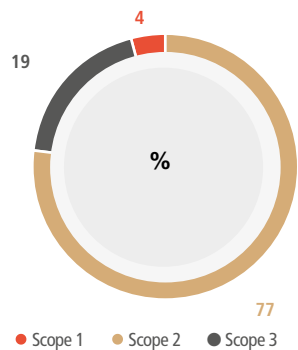
PERFORMANCE AND TARGETS

FY23 emissions

Harmony's total GHG emissions for FY23 were 5.57MtCO₂e, showing a 5% reduction since FY22. The largest portion of emissions is attributed to scope 2 (77%), as shown in Figure 10. Scope 1 GHG emissions are affected by increased diesel consumption in backup generators due to limited hydroelectricity in Papua New Guinea and loadshedding in South Africa.

Figure 10: Harmony's total GHG emissions in FY23

Emissions % by Source – FY23



The emission intensity for FY23 was 0.103tCO₂e per tonne treated for scope 1, 2 and 3, which is a 4.6% improvement from FY22. This is good progress against our absolute emissions target to achieve a 20% reduction by FY26.

SBTs

Our proposed long-term target is to reach net-zero emissions by 2045. Our near-term target 2021 to 2036 was approved by the SBTi in 2023. This target aims to decrease Harmony's total emissions by 206ktCO₂e annually, based on an annual reduction of 4.2% starting FY21 against FY21 as the base year. This conforms to SBTi requirements for a target aligned with Business Ambition for 1.5°C.

Figure 11: Emissions forecast against our target by 2045. South African, Papua New Guinea and Australian operations emissions are shown as stacked areas. The total emissions for all Harmony operations and our 2045 target trajectory are plotted as lines

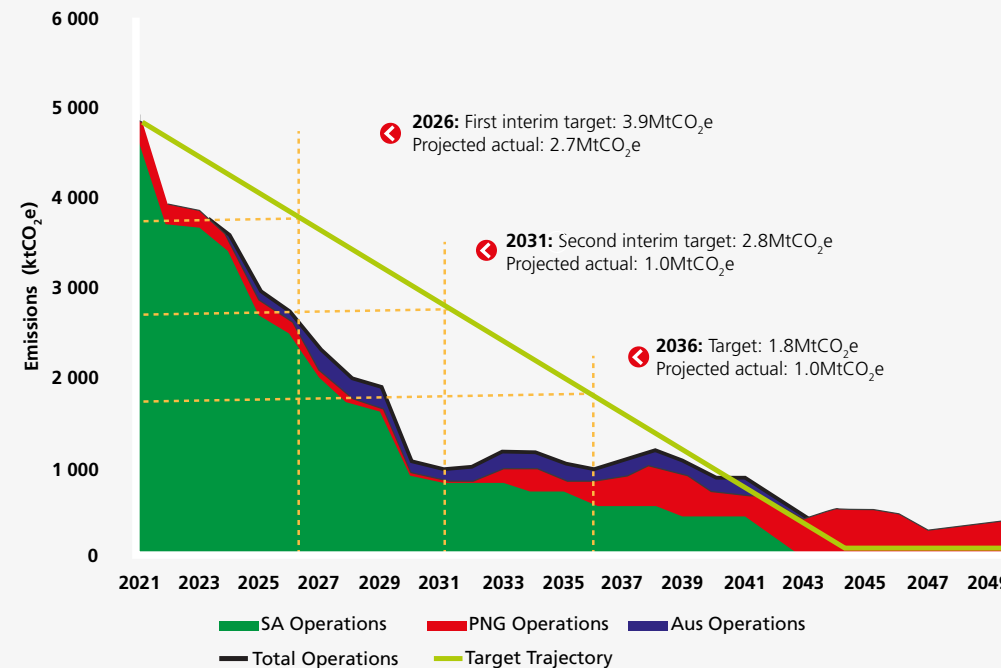


Table 3: SBTi emission targets

	Emission target MtCO ₂ e	Projected emissions MtCO ₂ e
FY26	3.9	2.7
FY31	2.8	1.0
FY36	1.8	1.0

From FY38 onward the projections are less ideal, and our net-zero target for 2045 requires further initiatives to be achieved. Our emissions forecast for our South African operations and Wafi-Golpu are key drivers of emissions around FY38. The remaining emissions will be offset using land-based carbon sequestration and purchased carbon credits.

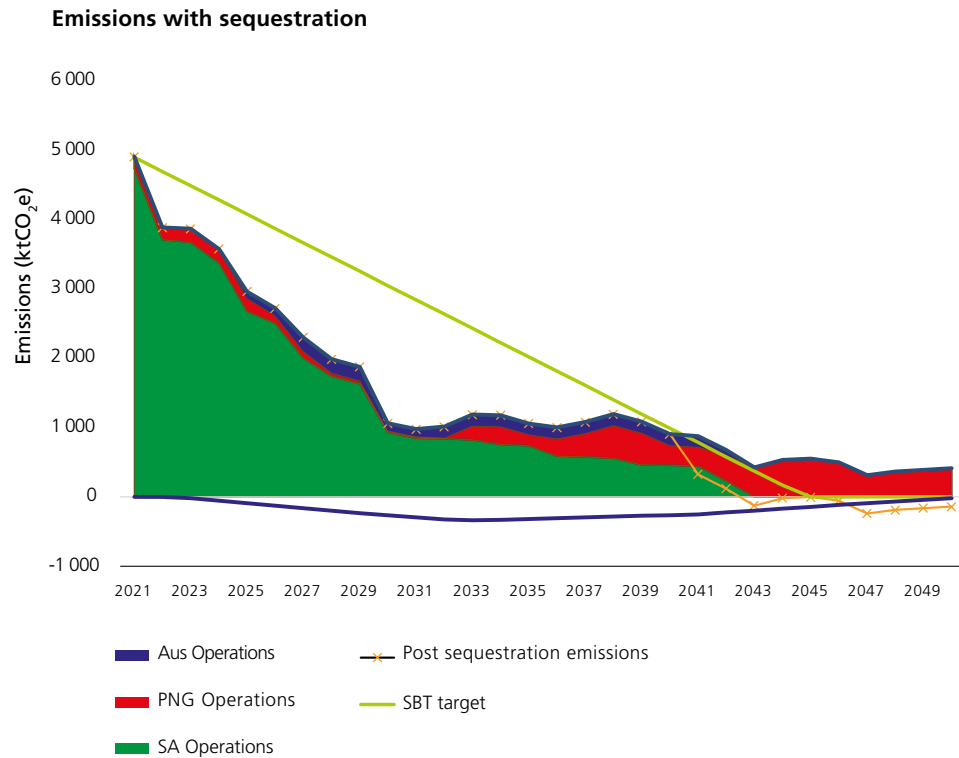
Our SBTi emission targets are shown in Table 3. The projected actual emissions are well below the SBTi targets at FY26, FY31 and FY36. These targets can be met, provided Harmony implements its planned initiatives.

Land-based carbon sequestration

We are planning to neutralise unavoidable emissions through carbon sequestration. One of these methods includes sequestering carbon by planting trees. Tree planting has begun at some of our closed tailings storage facilities, also assisting with mining impacted land rehabilitation. The viability of such a strategy is dependent on several factors, such as tree species, tree growth rate and carbon content.

We would need to plant up to a total of approximately 15 000 hectares of trees between 2021 and 2030 to achieve this. If 1 540 hectares are planted per year to 2030, then enough carbon will be sequestered to negate the target overshoots, 20 years later. This has been costed and we are preparing to establish a nursery that will employ local people to grow and plant the trees. We will thus rehabilitate land and reduce our emissions by 2045. The net emissions from the land-based emissions sequestration are shown in Figure 12.

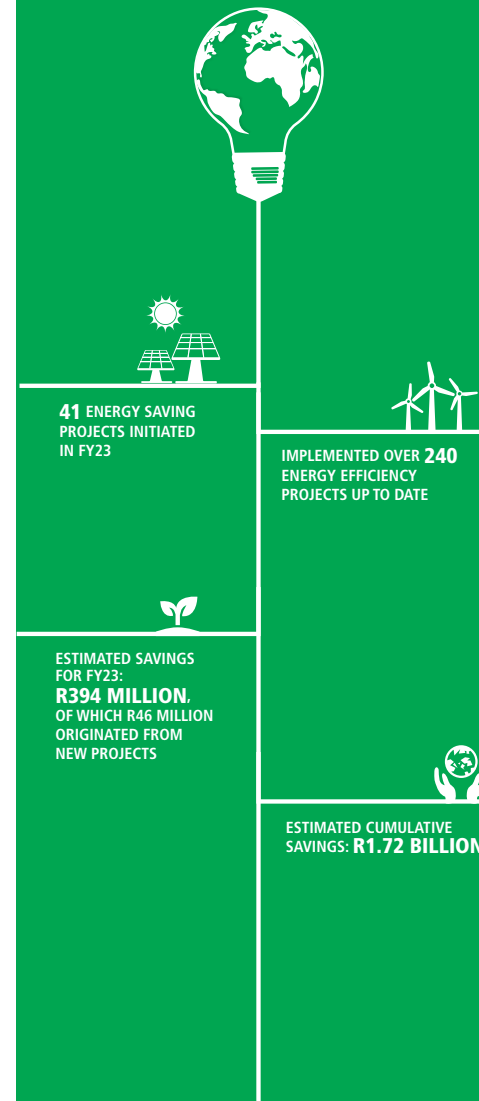
Figure 12: Emissions forecast against and planned sequestration to achieve net-zero emissions



Energy efficiency

Harmony has been optimising energy use since 2016 to help reduce emissions. Through the energy efficiency programme, Harmony effected cumulative energy savings of R1.72 billion (Figure 13) up to the end of FY23. We implemented and maintained multiple energy optimisation projects throughout our operational systems in FY23. This resulted in an estimated energy saving of 295GWh and a cost saving of R394 million. Of these savings, 42GWh or R46 million originated from new projects initiated in FY23.

Figure 13: Energy efficiency milestones up to FY23



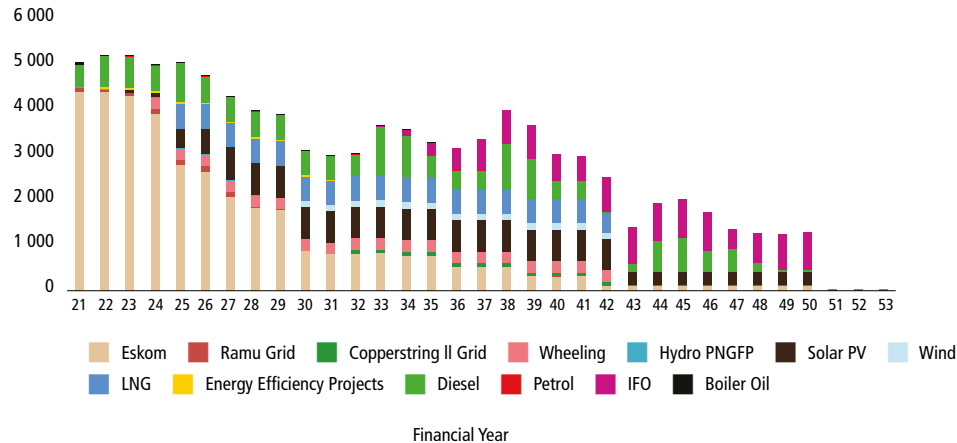
Our energy efficiency initiatives focus on mine cooling, refrigeration, compressed air, water management and ventilation. To date, we have implemented over 240 energy efficiency initiatives at our operations. The energy efficiency programme approach considers the following:

- Energy management teams at South Africa operations
- Infrastructure to enable energy metering and management
- Baseline electricity consumption at all operations
- Exploration, identification and investigation of optimisation opportunities
- Implementation of optimisation strategies and capital projects
- Maintenance of implemented initiatives
- Reporting and management controls
- Awareness programmes to encourage energy conservation.

Energy mix

Our energy mix (Figure 14) is heavily dependent on emissions related to electricity supplied by Eskom in South Africa. The outlook is to drastically reduce reliance and even start pushing electricity into the Eskom grid from FY42 to FY50. A large concern is our current and projected use of diesel. If grid electricity becomes less reliable, we need to be wary of growing dependence on diesel generators to supplement electricity needs. The same can be considered for Intermediate Fuel Oil (IFO) and liquefied natural gas (LNG). We are investigating alternatives to replace these fuels with renewable sources in the future.

Figure 14: Total annual energy supply for Harmony operations
Energy mix forecast for Harmony group



Energy diversification

Since target approval, Harmony's energy mix has been updated to include three main changes in energy sourcing. These include:

- Additional energy requirements associated with the Eva Copper Project in Australia, which assumes 30% renewable energy for the project initially
- An assumed later start date for the Wafi-Golpu Project on account of ongoing negotiations for the grant of the special mining lease
- In the case of FY23, limited hydroelectricity production due to drought conditions, resulting in significant reliance on diesel power generation to supplement Hidden Valley operations during the year.

Papua New Guinea

Most of the electricity for Morobe Province is sourced from the Ramu grid (60% hydropower). During FY23, La Niña-influenced drought constrained PNG Power's hydropower capacity. Water in Yonki Dam, serving the Ramu hydropower station, was critically low for most of the year. Smaller run-of-river hydropower plants, such as the 9.4MW Upper Bauine hydropower station, were also restricted to approximately 30% of normal supply. This led to intense load shedding until these conditions eased and the hydropower generation recovered. Commissioning of the PNG Forest Products-owned 11.4MW Baime hydropower plant in March 2023 augmented PNG Power supply. These events led to reconsideration of our plans to isolate Hidden Valley from the Ramu grid and receive power directly from the nearby Bauine hydropower station on account of broader provincial and community energy needs. We continue monitoring this opportunity.



South Africa

In South Africa, our energy mix portfolio includes Eskom grid electricity which mainly relies on coal-fired power stations, and energy from independent power producers of solar, wind and natural gas energy. These projects are either under feasibility or in the build stage.

Harmony is working toward diversifying the energy mix portfolio through small-scale and large-scale projects. We decided to invest in small-scale solar projects to expedite our renewable energy drive. Projects include rooftop solar projects at our offices and administrative buildings across Harmony's footprint. In July 2022, the threshold for exemption from licence requirements for self-generation projects was removed. This provides an opportunity for Harmony to reduce our GHG emissions and pursue renewable energy more aggressively in South Africa.

Our solar photovoltaic (PV) energy initiative is planned in three phases (Table 4). The first two phases are underway, for 30MW and 137MW of installed capacity respectively. Additional 20MW for Phase 2 is pending Doornkop site identification. Off the back of Phase 1 of the renewable energy programme, Harmony secured a R1.5 billion green loan for Phase 2 rollout. Phase 2 is currently in the feasibility stage. Phase 2 is planned to reach commercial operation by Q3 FY25.

Harmony is exploring options for LNG or synthesis gas. Although not renewable, we are considering LNG in the mix to lower the emission intensity of our power requirements relative to the predominantly coal-fired South African electricity grid.

Table 4: Harmony planned energy diversification pipeline (South African operations)

Parameter	Phase 1 PV	Phase 2 PV	Phase 3 PV	Wind wheeling	LNG*
Size of plant (MW)	30	137	56	1	60
Energy generated per year (GWh)	75	343	139	250	525
First production year	FY23	FY25	FY26	FY26	FY25

* LNG is a key consideration but we are still working on sourcing thereof.

Water

Reliable water supply is critical for developing our assets, the mining process and realising our growth prospects. We have a thorough understanding of water management and water risks across the operational spectrum. We have integrated water security management and other water-related risks into our long-term business objectives, business strategy and financial plan. Harmony's commitment to responsible water management is driven from an executive level and has evolved from a strategy into practical and relevant actions across the group.

Harmony's water strategy sets out objectives related to water conservation, efficient water use, and the necessities surrounding water supply in the context of its host communities, including:

- Acknowledging water-related risks regarding climate change
- Recognising water as a critical resource for local communities
- Integrating efficient water management
- Planning for water management at mine closure.

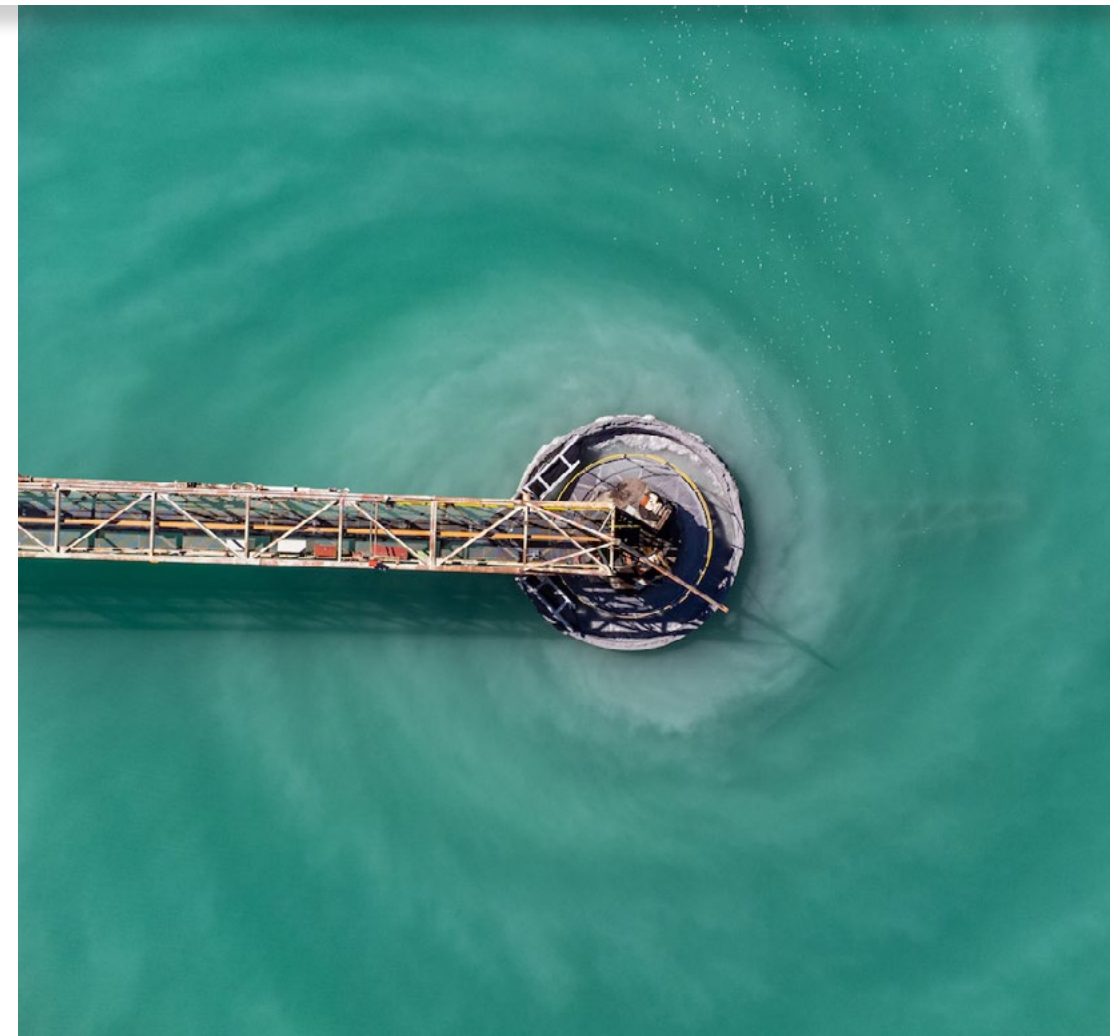
Harmony can reduce its operating costs and alleviate water shortage pressures in our host communities through recycling process water. Harmony's water strategy supports the shift towards self-generation and zero discharge of water where practical to do so. This will encourage the group's water conservation and demand management objectives. Harmony prioritises the conservation of potable water, especially considering the potential worsening drought conditions in the regions in which we operate. Self-generating water will ensure consumption offsets and offer water supplements to host communities.

Harmony adopted a group-wide campaign to reuse process water and reduce our dependency on potable water from water utilities. In support of this, we set long-term targets to reduce potable water consumption by 10% and increase water recycled by 50% by FY27. To achieve these targets, Harmony implemented various water conservation initiatives. Progress against water usage targets is reported below:

- FY23 total potable water usage was 20Gℓ, down 5% from FY22, which totalled 21Gℓ. This is great progress against a reduction target of 10% by FY27
- FY23 average water usage intensity of potable water used per tonne milled was 0.378kℓ/t, down 4% from FY22, which averaged 0.394kℓ/t. This is great progress against the target to reduce this metric by 10% by FY27
- The absolute volume of water recycled in FY23 has increased by 11Gℓ, which is 13% up since FY22. This is great progress against our 40% target by FY27.

Harmony's three water treatment plants in South Africa assist in securing water supply to our operations while reducing water consumption and assisting with water conservation initiatives. The water treatment plants save Harmony R5.6 million in operating costs per year.

Harmony continues to pump water out of our Margaret and Covalent shafts, some of which is used in treatment processes, with the remaining being discharged. This surplus water could provide Harmony with water resources to adapt to future water-stressed conditions. With the physical impacts of climate change posing potential threats to water security in South Africa, water from Covalent and Margaret became strategic assets for community upliftment and operational growth and development.



In 2018, the Wafi-Golpu joint venture initiated a water, sanitation and hygiene (WaSH) programme to progressively deliver 19 projects in the proposed special mining lease (SML) and Demakwa access road area, which is home to over 5 000 people. Seven projects have been completed to date; noting

that the project was suspended for over two years on account of the Covid-19 pandemic. In FY23, our focus included new water supply systems to support 450 residences and school students in Papas and Wongkins communities. Further projects are planned for FY24.

STRATEGIC DIRECTION

Harmony is committed to achieving net-zero by 2045 and therefore submitted SBTi targets to be verified. These targets were approved by the SBTi and confirmed that the targets are in line with a 1.5°C trajectory. The SBT states: "Harmony commits to reduce absolute scope 1 and 2 GHG emissions (63%) by FY36 from a FY21 baseline. By aiming to achieve these targets we will align with our goal of achieving net-zero by 2045".

FY23 was a challenging year in terms of unplanned emissions due to shortages in energy supply. The outcome of these scenarios is insights into how to drive resilience against energy insecurities and implement changes to reduce emissions. We have progressed significantly in implementing some of these changes and have started to reap the benefits of investments. We participate in business and mining industry initiatives that support decarbonisation. In the community development space, we embarked on initiatives to support our host communities' climate resilience.

OUTLOOK

The IFRS Foundation will assume the work of TCFD work starting in 2024, marking the transition of responsibilities to the International Sustainability Standards Board (ISSB). The ISSB has introduced its first standards, IFRS S1 and IFRS S2, that incorporate TCFD recommendations and set a global benchmark for sustainability-related disclosures. We will remain committed to the target set in 2022 and will report progress against these standards. Harmony's various strategies will enable meaningful change, and we are confident in our ability to meet our targets. Our commitment to net-zero drives our ambitions and enables the transition to a low-carbon economy. Our progress to date and commitment to strategic decision making ensure that we are well placed to continue our journey. We will continue our strategic path, and we look forward to the challenges ahead.

