Exxaro Resources Limited

Consolidated Mineral Resources and Mineral Reserves report 31 December 2023

exxaro

POWERING POSSIBILITY

Foreword

Exxaro continuously strives to enhance the level of estimation and reporting of Mineral Resources and Mineral Reserves. The group is committed to the principles of transparency, materiality and competency in reporting its Mineral Resources and Mineral Reserves.

The information in this report aligns with section 12.13 of the JSE Limited (JSE) Listings Requirements. It encapsulates information on reporting governance, competence, tenure, risk, liabilities and assurance as well as auxiliary descriptions of applicable projects, operations and exploration activities.

Mineral Resources and Mineral Reserves were estimated by Competent Persons on an operational or project basis and in line with the South African Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves, 2016 edition (SAMREC Code) for African properties (coal), with the exception of the Vedanta Resources base metal property, and the Australasian Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves, 2012 edition (JORC Code) for Australian (coal) and the Vedanta Resources property.

For Coal Resources and Coal Reserves under Exxaro management's control, estimation is in line with the South African National Standard: South African National Standard 10320:2020, edition 2, guide to the systematic evaluation of Coal Resources and Coal Reserves (SANS 10320). Mineral Resource and Mineral Reserve estimates are quoted in full, irrespective of Exxaro's shareholding. The report primarily encompasses all aspects relating to Exxaro's coal estimation and reporting. Therefore, we predominantly refer to Coal Resources and Coal Reserves throughout the report. We also use Mineral Resources and Mineral Reserves to collectively refer to coal, base metal and iron ore estimates.

Exxaro reports Mineral Resource and Mineral Reserve estimates directly under management's control and for entities in which we hold a minority interest. Supplementary descriptions are provided for projects and operations directly under management's control. For projects and operations mentioned in the report over which Exxaro has no management control, please refer to the relevant company's website, as shown below, for supplementary information. This approach ensures maximum compliance with the principles of materiality and transparency.

Anglo American (Moranbah South project): www.angloamerican.com/investors/annual-reporting

Thungela Resources (Mafube): https://www.thungela.com/

Kumba Iron Ore (Kolomela and Sishen): www.angloamericankumba.com/investors

Vedanta Resources base metal operations and projects (Black Mountain and Gamsberg): www.vedantaresources.com/investor-relations/

Feedback

We encourage and welcome feedback from our stakeholders. Please send any comments or suggestions to:

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Mobile: +27 83 460 3723
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www.exxaro.com

Certification by group company secretary

In terms of section 88(2)(e) of the Companies Act, 2008 (Act 71 of 2008), as amended (Companies Act), I, Andiswa Ndoni, in my capacity as group company secretary, confirm that, to the best of my knowledge, for the year ended 31 December 2023, Exxaro Resources Limited (Exxaro) has filed with the Companies and Intellectual Property Commission all such returns and notices as required of a public company in terms of the Companies Act, and that all such returns and notices appear to be true, correct and up to date.

The directors do not know of any legal impediments or other material conditions that may have an influence on the rights to explore or mine.

Andiswa Ndoni
Group company secretary

Pretoria

10 April 2024

Certification by lead Competent Persons

The Exxaro executive management team appoints the lead Competent Persons.

The Exxaro lead Coal Resource Competent Person is Henk Lingenfelder, a member of the Geological Society of South Africa and professionally registered with the South African Council for Natural Scientific Professions (SACNASP). He has a BSc (Geology) (Hons) and 28 years of experience as a geologist in coal, iron ore and industrial minerals.

The person in Exxaro designated to take corporate responsibility for Coal Resources, Henk Lingenfelder, the undersigned, has reviewed and endorsed the reported estimates.

Henk Lingenfelder
BSc (Geology) (Hons)
PrSciNat (400038/11)
Group manager: mineral asset management (MAM)

263B West Avenue, Die Hoewes
Centurion
0163
South Africa

South African Council for Natural Scientific Professions
Private Bag X540
Silverton
0127
South Africa

The Exxaro lead Coal Reserve Competent Person is Chris Ballot, a mining engineer registered with the Engineering Council of South Africa (ECSA). He has 27 years of experience in various technical and management roles in iron ore, mineral sands and coal. His qualifications include BEng (Mining), GDE and MBA.

The person in Exxaro designated to take corporate responsibility for Coal Reserves, Chris Ballot, the undersigned, has reviewed and endorsed the reported estimates.

Chris Ballot
BEng (Mining)
ECSA 20060040
Group manager: mining

263B West Avenue, Die Hoewes
Centurion
0163
South Africa

Engineering Council of South Africa
Private Bag X691
Bruma
2026
South Africa

Both parties are permanently employed by Exxaro: Henk Lingenfelder as the group manager: MAM and Chris Ballot as the group manager: mining. Both parties consented to the inclusion of the Resource and Reserve estimates in the 2023 integrated report in the form and context in which it was intended and confirms that the reporting complies with the SAMREC Code, the relevant portions of Table 1 and the JSE Listings Requirements (section 12.13). Exxaro has written confirmation from the Competent Persons (Table 2) that the reporting complies with the SAMREC Code, the relevant portions of Table 1 and the JSE Listings Requirements (section 12.13), and that they consent to the publication of the report in the form and context in which it was intended.

Contents

Rounding of numbers may result in **computational discrepancies** in the Mineral Resource and Mineral Reserve tabulations

Coal Resources are quoted inclusive of Coal Resources that have been **modified** to **Coal Reserves** unless otherwise stated

Operation and **mine** are used **interchangeably**

Refers to **million tonnes**

Figures are **reported** at **100%**, irrespective of percentage **attributable** to Exxaro

Refers to **metric tonnes (t)**

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Exxaro Resource and Reserve reporting strategy

Exxaro continuously strives to enhance the estimation and reporting of our Resources and Reserves through:

1. Competence
2. Assurance
3. Accurate estimation
4. Credibility
5. Accountability
6. Reconciliation
7. Governance

1 Trustworthy estimates
Our Competent Persons are the custodians of the mineral assets, employing responsible and innovative technical management principles.

2 Professional execution
Mineral Resource managers of each operation are the custodians of the life of mine (LoM) and ensure professional execution of the business plans.

3 Responsible exploitation
Stimulating profitability and return on investment.

Our early value coal exploitation plans, supporting our Sustainable Growth and Impact strategy, are implemented at all our operations.

Considerations reflected in reporting

- Exxaro's diversification
- Global energy transition
- World economy
- Environmental, social and governance (ESG)

Our reporting is informed and guided in accordance with:

SAMREC

SAMVAL

JSE

Our operations and projects

Limpopo

Grootegeluk

- Positive outcomes of an external estimation audit, illustrating the **credibility of the processes** underpinning our estimates
- Production of **coking coal increased,** but year-on-year run of mine (RoM) decreased slightly

Thabametsi project

- The project is located immediately **adjacent** to our **Grootegeluk operation**, and we are considering scenarios that will **unlock maximum value** for the **integrated Waterberg business**

Mpumalanga

Belfast

- Market to **Resource flexibility** was achieved through establishing a **domestic client base**
- Challenges experienced early in the reporting year were addressed, resulting in **exceptional production performance** in Q3/4
- Grade control is a key enabler for mining **flexibility** between the various pits at the operation

Leeuwpan

- An **optimisation study** is in progress to attain a steady and consistent RoM supply as the OL pit nears depletion. The **focus** will be primarily on the exploitation of the **remaining OI pit**

Matla

- The **implementation** of the three mine expansion projects, securing an estimated ~85% of Matla Coal Reserves, progressed well
- Coal Resources, identified through **innovative** Mineral Resource Management (MRM) principles, previously situated outside the LoM, provided additional pit room and the necessary **flexibility** for the mining teams to alleviate implementation delays

Mpumalanga

Mafube

- A **50% owned**, highly successful joint venture mine with our partner Thungela Resources
- Focused **exploration drilling** during the year to increase geological confidence as well as **progress** on environmental studies **enhanced future planning** at the operation

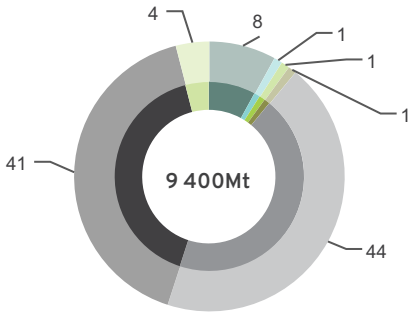
Australia

Moranbah

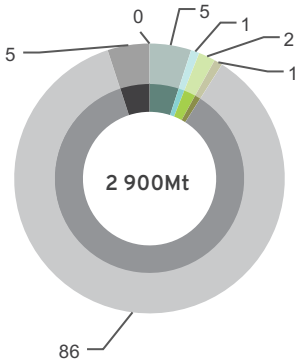
- A **50%-owned**, hard-coking coal joint venture development with Anglo American Steelmaking Coal in the Bowen Basin, Queensland, Australia
- The execution of a 33km^2 **3D seismic survey** is currently in progress. On completion, most of the Resource will be covered by 3D seismic surveys and will, in conjunction with **focused drilling**, contribute materially to the de-risking of the Coal Resource

Our Coal Resources and Coal Reserves

Total attributable Coal Resources

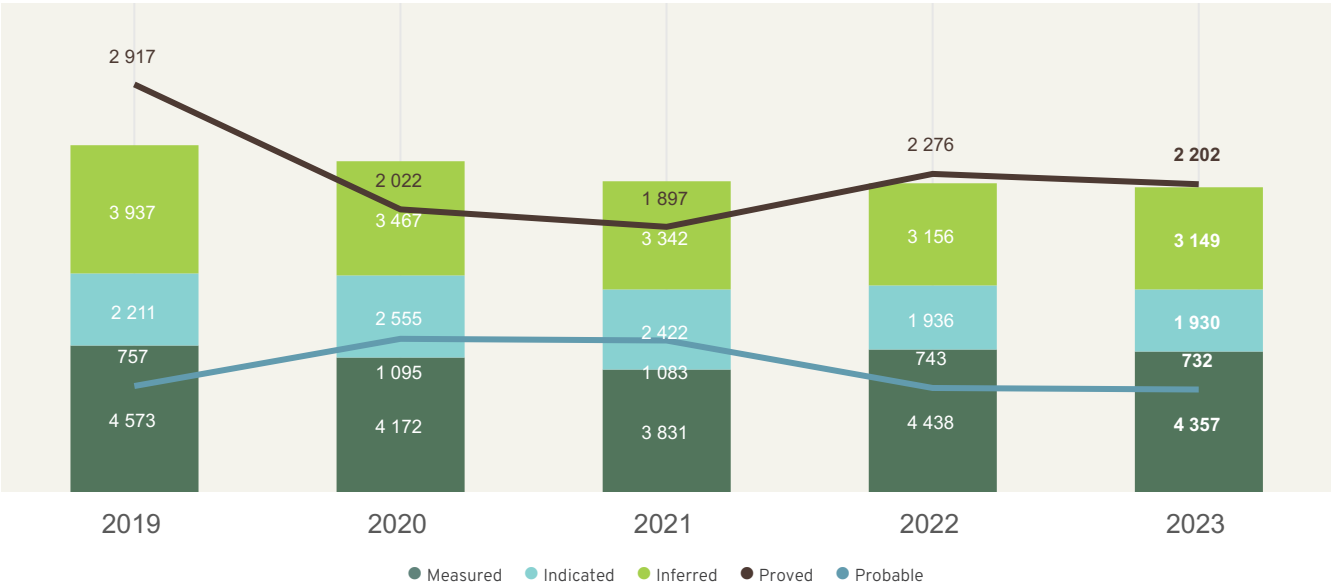


Total attributable Coal Reserves



Matla · Leeuwpan · Mafube · Belfast · Grootegeluk · Thabametsi project · Moranbah South project

EXXARO Attributable Coal Resources and Reserves (Mt)



Our total attributable Coal Resource decreased by ~1%, primarily due to mining. On-mine drilling increasing the level of confidence resulted in material movements between the Coal Resource categories, as noticeably observed at our Mafube mine.

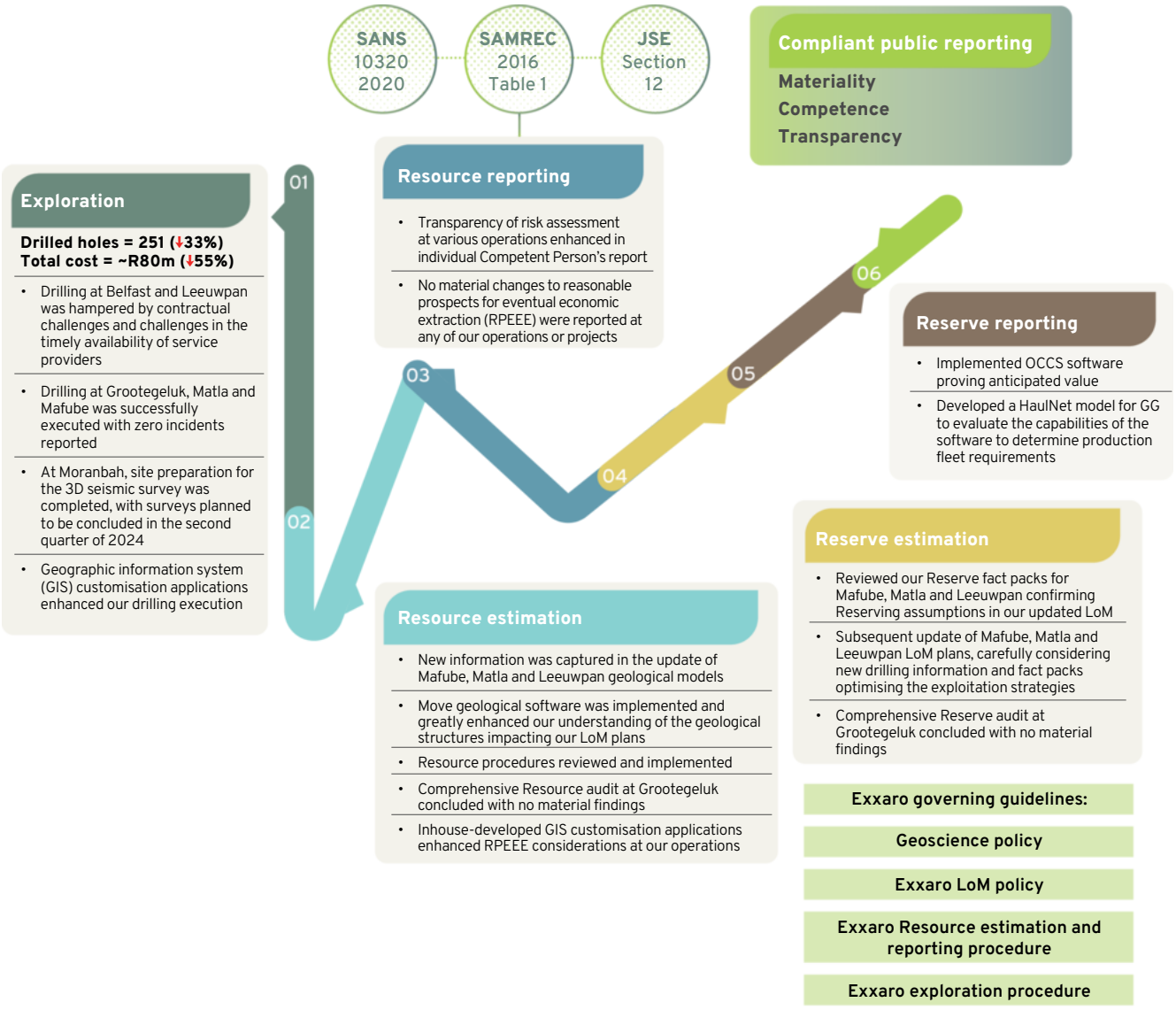
Our total attributable Coal Reserve decreased by ~3%, primarily due to mining depletion and revised LoM plans (LoMPs). A material decrease in Coal Reserves only noted at our Leeuwpan mine (~14%), the result of new drill hole information received as well as layout losses that occurred during the execution of the mine plan.

Other than normal mining depletion, no material changes to the total attributable Coal Resource and Coal Reserve estimates are further reported for any of our operations.

Notes:

- *Resource estimations are based on the latest available geological models, which incorporate new validated geological information and, if applicable, revised seam, Resource definitions and Resource classifications. For the 2023 reporting cycle, reported estimates are derived from actual mining up to the end of October, incorporating the planned estimates for November and December.*
- *Resource and Reserve estimates in our statements are quoted in full, irrespective of Exxaro's shareholding. Our attributable tonnage is clearly presented in the image above and, when used in our report, always clearly defined as such.*
- *Rounding off of figures quoted may result in minor computational discrepancies although it is not deemed significant.*

Our estimation process



Our reporting framework

Governance

The Exxaro annual estimation and reporting process is managed through Exxaro geosciences and LoM policies and associated Coal Resource and Coal Reserve reporting and estimation procedures. These policies and procedures are aligned with the guidelines of section 12.13 of the JSE Listings Requirements and the SAMREC Code.

The policies and procedures dictate technical requirements for estimation and reporting and include guidelines on methodologies, processes and deliverables. Procedures are also implemented for the geophysical, rock engineering, geotechnical, structural geology, hydrogeological, exploration and mine planning disciplines that prescribe methodologies and minimum standards for compliance.

Table 1: Exxaro's reporting structure

Regulatory	Governance	Deliverables	Assurance
JSE Listings Requirements (section 12)	**Geosciences policy**	**Annual Resource and Reserve estimation schedule**	**Annual review and update of procedures**
Considered 2016 amendments to minimum contents of annual report, point 12.13	Considered 2022 update	Followed 2023 estimation schedule for operations under Exxaro's control	Considered and reviewed
SAMREC Code (Table 1)	**Exxaro's Mineral Resources and Mineral Reserves reporting procedure**	**Mineral Reserves fact packs**	**Competent Persons' register update and review**
Considered 2016 updated Table 1	Considered and reviewed	2023 Mineral Reserves fact packs updates for Matla, Leeuwpan and Mafube	Updated for 2023
SANS 10320	**Exxaro's Mineral Resource estimation procedure**	**Annual Mineral Resource and Mineral Reserve Competent Persons' report**	**Exxaro consolidated Mineral Resources and Mineral Reserves report review and lead Competent Person sign-off**
Alignment with proposal and methodologies of SANS 10320:2020 edition 2	Considered 2022 update	Competent Persons' reports updated for Belfast and Mafube	Peer reviewed by Tamela Consulting and signed off by lead Competent Persons
JORC Code	**Exxaro's Mineral Reserve estimation (LoM) policy**	**Mineral Resource and Mineral Reserve report**	**Applicable Competent Person and technical team sign-off**
Considered JORC Code, 2012 edition	Considered 2020 update	Reports updated for Grootegeluk, Leeuwpan and Matla	Included in individual Competent Persons' and annual Resource and Reserve reports, available on request
			Internal review and external audit process
			Conducted internal reviews and findings are addressed (Assurance section)

Competent Persons

Exxaro applies three levels of "competency" to estimating Coal Resources and Coal Reserves:

- **Competent Person** (as defined in the SAMREC and JORC codes) who officially takes responsibility for estimating and reporting Coal Resources and/or Coal Reserves at operational or project level. These appointed Competent Persons have acknowledged acceptance of accountabilities. Names, qualifications, affiliations and relevant experience are included in the independent operational and project reports in the form of a Competent Person's certificate
- **Technical specialists,** including geologists, mining engineers, geohydrologists, geotechnical engineers, financial experts and economists, among others. The Competent Persons' report or Resource and Reserve report contains the names, signatures and contributions of technical specialists who contributed to estimating the operations' Coal Resources and Coal Reserves
- Persons designated to take **corporate responsibility** for the Coal Resource and Coal Reserve estimates presented in the consolidated report are differentiated from the Competent Person at an operational level, who takes overall corporate responsibility

Exxaro's Coal Resources and Coal Reserves were estimated or supervised by the Competent Persons listed in Table 2 (name, affiliation and relevant experience) on an operational basis in accordance with the SAMREC Code for South African properties and the JORC Code for Australian properties. All Competent Persons have sufficient relevant experience in the style of mineralisation, type of deposit and/or mining method(s) under consideration and/or being mined and for the activity under their responsibility to qualify as Competent Persons, as defined in the applicable codes at the time of reporting.

The appointed Competent Persons have signed off their respective estimates in their original Competent Persons' reports for the various operations and consent to the inclusion of the information in this report in the form and context in which it appears in the Consolidated Mineral Resources and Mineral Reserves report. The appointed Competent Persons are permanently employed by the company. In the case of projects, the Competent Persons conducted appropriate site visits to the mineral property being evaluated.

From the left: Aubrey Phoko (Grootegeluk Reserve Competent Person), Pateka Themba (principal mineral asset estimation) and Sifiso Mhlongo (Grootegeluk Resource Competent Person)

Table 2: Competent Persons' register

	Mineral Resources				Mineral Reserves			
Operation/ project	**Name**	**Relevant experience (years)**	**Job title – Employer**	**Registration**	**Name**	**Relevant experience (years)**	**Job title – Employer**	**Registration**
Lead Competent Person, Exxaro	JH Lingenfelder	28	Group manager: MAM	SACNASP (400038/11)	C Ballot	27	Group manager: mining	ECSA (20060040)
Belfast mine	G Gcayi	16	Resident geologist, Belfast	SACNASP (400299/11)	Al Dednam	12	Manager: MRM and optimisation, Belfast	Southern African Institute of Mining and Metallurgy (SAIMM) (710051)
Grootegeluk mine	S Mhlongo	12	Resident geologist, Grootegeluk	SACNASP (400044/18)	MA Phoko	11	Principal engineer: strategic mine planning and design	SAIMM (710500)
Leeuwpan mine	JK Kgarume	10	Resident geologist, Leeuwpan	SACNASP (117081/17)	T Dibate	12	MRM manager, Leeuwpan	SAIMM (705352)
Matla mine	M Dimmick-Touw	10	Resident geologist, Matla	SACNASP (400134/16)	TF Moabi	18	MRM manager, Matla	SACNASP (400067/08)
Thabametsi project	S Mhlongo	12	Resident geologist, Grootegeluk	SACNASP (400044/18)	C Ballot	27	Group manager: mining	ECSA (20060040)
Mafube (Nooitgedacht and Wildfontein)	D Xaba	24	Geology manager: production, Thungela Resources	SACNASP (400115/01)	D Xaba	24	Geology manager: production, Thungela Resources	SACNASP (400115/01)
Moranbah South, Australia	AJ Laws	28	Geoscience modelling specialist, Anglo American Steelmaking Coal Proprietary Limited	AusIMM (209913)	N/A			
Black Mountain Mining (BMM) Deeps mine, Swartberg and Big Syncline projects	M Campodonic	23	Practice leader and corporate consultant, SRK Consulting (UK) Ltd	AusIMM (Competent Person: geology), Fellow of the Geological Society of London (FGS)	J Miles	34	Associate principal consultant: mining engineering, SRK Consulting (UK) Ltd	Member of the Institute of Materials, Minerals and Mining (CEng)
Gamsberg	M Campodonic	23	Practice leader and corporate consultant, SRK Consulting (UK) Ltd	AusIMM (Competent Person: geology), FGS	J Miles	34	Associate principal consultant: mining engineering, SRK Consulting (UK) Ltd	Member of the Institute of Materials, Minerals and Mining (CEng)
Kumba Iron Ore	J Britz	19	Principal: resource geology, Sishen Iron Ore Company Proprietary Limited (SIOC)	SACNASP (400423/04)	T Otto	19	Manager: mining, SIOC	ECSA (990072)

** All Competent Persons are Exxaro employees except where otherwise stated, and their qualifications are included in the individual Competent Persons' reports.*
** Exxaro Resources: 263B West Avenue, Die Hoewes, Centurion 0163, Gauteng, South Africa.*
** South African Council for Natural Scientific Professions: Private Bag X540, Silverton 0127, Gauteng, South Africa.*
**Southern African Institute of Mining and Metallurgy: 7th Floor, Rosebank Towers, 19 Biermann Ave, Rosebank, Johannesburg, 2196.*
** Engineering Council of South Africa: Private Bag X691, Bruma 2026, Gauteng, South Africa.*
** Australasian Institute of Mining and Metallurgy: 204 Lygon Street, Carlton VIC 3053, Australia.*
** The Institute of Materials, Minerals and Mining: 297 Euston Road, London NW1 3AD, United Kingdom.*
** SIOC: Hendrik van Eck Street, Kathu 8484, Northern Cape, South Africa.*
** Thungela Resources: 25 Bath Avenue, Rosebank, Johannesburg 2196, Gauteng, South Africa.*
** Anglo American Steelmaking Coal: 201 Charlotte Street, Brisbane 4000, Queensland, Australia.*

Resource estimation methodology summary

The estimation process, summarised below, applies to all coal operations and projects under Exxaro's management control. The Resource Competent Person is actively involved throughout the process, and no data is included/excluded without consent.

The Resource estimation process for Coal Resources under Exxaro's control is governed by the group's Resource estimation procedure and aligned with the SAMREC Code and SANS 10320. The data used for Resource estimation is managed by separate commodity-specific procedures through which core recovery and logging, sampling, quality assurance and quality control (QAQC), relative density determination and wireline logging standards are enforced.

Table 3: Summary of estimation considerations

Item	Description
Resource fact pack	States revised information since the last estimation, eg RPEEE considerations.
Exploration	Annually compiled, integrated and signed-off exploration plans outline planned activities to investigate areas of low confidence and/or geological or structural complexities to ensure Resources with a high level of geological confidence are considered for mine planning. Exploration plans are available as supplementary information to the Competent Persons' report.
Drilling, logging and sampling process	The senior geologist supervises all drill hole drilling and is responsible for logging and sampling in compliance with Exxaro's logging and sampling standards as well as standard operating procedures. Sampling of drill holes is only conducted after the stratigraphy has been correlated. All drill holes are drilled as vertical drill holes from the surface and the intersection to the seams is considered to be representative of true thickness.
Core recovery	The core recovery standard (>95% in coal seams for valid points of observation), as stipulated in the SAMREC Code and SANS 10320, is not always empirically enforced due to unavailability of digital core recovery data for pre-2017 drill holes. However, Exxaro's Competent Persons confirm that there is high confidence in core and sample recovery for all drill holes used for Resource estimation purposes, and any deviation is managed by increased geological losses within geological loss domains, downgrading Resource classification and/or re-drilling drill holes. Core recovery is continuously reviewed, and any shortcomings are actively addressed through downhole geophysical surveys, seam validations and re-drilling.
Relative density determination	For Coal Resources, relative density (air-dried) is determined by accredited laboratories using the Archimedes method in all instances, except for Grootegeluk mine and the Thabametsi project where relative density is determined using an on-site mine laboratory application of the Archimedes method, and results are continuously used to validate core recovery. A comparative study between the field and laboratory methods was undertaken in 2015 and again in 2023, with results indicating no significant difference in the methodology.
Technical data validation	Technical data validation is used for Resource estimation and includes collar validation, gaps and overlaps checks and data distribution.
Data analysis	Entails a review and analysis of the data's geological integrity and continuity in a spatial and geostatistical sense.
Data modelling	GEOVIA Minex™ is used for coal modelling, and the Minex™ growth algorithm is the preferred interpolation technique with the Move software used for modelling structural features. acQuire or Minex™ is used for coal compositing and, in both instances, representative substitute values are used for unsampled non-coal material. The geological model and structural interpretation are presented by the Resource Competent Person, aided by relevant technical specialists, to a panel comprising Exxaro's lead Competent Person and domain experts for sign-off and approval. Concept-level geological models, where applicable, are compiled for alternative interpretations, and the risks are evaluated during sign-off. Feasibility-level and/or LoMP-level geological models are based on reviewed and signed-off interpretations.
Resource classification	Resource classification follows the Exxaro estimation procedure, aligns with SANS 10320 and considers risk and opportunity domain analysis (RODA). Anomalous drill hole data and structurally complex areas are accounted for, and Resource classification is used to control the adequacy of drill hole data. We determine separate confidence zones for structural features using a matrix approach where applicable. The effect of extrapolation is controlled by Resource classification, which does not extrapolate domains beyond half the average drill hole spacing for the classification category and only uses points of observation with applicable quality data.
Estimation and reporting	Resource reporting uses approved cut-offs and geological loss domains, followed by completion of all necessary reports and audit trails. Exxaro currently uses a systematic and integrated review process that measures the level of maturity of exploration work done, the extent of geological potential, licence to operate and associated geological risks to establish the eventual extraction. The criteria for assessing RPEEE are shown in Table 4. Reporting includes technical information that requires subsequent calculations to derive sub-totals, totals and weighted averages. Such calculations may involve a degree of rounding and consequently introduce an error. Where such errors occur, Exxaro does not consider them material.
Review and consolidation	Individual reports are reviewed and corrections are considered if necessary. Reports are endorsed by management and used to compile the consolidated Mineral Resources and Mineral Reserves report.

RPEEE considerations

RPEEE should be demonstrated through the application of an appropriate consideration of Mineral Resources. Such a consideration should include a reasoned assessment of the geological, mining engineering, processing, metallurgical, legal, infrastructural, environmental, marketing, socio-political and economic assumptions which, in the opinion of the Competent Person, are likely to influence the prospect of economic extraction. All issues listed under "reasonable prospects for eventual economic extraction" should be discussed at the level appropriate for the specific investigation. – SAMREC Code

Table 4: Exxaro's RPEEE considerations

Item	Criteria	Considerations
Geological data	Data validated and signed off by a Competent Person	Seam depth, extent, thickness, geological structure and seam quality (cut-off)
Geological model	Geological model considered and signed off	
Structural model	Structural model considered and signed off	
Mining and processing	Mining assumptions considered and defined	Mining method, inputs from metallurgist, rock engineer and hydrogeologist
Assurance	Minimum tier 1 assurance as per Exxaro governance and assurance framework	As per tier 1 requirement
Economic evaluation	Concept-level exploitation and economic evaluation quantifies economic potential based on economic and mining assumptions, including geotechnical and geohydrological assumptions	Preliminary appraisal of layout, cost and profit
Environmental	Assessment of potential impediments and, if any exist, a reasonable expectation of resolution with reasonable demonstration that environmental approvals can be obtained within the context of local, regional and national legislation	
Tenure and socio-political	Formal tenure must be demonstrated, and, if any potential legal or socio-political impediments exist, there must be a reasonable expectation of resolution or, if a prospecting right, there should be a reasonable demonstration that a mining right approval can be obtained within the context of local, regional and national legislation	
Infrastructure	Assumptions used should be reasonable and within known or assumed tolerances or have examples of precedence, and any potential impediments should have a reasonable expectation of resolution, considering power, water and transport	
Market	Potential market for product that is planned to be extracted from the Resource with a reasonable assumption that this market is sustainable	

From the left: Kotie Enslin (principal reporting) and Amantha Naicker (principal geologist, structural and enablement)

Reserve estimation methodology summary

Exxaro is keenly aware of the importance of our mineral assets for the short-term profitability of our operations and the company's sustainability. The optimisation of mineral assets beyond what is generally referred to as MRM is driven as a priority.

Changes in the Resources market, increased awareness of protecting the natural environment and changing legislation and statutory requirements demand a change in the utilisation strategy and execution of mining operations. Exxaro continuously assesses the various LoM strategic plans to consider the best way to address these challenges.

Figure 1: Relationship between exploration results, Mineral Resources and Mineral Reserves – SAMREC Code

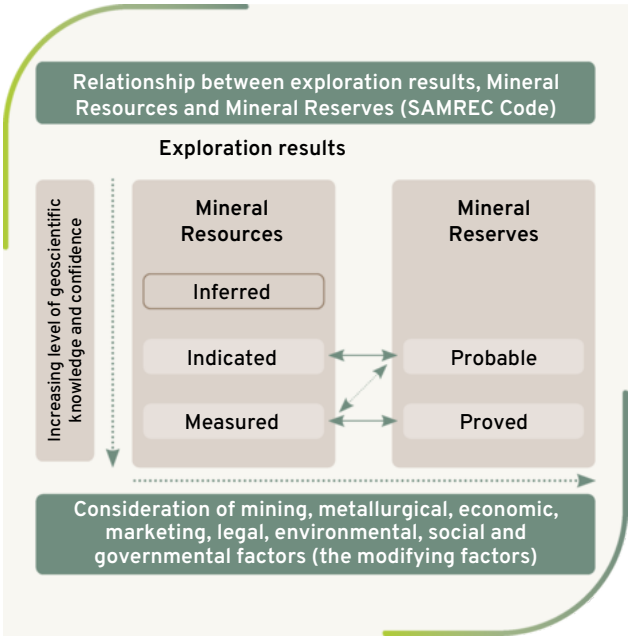


Table 5: Summary of reserving process

Item	Description
Inputs	To comply with LoM policy, all Reserve estimates require survey, rock engineering, infrastructure, legal, processing, social, economic, political and environmental inputs.
Reserve fact pack report	At the start of the estimation process, the applicable Reserves Competent Person must compile a Reserve fact pack for every operation outlining the standards and norms of that operation as well as all relevant planning standards. All standards, norms and planning parameters, the geological model, RODA, infrastructure and environmental authorisations with the structural plan, geotechnical designs, among others, are also considered. The market strategy, supply contracts and planned volumes drive the schedule. All operation standards must be signed off by the applicable mine management and Reserve Competent Person. A similar procedure is followed for projects, and the project steering committee fulfils the role of mine management. Reserve estimation may be conducted either as required (in a project-stage evaluation, for example) or as part of the annual Mineral Resource and Mineral Reserve estimation process. The data conversion, validation and verification report are the first outputs of this procedure.
Geological model validation	Upon receipt of the geological model, the validation procedure is conducted and the model is converted into a mining model. A report is then compiled with possible geological model anomalies and a comparison of volumes in the geological model and mining model to confirm that data conversion was conducted correctly. This information is reviewed by the manager: strategic mine planning and design and signed off as acceptable by the Resource and Reserve Competent Persons.
The following components are included in the LoMP and Reserve estimation: exploitation strategy, operational methodology and pit shell.	
Exploitation strategy	The exploitation strategy needs to broadly demonstrate the pit or mining economics in terms of Reserve boundaries, legal and other, such as servitudes. For example, when converting the Resource to Reserve, explain the economics in terms of stripping ratio and underground versus open pit, among others. The strategy needs to explain the extraction sequence of mining different areas in terms of access, economics or other criteria deemed most appropriate.
Operational methodology considerations	Material flow explains the flow of material over time, such as open pit (ex-pit, horizontal and vertical distances and underground), geographical expansion versus stooping and deep pit (push-back strategy, minimum and maximum stripping curves). Equipment explains the size and type of equipment for the design, including life of equipment, major interventions and/or major changes (such as open pit to underground) over the life of the Reserve. Waste dumps (size and position), rehabilitation (main issues and interventions), together with legal and other indicated licences obtained and required, are included.
Pit shell	Pit shell is the final delineation or envelope of the Resource that will be converted to a Reserve. The LoMP pit shell is the foundation of the business case and, as such, is based on the most accurate information available. Measured and Indicated Resources are used as the basis for conversion.

Table 5: Summary of reserving process continued

Item	Description
Modifying factors	Coal Reserves are estimated using the relevant modifying factors at the time of reporting (mining, metallurgical, economic, marketing, legal, environmental, social and regulatory requirements). Modifying factors are signed off, before Reserve estimation, by the persons responsible for ensuring that all factors are timeously and appropriately considered. Comprehensive modifying factor sign-off and Reserve fact packs that record losses, recoveries/yields and other factors applied are documented in each independent Competent Person's report. Resource volumes/tonnages are converted to Reserve tonnages by applying the following mining modifying factors: • Mining efficiency losses as per average cut thickness are applied to account for net losses of Reserves due to mining equipment selection and mining method. The efficiency factor also accounts for the thickness of the selected RoM and waste horizons relative to selected mining equipment • Layout losses account for the loss of Reserves due to actual mining activities not reaching the defined Reserve boundary or due to the geometry of the Reserve block • RoM extraction accounts for losses incurred using the selected mining method • Contamination accounts for waste or interburden material unintentionally added to the mining horizon as a result of mining operations and equipment used • Free moisture accounts for the change in Reserve tonnage due to the addition of moisture from bench-mining operations
Reserve classification	The Reserve classification methodology for Coal Reserves under Exxaro's control is governed by the LoMP policy and aligned with the SAMREC Code and SANS 10320. In general, Measured Resources are converted to Proved Reserves and Indicated Resources are converted to Probable Reserves. If an operation or project has additional constraints, such as a supply agreement that has not been finalised or a sales/marketing strategy that limits the profitability of the mine, the Measured Resources can be downgraded to Probable Reserves. In situations where this has been applied, it is clearly stated in the footnotes of the Reserves tables.
Inferred Resources	Where Inferred Resources were considered for LoMPs, the amount (Mt) and effect are always clearly stated. When Inferred Resources are included in the LoMP, these tonnages are not scheduled in the first five years of mine life. We explain the rationale for considering the inclusion of Inferred Resources and state our actions to address this issue. Exxaro generally attempts to limit Inferred Resources to less than 15% of total Resources to be considered for LoMPs. Any inclusion of Inferred Resources must be tested and reported. Modifying factors and assumptions applied to the Indicated and Measured Resources to determine the Coal Reserves must be equally applied to Inferred Resources. Inferred Resources are not converted to Coal Reserves or stated as part of the Mineral Reserve. The amount of Inferred Resources considered for the reported LoMP is included in the Reserves statement.
Outputs	The following outputs are generated after successfully completing the procedure: validation and verification report, fact pack report, exploitation strategy report, mine design and layout report, and mining schedule, and in the case of projects, a mining study report.

Automated dozer at Mafube mine

Assurance

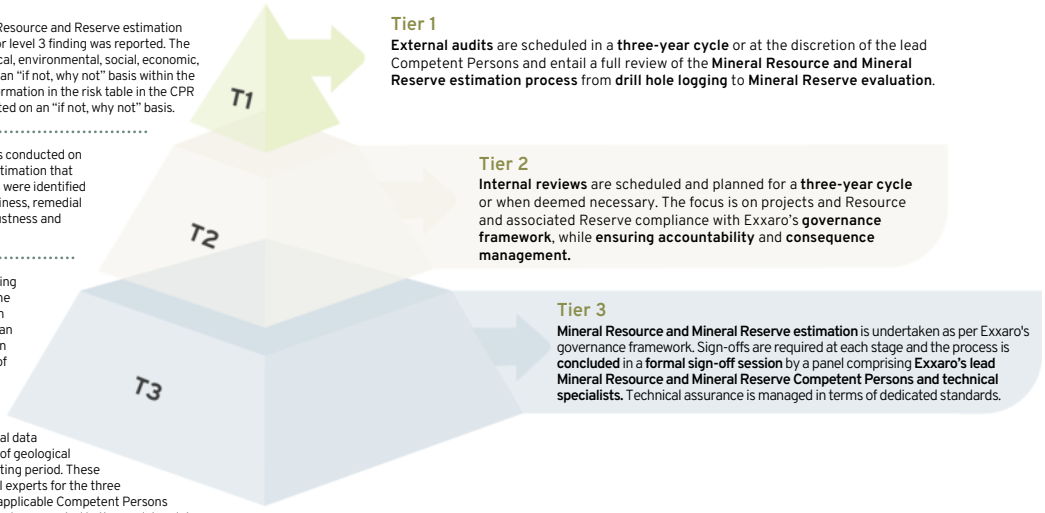
Assurance is implemented in terms of a three-tier system, aligned with the guidelines of Exxaro's Mineral Resource and Mineral Reserve reporting procedure, summarised as follows:

On **tier 1**, PwC conducted an audit on our internal Resource and Reserve estimation process at Grootegeluk in 2023 and only one minor level 3 finding was reported. The minor finding was that a risk assessment of technical, environmental, social, economic, political and other key risks should be reported on an "if not, why not" basis within the CPR. This was addressed by incorporating this information in the risk table in the CPR and Resource and Reserve reports, to be commented on an "if not, why not" basis.

Table 6 below indicates **tier 2** technical assurances conducted on development projects with specific focus on the estimation that underpins these projects. Where technical findings were identified during reviews that may materially impact the business, remedial actions were recommended to ensure project robustness and shareholder return.

Internal Coal Resource estimation reviews measuring compliance to the Exxaro geoscience policy, and the associated Coal Resource reporting and estimation procedures were conducted for Matla and Leeuwpan mines. A Reserve review was done of the Leeuwpan LoM to revise the plan going forward. A summary of findings is listed in Table 7.

In 2023, **tier 3** assurance was undertaken for the Mafube, Matla and Leeuwpan operations. Geological data validation, data analysis and subsequent updating of geological and structural models were concluded in the reporting period. These models were peer reviewed by geosciences central experts for the three operations and the models were signed off by the applicable Competent Persons and their supporting technical teams. Findings were incorporated in the model updates. A review of the validation process was done, incorporating additional validation tests as supported by the metallurgy department and these tests were applied to the geological model of Mafube, Leeuwpan and Matla.



Tier 1

External audits are scheduled in a **three-year cycle** or at the discretion of the lead Competent Persons and entail a full review of the **Mineral Resource and Mineral Reserve estimation process** from **drill hole logging** to **Mineral Reserve evaluation**.

Tier 2

Internal reviews are scheduled and planned for a **three-year cycle** or when deemed necessary. The focus is on projects and Resource and associated Reserve compliance with Exxaro's **governance framework**, while **ensuring accountability** and **consequence management.**

Tier 3

Mineral Resource and Mineral Reserve estimation is undertaken as per Exxaro's governance framework. Sign-offs are required at each stage and the process is **concluded** in a **formal sign-off session** by a panel comprising **Exxaro's lead Mineral Resource and Mineral Reserve Competent Persons and technical specialists.** Technical assurance is managed in terms of dedicated standards.

Table 6: Tier 2 technical assurances conducted in the reporting year with general points addressed

Project name	Project description	Summary Resource actions	Summary Reserve actions
Grootegeluk complex (GGC) in-pit crusher (IPC) relocation	Relocate the existing IPC system closer to the pit face.	Additional structural drilling required to de-risk site locations.	No findings.
Mafube water treatment plant	Expand the existing Mafube water treatment facility.	No findings.	Enhance the water balance.
GGC trucks and shovels strategies	Present an approach for the efficient and effective management of primary mining equipment.	No findings.	Provide contingency measures for the foreseen capacity gap in 2024. Update the norms, life cycle cost and their potential impact on the estimated schedule.
Matla primary equipment strategy	Maintain equipment production capacity at Matla mine.	No findings.	No findings.
Belfast integrated water management	Treat acid mine water generated through the mining operation.		Belfast will require a permanent water treatment facility to prevent potential environmental spillages.
Belfast discard dump phase 3	Phased expansion of discard facilities according to mining activities.		LoM schedule supplied to support with the discard dump design for the Belfast licence to operate Reserves.

Table 7: Tier 2 internal reviews findings

Area under review	Finding	Conclusion and recommendation*
Leeuwpan	Rehabilitation procedure/update exploration procedure.	Procedure to be implemented to incorporate surface owner and environmental department sign-off on rehabilitation form.
	Closing the loop of the reconciliation process.	Improve the follow-through of reconciliation reported by noting reasons for deviations and creating action plans to manage deviations going forward.
	Outdated slope design guidelines.	Review and update slope design guidelines, ensuring applicability to all current mining areas.
	Outdated blasting procedure.	Review blasting procedure and include pre-split holes.
Matla	Historic geophysical drill hole surveys not in drill hole database.	Historic geophysical logs should be imported into the drill hole database.

** Findings are communicated and corrective measures are implemented.*

Environmental, social and governance (ESG) matters

Our ESG report details environmental management, including applicable authorisations that support our estimates, closure plans, allocated funding and associated risks. The report is available online under the investors tab.

ESG management

Exxaro is a leader in business management, with sound ESG principles that deliver sustainable economic returns and tangible benefits for all stakeholders. Everything we do today is geared towards ensuring a safer and more productive tomorrow. Our sustainability is founded on creative and mutually constructive relationships and values shared by our stakeholders. We conduct our business activities to create success for Exxaro and society. From how we mine to what we mine, we steward our natural assets and social capital to uplift our communities.

Climate change and carbon management

Climate change resilience refers to our ability to adapt and succeed in the face of direct and indirect climate change impacts. In addition to addressing and managing these risks, it encompasses our ability to capitalise on the strategic opportunities presented by the shift to a lower-carbon, resource-constrained economy. Guided by our purpose, our Sustainable Growth and Impact strategy is designed to ensure we manage the direct and indirect climate change impacts on our current portfolio while ensuring we can contribute to the low-carbon environment of the future.

Exxaro measures, manages and reports energy and carbon data in terms of the Greenhouse Gas Protocol. We monitor and report on our scope 1, 2 and 3 emissions annually.

Water use management

Water is a strategic natural resource for South Africa and our business. We are committed to responsible and sustainable water use, as enshrined in our water management policy, which focuses on efficient water reuse and recycling. The policy aligns with the legislated environmental framework, mainly governed by the National Water Act, 1998 (Act 36 of 1998), supported by the integrated water resource management hierarchy issued by the Department of Water and Sanitation to prioritise mine and waste management decisions and actions.

Tailings management

Exxaro implements various systems and programmes to monitor and ensure compliance at all our tailings facilities. The operation, monitoring and decommissioning of the tailings dams are guided by comprehensive risk-based management and governance systems in line with internationally recognised best practice. The company aligns tailings management with the global industry standard. Risk management is a major aspect of our asset management. It includes risk identification, implementation of controls and assessment of control performance verification. Internal and external reviews, which encompass assurance processes of the tailing dams, are managed and controlled in the company to manage the risks and ensure continuous improvement.

All tailings facilities have a third-party-appointed tailings dam operator facilitating tailings maintenance and monitoring. A third-party consulting firm conducts all regulatory five-yearly inspections. Dashboards and quarterly inspections are conducted on the tailings dams to promote continuous monitoring. Our systems include training to equip all site engineers with the required technical skills to carry out inspections, including continuous oversight of asset maintenance.

Exxaro continuously develops new initiatives to minimise the risks associated with the catastrophic failure of tailings dams. We engage with industry professionals to ensure that relevant developments in the industry are captured and incorporated into our tailings management framework.

Air quality management

Air quality management is among our top priorities due to the negative impacts of pollutants such as dust and particulate matter (PM_{10} and $PM_{2.5}$) prevalent in mining areas.

Our mitigation measures include:

- Applying chemical dust suppressants on unpaved roads
- Adhering to all applicable legislative requirements
- Proactive air quality management planning
- Risk management
- Monitoring, measuring and reporting

Waste management

Cradle-to-grave waste management is critical to maintaining our licence to operate, and we have a group environmental policy and waste management standard for hazardous and non-hazardous waste. Our waste management standard enforces a hierarchy that promotes prevention, minimisation, reuse, recycling and energy recovery while ensuring safe waste disposal in line with the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEMWA) and supporting legislation. The environmental policy introduced initiatives such as waste prevention, reuse, recycling, energy recovery and safe disposal to reduce environmental and health risks with sustainability in mind. Exxaro's business units receive a rebate for recycling waste such as paper, used oil and scrap metals.

Biodiversity management

One of the fundamental goals for Exxaro is to be a low-impact, high-value organisation for this and coming generations. A key aspect of achieving this goal is ensuring that all Exxaro mines co-exist in harmony with the natural environment in which they operate. This is achieved through positive biodiversity initiatives and programmes implemented at various mines. These initiatives and programmes protect indigenous flora and fauna and ensure the expansion of such species to support ecosystems within and beyond Exxaro's operations. Exxaro is committed to exceeding its biodiversity goals and plans to leave a legacy in which current and future generations can enjoy the benefits of a clean and flourishing natural environment.

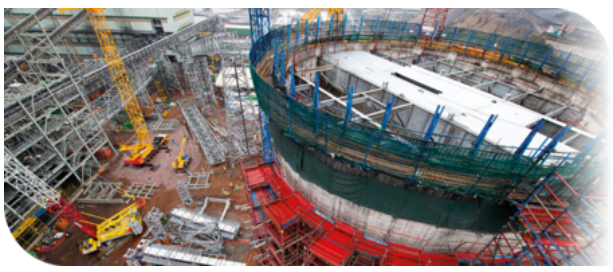
Land and heritage management

Exxaro focuses on sustainable management of land owned by its subsidiaries. Sustainable land management requires a balanced approach of economic application, ecological preservation and the social needs of legal occupiers and hosting communities.

Rehabilitation and closure

Our business operations review mine closure and rehabilitation financial provisions annually. Rehabilitation plans and closure objectives are amended after environmental management programme performance assessments. We review cost estimates of activities in the concurrent and final closure rehabilitation programme and adjust them accordingly. External auditors visit our sites, review documents and audit the provisions twice a year.

Operational closure, concurrent rehabilitation and land management are part of Exxaro's operating philosophy and moral responsibility. We actively plan our operations with closure in mind to ensure adequate financial resources are available to meet our rehabilitation commitments.



Silo construction at our newly implemented GG6 processing plant

Summarised group Mineral Resource and Mineral Reserve estimates

This section outlines the reported Mineral Resources and Mineral Reserves remaining as at 31 December 2023. Mineral Resources and Mineral Reserves figures are not an inventory of all mineral occurrences drilled or sampled but a realistic record of those, under assumed and justifiable technical and economic conditions, that may be economically extractable currently and in future.

Mineral Resources and Mineral Reserves are reported inclusive of Mineral Resources that have been converted to Mineral Reserves. An exception is reporting for BMM and Sishen and Kolomela mines because figures received from Vedanta Resources (JORC Code) and Kumba Iron Ore represent Mineral Resources excluding those converted to Mineral Reserves.

We provide Coal Resource estimates within LoMP and applicable modifying factors when converting Coal Resources to Coal Reserves. Mineral Resources and Mineral Reserves are reported at 100%, irrespective of the percentage attributable to Exxaro.

Explanations for material changes in year-on-year movements are provided as footnotes in the Mineral Resources and Mineral Reserves tables.

Table 8: Total attributable Coal Resources and Coal Reserves

Commodity: Coal	Category	2023 MTIS (Mt)[1]
Exxaro attributable tonnes	Measured	4 357
	Indicated	1 930
	Inferred	3 149
Total Coal Resources		**9 435**
	Proved	2 202
	Probable	732
Total Coal Reserves		**2 933**

[1] *Mineable tonnes in situ.*

Offloading coal at the tip bin at our Mafube open-pit operation, Mpumalanga

Coal Resources

The table below details the total inclusive Coal Resources estimated as at 31 December 2023.

Table 9: Coal Resources and qualities

Operation[1]		Resource category	2023 Tonnes and quality[3] Tonnes (Mt)	CV MJ/kg	% Ash	% IM	% VM	% S	2022 Tonnes and quality[3] Tonnes (Mt)	CV MJ/kg	% Ash	% IM	% VM	% S	% change in tonnes[4]
Matla mine (UG) (captive market) Mpumalanga 100% attributed to Exxaro[2]		Measured	**634**	**20.1**	**29.9**	**4.6**	**22.2**	**1.0**	657	19.9	30.3	4.6	22.1	1.0	(4)
		Indicated	**92**	**19.9**	**29.7**	**4.6**	**21.8**	**0.8**	91	20.5	28.6	4.7	22.0	0.8	1
		Inferred	**85**	**19.7**	**30.9**	**4.2**	**20.7**	**0.8**	87	20.3	29.7	4.4	21.4	0.8	(3)
		Total	**810**	**20.0**	**29.9**	**4.6**	**22.0**	**1.0**	**835**	**20.0**	**30.0**	**4.6**	**22.0**	**0.9**	(3)
	Resources inside LoMP		**294**	**20.9**	**27.7**	**4.9**	**23.0**	**1.0**	308	20.8	28.0	4.8	22.9	1.0	(5)
Leeuwpan mine (OC) (commercial market) Mpumalanga 100% attributed to Exxaro[2]		Measured	**63.4**	**20.0**	**31.2**	**3.3**	**18.5**	**1.1**	65.8	20.3	30.2	3.3	18.9	1.1	(4)
		Indicated	**0.0**						0.0						
		Inferred	**0.0**						3.6	19.8	35.4	2.5	14.9	0.9	(100)
		Total	**63.4**	**20.0**	**31.2**	**3.3**	**18.5**	**1.1**	**69.4**	**20.3**	**30.5**	**3.2**	**18.7**	**1.1**	(9)
	Resources inside LoMP[5]		**35.7**	**20.1**	**30.1**	**3.1**	**19.6**	**1.1**	40.5	20.3	29.5	3.2	19.8	1.2	(12)
Mafube mine[6] (OC) (commercial market) Mpumalanga 50% attributed to Exxaro[2]		Measured	**141.0**	**21.1**	**27.2**	**3.9**	**22.0**	**1.0**	125.0	20.2	29.2	3.7	21.1	0.9	13
		Indicated	**2.2**	**21.3**	**26.1**	**4.4**	**21.2**	**1.0**	16.3	20.4	29.8	3.6	21.7	0.9	(87)
		Inferred	**0.6**	**20.8**	**28.2**	**3.6**	**20.8**	**0.5**	2.5	19.1	32.2	3.7	19.7	0.8	(76)
		Total	**143.8**	**21.1**	**27.2**	**3.9**	**22.0**	**1.0**	**143.8**	**20.2**	**29.3**	**3.6**	**21.2**	**0.9**	0
	Resources inside LoMP		**115.3**	**21.0**	**27.4**	**3.9**	**22.1**	**1.1**	127.1	20.0	29.7	3.6	21.1	0.9	(9)
Belfast mine (OC) (mining right) Mpumalanga 100% attributed to Exxaro[2]		Measured	**98.4**	**23.6**	**21.9**	**3.6**	**22.9**	**1.2**	101.6	23.7	21.7	3.6	22.9	1.2	(3)
		Indicated	**8.0**	**22.8**	**24.4**	**3.5**	**22.5**	**1.3**	8.0	22.8	24.5	3.5	22.5	1.3	0
		Inferred	**13.3**	**22.3**	**25.2**	**3.7**	**21.9**	**1.1**	13.3	22.3	25.2	3.7	21.9	1.1	0
		Total	**119.7**	**23.4**	**22.4**	**3.6**	**22.7**	**1.2**	**122.9**	**23.5**	**22.3**	**3.6**	**22.7**	**1.2**	(3)
	Resources inside LoMP		**35.9**	**24.8**	**18.9**	**3.6**	**23.6**	**1.2**	38.9	24.8	18.8	3.6	23.6	1.2	(8)
Grootegeluk mine (OC) (commercial market) Limpopo 100% attributed to Exxaro[2]	Volksrust Formation	Measured	**2 250**	**14.2**	**54.7**	**1.8**	**19.7**	**1.2**	2 297	14.2	54.7	1.8	19.7	1.2	(2)
		Indicated	**738**	**14.1**	**55.2**	**1.7**	**19.5**	**1.4**	738	14.1	55.2	1.7	19.5	1.4	0
		Inferred	**144**	**14.0**	**55.0**	**1.9**	**19.5**	**1.3**	144	14.0	55.0	1.9	19.5	1.3	0
		Total	**3 133**	**14.1**	**54.8**	**1.8**	**19.6**	**1.3**	**3 179**	**14.1**	**54.8**	**1.8**	**19.6**	**1.3**	(1)
	Resources inside LoMP		**2 225**	**14.2**	**54.6**	**1.8**	**19.8**	**1.2**	2 272	14.2	54.6	1.7	19.8	1.2	(2)
Grootegeluk mine (OC) (commercial market) Limpopo 100% attributed to Exxaro[2]	Vryheid Formation	Measured	**728**	**24.0**	**27.2**	**1.9**	**22.3**	**2.2**	742	24.0	27.2	1.9	22.3	2.2	(2)
		Indicated	**229**	**24.0**	**27.8**	**1.7**	**21.9**	**2.3**	229	24.0	27.8	1.7	21.9	2.3	0
		Inferred	**34**	**24.2**	**26.7**	**1.9**	**21.9**	**2.1**	34	24.2	26.7	1.9	21.9	2.1	0
		Total	**991**	**24.0**	**27.3**	**1.8**	**22.2**	**2.2**	**1 004**	**24.0**	**27.3**	**1.8**	**22.2**	**2.2**	(1)
	Resources inside LoMP		**513**	**24.5**	**25.7**	**1.9**	**22.7**	**2.3**	524	24.5	25.9	1.8	22.6	2.3	(2)
Total Grootegeluk mine (OC) (commercial market) Limpopo 100% attributed to Exxaro[2]		Measured	**2 978**	**16.6**	**48.0**	**1.8**	**20.3**	**1.5**	3 039	16.6	48.0	1.8	20.3	1.5	(2)
		Indicated	**967**	**16.4**	**48.7**	**1.7**	**20.1**	**1.6**	967	16.4	48.7	1.7	20.1	1.6	0
		Inferred	**178**	**15.9**	**49.6**	**1.9**	**19.9**	**1.4**	178	15.9	49.6	1.9	19.9	1.4	0
		Total	**4 123**	**16.5**	**48.2**	**1.8**	**20.2**	**1.5**	**4 184**	**16.5**	**48.2**	**1.8**	**20.2**	**1.5**	(1)
	Resources inside Grootegeluk opencast LoMP		**2 739**	**16.2**	**49.2**	**1.7**	**20.3**	**1.4**	2 796	16.2	49.2	1.7	20.3	1.4	(2)
Thabametsi project (OC/UG) (mining right) Limpopo 100% attributed to Exxaro[2]		Measured	**270**	**13.0**	**52.3**	**1.9**	**20.0**	**1.2**	270	13.0	52.3	1.9	20.0	1.2	0
		Indicated	**749**	**12.6**	**53.1**	**1.8**	**19.8**	**1.1**	749	12.6	53.1	1.8	19.8	1.1	0
		Inferred	**2 857**	**12.7**	**52.7**	**1.9**	**19.3**	**1.3**	2 857	12.7	52.7	1.9	19.3	1.3	0
		Total	**3 876**	**12.7**	**52.7**	**1.9**	**19.7**	**1.3**	**3 876**	**12.7**	**52.7**	**1.9**	**19.7**	**1.3**	0
	Resources inside IPP[7] LoMP		**133**	**12.0**	**54.7**	**1.9**	**20.0**	**1.0**	133	12.0	54.7	1.9	20.0	1.0	0
Moranbah South project[8] (UG) (prospecting) Australia 50% attributed to Exxaro[2]		Measured	**484.6**	**26.9**	**23.6**	**2.6**	**18.5**	**0.6**	484.6	26.9	23.6	2.6	18.5	0.6	0
		Indicated	**226.0**	**27.4**	**21.4**	**2.6**	**17.8**	**0.5**	226.0	27.4	21.4	2.6	17.8	0.5	0
		Inferred	**29.7**	**29.7**	**19.6**	**2.7**	**16.9**	**0.5**	29.7	29.7	19.6	2.7	16.9	0.5	0
		Total	**740.4**	**27.1**	**22.8**	**2.6**	**18.2**	**0.6**	**740.4**	**27.1**	**22.8**	**2.6**	**18.2**	**0.6**	0

- *Rounding of figures may cause computational discrepancies.*
- *All changes more than 10% in the total Resources of an operation are explained. Tonnages are quoted in metric tonnes and million tonnes is abbreviated as Mt.*
- *Coal Resources and qualities (raw coal) are quoted on an MTIS and air-dried basis (adb).*
- *Coal Resources are quoted inclusive of Coal Resources that have been modified to Coal Reserves, unless otherwise stated.*
- *Resources inside LoMP refer to MTIS Resources in the LoMP layout.*
- *Thickness and quality cut-offs applied at each project or mine are stated in the ancillary section.*

[1] *Operation refers to operating mine or significant project. The mining methods are opencast (OC) and underground (UG).*
[2] *Figures are reported at 100%, irrespective of percentage attributable to Exxaro, and refer to 2023 only.*
[3] *Raw coal qualities (adb); CV: calorific value (gross), IM: inherent moisture, S: total sulphur and VM: volatile matter.*
[4] *The percentage difference between 2023 reported MTIS and 2022 reported MTIS. Brackets signify a decrease.*
[5] *The decrease is the result of new information and sterilisation that occurred during mine plan execution.*
[6] *Movements within categories are the result of new information.*
[7] *Independent power producer (IPP).*
[8] *Estimates are received from Anglo American Steelmaking Coal Proprietary Limited and not audited by Exxaro.*

Coal Reserves

The table below details the total Coal Reserves estimated as at 31 December 2023.

Table 10: Coal Reserves

Operation[1]	LoM (years)[3]	Category	2023 RoM and saleable tonnes[4] RoM (Mt)	RoM moisture %	Export (Mt)	Thermal (Mt)	Metal-lurgical (Mt)	2022 RoM and saleable tonnes[4] RoM (Mt)	RoM moisture %	Export (Mt)	Thermal (Mt)	Metal-lurgical (Mt)	% change in RoM[5]
Matla[6] (UG) (captive market) 100% attributed to Exxaro[2]	1+	Proved	**126**	**9.5**		**126**		130	9.5		130		(3)
		Probable	**31**	**9.5**		**29**		38	9.5		38		(18)
		Total	**157**	**9.5**		**162**		**167.4**	**9.5**		**167**		**(6)**
		Inferred Resources inside LoMP	**5**					6					(11)
Leeuwpan[7] (OC) (commercial market) 100% attributed to Exxaro[2]	6	Proved	**30.5**	**3.1**		**22.7**		36.1	3.1		26.4		(15)
		Probable	**3.3**	**2.6**			**1.5**	3.3	2.6			1.5	–
		Total	**33.8**	**3.0**		**22.7**	**1.5**	**39.4**	**3.1**		**26.4**	**1.5**	**(14)**
		Inferred Resources inside LoMP	**0.0**					0.0					
Mafube[8] (OC) (commercial market) 50% attributed to Exxaro[2]	20	Proved	**82.6**	**8.0**	**46.9**	**9.7**		80.6	8.0	44.2	12.7		2
		Probable	**32.0**	**8.0**	**20.6**	**0.6**		40.8	8.0	25.6	1.2		(22)
		Total	**114.7**	**8.0**	**67.5**	**10.3**		**121.4**	**8.0**	**69.8**	**13.9**		**(6)**
		Inferred Resources inside LoMP	**0.2**					1.6					(87)
Belfast (OC) (commercial market) 100% attributed to Exxaro[2]	10	Proved	**33.2**	**3.4**	**29.4**			35.8	3.4	31.6			(7)
		Probable	**1.4**	**2.9**	**1.1**			1.4	2.9	1.1			–
		Total	**34.6**	**3.4**	**30.5**			**37.2**	**3.4**	**32.7**			**(7)**
		Inferred Resources inside LoMP	**1.0**					1.0					5
Grootegeluk mine (OC) (commercial market) 100% attributed to Exxaro[2]	18+	Proved	**1 971**	**3.0**	**123**	**742**	**56**	2 034	3.0	126	776	58	(3)
		Probable	**550**	**3.0**	**37**	**191**	**6**	550	3.0	37	191	6	–
		Total	**2 521**	**3.0**	**160**	**933**	**62**	**2 584**	**3.0**	**163**	**967**	**64**	**(2)**
		Inferred Resources inside LoMP	**73**					73					(1)
Thabametsi project (OC) (IPP market) 100% attributed to Exxaro[2]	23	Proved											
		Probable	**130**	**3.0**		**127**		130	3.0		127		–
		Total	**130**	**3.0**		**127**		**130**	**3.0**		**127**		**–**
		Inferred Resources inside LoMP	**0.0**					0.0					

- *Rounding of figures may cause computational discrepancies.*
- *Tonnages are quoted in metric tonnes and million tonnes is abbreviated as Mt.*
- *Inferred Resources inside LoMP refer to Inferred Resources considered for the LoMP. These Resources have not been converted to Reserves.*
- *Coal Reserves are quoted on a RoM Reserve tonnage basis, which represents tonnages delivered to the plant at an applicable moisture and quality basis.*
- *Saleable Reserve tonnage represents the product tonnes of coal available for sale on an applicable moisture basis.*
- *All changes more than 10% in the total Reserves of an operation are explained.*
- *Resource to Reserve modifying factors per operation are stated in the ancillary section.*

[1] *Operation refers to operating mine or significant project. Mining method: opencast (OC) or underground (UG).*
[2] *Figures are reported at 100%, irrespective of percentage attributable to Exxaro, and refer to 2023 only.*
[3] *The + symbol is used in instances where the scheduled LoMP extends beyond the expiry of the mining right. In each instance, Exxaro reasonably expects the mining right to be renewed.*
[4] *Export refers to export thermal coal except at Grootegeluk mine, where it refers to semi-soft coking coal suitable for the export and inland markets.*
[5] *The percentage difference between 2023 reported RoM and 2022 reported RoM. Brackets signify a decrease.*
[6] *The mining right lapses in 2025, the LoM is scheduled for an additional 13 years thereafter. The change in the Probable Reserve is due to the update of the LoMP and reconciliation.*
[7] *The decrease is the result of new drill hole information received as well as layout losses that occurred during the execution of the mine plan.*
[8] *Changes are the result of the movement in the Resource base and exclusion of area due to environmental considerations.*

Service bay for production trucks

Table 11: Coal Reserve qualities

		THERMAL saleable (Proved and Probable)						METALLURGICAL saleable (Proved and Probable)						COKING saleable (Proved and Probable)					
Operation	Seam/layer	**Tonnes (Mt)[1]**	**CV MJ/kg**	**% VM**	**% Ash**	**% S**	**Yield %**	**Tonnes (Mt)[1]**	**CV MJ/kg**	**% VM**	**% Ash**	**% S**	**Yield %**	**Tonnes (Mt)[1]**	**CV MJ/kg**	**% VM**	**% Ash**	**% S**	**Yield %**
Matla mine	Seam 2	57.0	22.00	23.80	22.00	0.90	100												
	Seam 4	99.7	18.80	22.20	29.50	1.00	100												
Leeuwpan mine	TC[2]	8.4	21.35	18.00	30.36	1.14	64												
	BC[2]	14.3	23.60	23.60	22.55	0.91	69	1.5	28.46	8.10	13.68	0.95	44						
Mafube mine	Middlings	29.0	21.46	21.59	26.58	0.57	28												
	Export	38.5	26.51	26.75	13.46	0.46	37												
	Crush and stack	10.3	19.58	20.54	29.25	0.97	100												
Belfast mine	RB2	18.4	26.57	24.41	13.99	0.44	66												
	RB3	6.7	24.25	22.20	21.00	0.97	100												
	>4 800kcal/kg	3.7	23.74	24.00	21.59	0.65	13												
	Filter cake	1.7	20.82	19.83	27.73	1.16	6												
Grootegeluk mine	All seams	933	21.60	25.10	33.20	1.30	40	62	28.70	23.90	14.00	0.60	60	160	28.6	34.80	13.10	1.14	12
Thabametsi project[3]	T1	64	12.70	20.00	53.90	1.10	98												
	T2	63	11.30	19.00	55.70	1.00	98												

- *Rounding of figures may cause computational discrepancies.*
- *Volatile matter (VM), sulphur (S), ash content (ash) and gross calorific value (CV).*
- *Saleable Coal Reserve tonnage represents the product tonnes of coal available for sale on an applicable moisture and air-dried quality basis.*

[1] *Saleable product tonnages are quoted in metric tonnes and million tonnes is abbreviated as Mt.*
[2] *Top coal (TC) and bottom coal (BC).*
[3] *Based on Thabametsi bench configuration as defined in phase 1 of the feasibility study.*

Rope shovel loading coal at Grootegeluk

Base Metal Resources

The table below details Base Metal Resources as at 31 March 2023.

Table 12: Base Metal Resources (additional to Reserves)

Operation[1]	Category	2023 Tonnes and grade Tonnes (Mt)	% Zn	% Pb	% Cu	Ag g/t	2022 Tonnes and grade Tonnes (Mt)	% Zn	% Pb	% Cu	Ag g/t	% change in RoM[3]
Deeps mine[4] Northern Cape (UG) (zinc, lead, copper and silver) 26% attributed to Exxaro[2]	Measured	4.3	2.7	3.6	0.4	46	4.2	2.4	2.4	0.3	29	1
	Indicated	6.0	2.6	2.2	0.5	33	8.3	2.2	1.6	0.5	25	(27)
	Inferred						0.0					
	Total	**10.3**	**2.6**	**2.8**	**0.5**	**35**	**12.5**	**2.3**	**1.8**	**0.5**	**26**	**18**
Swartberg mine Northern Cape (OC/UG) (zinc, lead, copper and silver) 26% attributed to Exxaro[2]	Measured						0.0					
	Indicated	69.4	0.9	2.0	0.3	40	76.8	0.9	2.0	0.3	38	(10)
	Inferred	35.1	1.0	2.2	0.3	41	36.1	0.9	2.2	0.3	40	(3)
	Total	**104.5**	**0.9**	**2.1**	**0.3**	**40**	**113.0**	**0.9**	**2.1**	**0.3**	**39**	**(7)**
Big Syncline project Northern Cape (OC) (zinc) 26% attributed to Exxaro[2]	Measured						0.0					
	Indicated	6.1	3.0	1.1		16	6.1	3.0	1.1		16	–
	Inferred	185.6	2.4	1.0		10	185.6	2.4	1.0		12	–
	Total	**191.7**	**2.5**	**1.0**		**12**	**191.7**	**2.5**	**1.0**		**12**	**–**
Gamsberg North mine Northern Cape (OC/UG) (zinc) 26% attributed to Exxaro[2]	Measured	7.7	7.7	0.5			7.5	7.7	0.5			3
	Indicated	36.7	6.5	0.5			35.5	6.3	0.5			3
	Inferred	20.3	6.4	0.5			22.7	6.1	0.5			(10)
	Total	**64.7**	**6.6**	**0.5**			**65.6**	**6.4**	**0.5**			**(1)**
Gamsberg East Northern Cape (project) (zinc) 26% attributed to Exxaro[2]	Measured						0.0					
	Indicated						0.0					
	Inferred	65.0	7.9	0.5		5	65.1	7.9	0.5		5	–
	Total	**65.0**	**7.9**	**0.5**		**5**	**65.1**	**7.9**	**0.5**		**5**	**–**
Gamsberg South Northern Cape (project) (zinc) 26% attributed to Exxaro[2]	Measured						0.0					
	Indicated						0.0					
	Inferred	34.2	6.2	0.5		7	36.0	6.1	0.5		7	(5)
	Total	**34.2**	**6.2**	**0.5**		**7**	**36.0**	**6.1**	**0.5**		**7**	(5)
Gamsberg Kloof[5] Northern Cape (project) (zinc) 26% attributed to Exxaro[2]	Measured						0.0					
	Indicated	15.8	8.4	0.6		7	0.0					100
	Inferred	6.8	9.2	0.5		7	18.8	8.6	0.6		7	(64)
	Total	**22.7**	**8.7**	**0.6**		**7**	**18.8**	**8.6**	**0.6**		**7**	**21**

For operations over which Exxaro has no management control, please refer to the relevant company's website for supplementary information: www.vedantaresources.com/investor-relations/

- *Rounding of figures may cause computational discrepancies.*
- *Percentage zinc (% Zn), percentage copper (% Cu), percentage lead (% Pb), grams per tonne of silver (Ag g/t), percentage manganese (% Mn) and percentage sulphur (% S).*
- *Tonnages are quoted in metric tonnes and million tonnes is abbreviated as Mt.*
- *Estimates are as received from Vedanta Resources at 31 March 2023 and are not audited by Exxaro.*
- *All changes more than 10% are explained.*
- *Tonnages are reported on a dry basis.*

[1] *Operation refers to the BMM operating mine or significant project. Mining method: opencast (OC) or underground (UG).*
[2] *Figures are reported at 100%, irrespective of percentage attributable to Exxaro.*
[3] *The percentage difference between 2023 reported MTIS and 2022 reported MTIS. Brackets signify a decrease.*
[4] *Deeps mine decrease is mainly the result of poorer revenue factors used in the update of models.*
[5] *Gamsberg Kloof increase is the result of new drilling information that led to an update of the model.*

Base Metal Reserves

Table 13: Base Metal Reserves

Operation[1]	LoM (years)	Category	2023 Grade and contained metals RoM (Mt)[2]	% Zn	% Pb	% Cu	Ag g/t	2022 Grade and contained metals RoM (Mt)[2]	% Zn	% Pb	% Cu	Ag g/t	% Change in RoM[3]
BMM Deeps mine[4] Northern Cape (UG) (zinc, lead, copper and silver) 26% attributed to Exxaro[2]	2	Proved	**0.3**	**3.1**	**2.6**	**0.3**	**41**	0.5	2.2	2.5	0.3	31	(44)
		Probable	**1.5**	**2.9**	**1.4**	**0.5**	**21**	2.4	2.5	1.2	0.5	20	(39)
		Total	**1.7**	**2.9**	**1.6**	**0.5**	**24**	**3.0**	**2.5**	**1.5**	**0.5**	**22**	**(43)**
	Inferred Resources inside LoMP		**0.0**					0.0					
BMM Swartberg mine[5] Northern Cape (OC/UG) (zinc, lead, copper and silver) 26% attributed to Exxaro[2]	24	Proved						0.0					
		Probable	**53.8**	**0.6**	**1.9**	**0.4**	**31**	48.0	0.6	2.0	0.4	33	12
		Total	**53.8**	**0.6**	**1.9**	**0.4**	**31**	**48.0**	**0.6**	**2.0**	**0.4**	**33**	**12**
	Inferred Resources inside LoMP		**0.0**					0.0					
Gamsberg North mine Northern Cape (OC) (zinc) 26% attributed to Exxaro[2]	12	Proved	**65.1**	**6.4**	**0.5**			69.7	6.4	0.5			(7)
		Probable	**26.5**	**5.0**	**0.5**			27.1	4.9	0.5			(2)
		Total	**91.6**	**6.0**	**0.5**			**96.8**	**6.0**	**0.5**			**(5)**
	Inferred Resources inside LoMP		**0.0**					0.0					

For operations over which Exxaro has no management control, please refer to the relevant company's website for supplementary information: www.vedantaresources.com/investor-relations/

- *Rounding of figures may cause computational discrepancies.*
- *Percentage zinc (% Zn), percentage copper (% Cu), percentage lead (% Pb), grams per tonne silver (Ag g/t), percentage manganese (% Mn) and percentage sulphur (% S).*
- *Tonnages are quoted in metric tonnes and million tonnes is abbreviated as Mt.*
- *Reserves are quoted on a RoM Reserve tonnage basis, which represents tonnages delivered to the plant at applicable moisture and quality.*
- *Inferred Resources in LoMP refer to Inferred Resources considered for the LoMP.*
- *Estimates are as received from Vedanta Resources at 31 March 2023 and are not audited by Exxaro.*
- *All changes more than 10% are explained.*

[1] *Operation refers to the BMM operating mine or significant project. Mining method: opencast (OC) or underground (UG).*
[2] *Figures are reported at 100%, irrespective of percentage attributable to Exxaro, and refer to March 2023 only.*
[3] *The percentage difference between 2023 reported RoM and 2022 reported RoM. Brackets signify a decrease.*
[4] *The decrease is the result of mining depletion and updated Australian mining consultants stope designs.*
[5] *The increase is the result of additional stope designs provided for the current UG mine.*

Kumba Iron Ore Mineral Resources and Ore Reserves

Table 14: Kumba Iron Ore Mineral Resources (in addition to Ore Reserves)

	Operation/project	Ore type	%Attributable to Exxaro	Resource category	2023 Tonnage (Mt)	2023 Average % Fe	2023 % Fe cut-off**	2022 Tonnage (Mt)	2022 Average % Fe	2022 % Fe cut-off**
Kolomela[1]	In situ Mineral Resources (in addition to Ore Reserves)	Haematite	20.37	Measured (outside LoAP)	**52.1**	**65.1**	**50**	52.1	65.1	50
				Indicated (outside LoAP)	**62.1**	**63.1**		62.1	63.1	
				Measured and Indicated (outside LoAP)	**114.2**	**64.0**		114.2	64.0	
				Inferred (considered in LoAP)	**1.2**	**64.7**		1.2	64.7	
				Inferred (outside LoAP)	**17.3**	**62.5**		17.4	62.5	
				Total Inferred	**18.5**	**62.6**		18.6	62.6	
				Sub-total	**132.7**	**63.8**		132.8	63.8	
	Long-term stockpiled Mineral Resources (in addition to Ore Reserves)			Measured (outside LoAP)	**0.0**	**0.0**		0.0	0.0	
				Indicated (outside LoAP)	**0.0**	**0.0**		0.0	0.0	
				Measured and Indicated (outside LoAP)	**0.0**	**0.0**		0.0	0.0	
				Inferred (considered in LoAP)	**0.0**	**0.0**		0.0	0.0	
				Inferred (outside LoAP)	**0.0**	**0.0**		0.0	0.0	
				Total Inferred	**0.0**	**0.0**		0.0	0.0	
				Sub-total	**0.0**	**0.0**		0.0	0.0	
	Total Mineral Resources (in addition to Ore Reserves)			Measured (outside LoAP)	**52.1**	**65.1**		52.1	65.1	
				Indicated (outside LoAP)	**62.1**	**63.1**		62.1	63.1	
				Measured and Indicated (outside LoAP)	**114.2**	**64.0**		114.2	64.0	
				Inferred (considered in LoAP)	**1.2**	**64.7**		1.2	64.7	
				Inferred (outside LoAP)	**17.3**	**62.5**		17.4	62.5	
				Total Inferred	**18.5**	**62.6**		18.6	62.6	
				Sub-total	**132.7**	**63.8**		132.8	63.0	
Sishen[2]	In situ Mineral Resources (in addition to Ore Reserves)	Haematite	20.37	Measured (outside LoAP)	**241.3**	**56.5**	**40**	175.3	59.4	40
				Indicated (outside LoAP)	**194.9**	**55.1**		222.2	55.4	
				Measured and Indicated (outside LoAP)	**436.2**	**55.9**		397.4	57.2	
				Inferred (considered in LoAP)	**1.4**	**59.5**		11.7	50.6	
				Inferred (outside LoAP)	**7.8**	**47.8**		24.4	56.7	
				Total Inferred	**9.1**	**49.6**		36.1	54.7	
				Sub-total	**445.3**	**55.8**		433.5	57.0	
	Long-term stockpiled Mineral Resources (in addition to Ore Reserves)			Measured (outside LoAP)	**0.0**	**0.0**		0.0	0.0	
				Indicated (outside LoAP)	**7.8**	**53.4**		0.0	0.0	
				Measured and Indicated (outside LoAP)	**7.8**	**53.4**		0.0	0.0	
				Inferred (considered in LoAP)	**0.0**	**0.0**		0.0	0.0	
				Inferred (outside LoAP)	**0.0**	**0.0**		0.0	0.0	
				Total Inferred	**0.0**	**0.0**		0.0	0.0	
				Sub-total	**7.8**	**53.4**		0.0	0.0	
	Total Mineral Resources (in addition to Ore Reserves)			Measured (outside LoAP)	**241.3**	**56.5**		175.3	59.4	
				Indicated (outside LoAP)	**202.7**	**55.0**		222.2	55.4	
				Measured and Indicated (outside LoAP)	**444.0**	**55.8**		397.4	57.2	
				Inferred (considered in LoAP)	**1.4**	**59.5**		11.7	50.6	
				Inferred (outside LoAP)	**7.8**	**47.8**		24.4	56.7	
				Total Inferred	**9.1**	**49.6**		36.1	54.7	
				Sub-total	**453.1**	**55.7**		433.5	57.0	
Company Kumba Iron Ore	**Grand total Mineral Resources (in addition to Ore Reserves)**	Haematite	20.37	Measured (outside LoAP)	**293.4**	**58.0**		227.4	60.7	
				Indicated (outside LoAP)	**264.7**	**56.9**		284.2	57.1	
				Measured and Indicated (outside LoAP)	**558.1**	**57.5**		511.6	58.7	
				Inferred (considered in LoAP)	**2.6**	**61.9**		12.9	51.9	
				Inferred (outside LoAP)	**25.1**	**58.0**		41.8	59.1	
				Total Inferred	**27.7**	**58.4**		54.7	57.4	
				Sub-total	**585.8**	**57.5**		566.3	58.6	

For operations over which Exxaro has no management control, please refer to the relevant company's website for supplementary information: www.angloamericankumba.com/investors

- *Mineral Resources are reported as additional to Ore Reserves.*
- *The tonnages are quoted in dry metric tonnes and million tonnes is abbreviated as Mt.*
- *Rounding of figures may cause computational discrepancies.*
- *Mineral Resource figures are reported at 100%, irrespective of percentage attributable to Exxaro ownership.*
- *The term Inferred Mineral Resource (outside life of asset plan (LoAP)) refers to that portion of the Inferred Mineral Resources not utilised in the LoAP.*
- *The term Inferred Mineral Resource (considered for LoAP) refers to that portion of the Inferred Mineral Resources utilised in the LoAP; reported without having any modifying factors applied – therefore the term "considered for LoAP" instead of "inside LoAP".*
- *While it would be reasonable to expect that the majority of Inferred Mineral Resources would upgrade in confidence to Indicated Mineral Resources with continued exploration, due to the uncertainty of Inferred Mineral Resources, it should not be assumed that such upgrading will always occur on a one-to-one basis.*

*** The cut-off grade quoted for each of the Kumba sites is a fixed in situ Fe percentage.*

[1] ***Kolomela mine:*** *Mineral Resources are reported above a cut-off of 50.0%. The exclusive Mineral Resources remained flat year-on-year with an insignificant net decrease recorded compared to 2022, as a result of the decision taken to deplete the 2022 LoAP for 2023 as the LoAP will only be updated in 2024. The minor 0.1Mt decrease represents the forecasted depletion of Inferred Mineral Resources for 2023.*

[2] ***Sishen mine:*** *Mineral Resources are reported above a cut-off of 40.0% Fe in situ. The Sishen exclusive Mineral Resources 5% year-on-year net increase is primarily the result of a reallocation of Ore Reserves to Mineral Resources because of the decrease in the pit layout size, resulting in a 52.6Mt increase in Mineral Resources (mainly low-grade ore). The Resource shell changes, as a result of the reduction in the revenue factor from 1.6 (2022) to 1.3 (2023), were minimal. The increase was partially offset by a decrease of 26.4Mt based on the 2023 geological model update, considering additional borehole data.*

Table 15: Kumba Iron Ore, Ore Reserves

	Operation/project	Operation status	Mining method	Ore type	% Attributable to Exxaro	Reserve category	2023 Tonnage (Mt)	2023 Average grade (% Fe)	2023 Grade cut-off* (% Fe)	2023 Reserve life** (years)	2023 Metal-lurgical yield (%)	2023 Saleable product tonnage (Mt)	2023 Saleable product grade (% Fe) Average	2022 Tonnage (Mt)	2022 Average grade (% Fe)	2022 Grade cut-off* (% Fe)	2022 Reserve life** (years)	2022 Metal-lurgical yield (%)	2022 Saleable product tonnage (Mt)	2022 Saleable product grade (% Fe) Average
Kolomela[1]	Ore Reserves from pit	Steady-state	Open pit	Haematite	20.37	Proved	87.9	64.2	50	11	94.3	83.0	65.0	97.9	63.8	50	12	94.3	92.3	64.8
						Probable	22.2	63.3				20.9	64.2	21.8	63.5				20.5	64.3
						Sub-total	110.1	64.0				103.9	64.8	119.6	63.7				112.9	64.7
	Ore Reserves *from RoM buffer stockpiles*					Proved	0.0	0.0				0.0	0.0	0.0	0.0				0.0	0.0
						Probable	22.7	56.0				21.4	56.9	21.4	61.1				20.2	62.1
						Sub-total	22.7	56.0				21.4	56.9	21.4	61.1				20.2	62.1
	Total Ore Reserves					**Proved**	**87.9**	**64.2**				**83.0**	**65.0**	**97.9**	**63.8**				**92.3**	**64.8**
						Probable	**44.9**	**59.6**				**42.3**	**60.5**	**43.2**	**62.3**				**40.7**	**63.2**
						Sub-total	**132.8**	**62.6**				**125.3**	**63.5**	**141.1**	**63.3**				**133.1**	**64.3**
Sishen[2]	Ore Reserves from pit	Steady-state	Open pit	Haematite	20.37	Proved	402.2	57.2	Value based[$]	15	63.4	281.5	65.0	364.9	57.6	40	17	64.5	255.5	64.7
						Probable	119.2	48.5				61.3	61.7	192.8	47.7				107.2	59.8
						Sub-total	521.4	55.3				342.8	64.4	557.7	54.2				362.8	63.3
	Ore Reserves *from RoM buffer stockpiles*					Proved	0.0	0.0				0.0	0.0							
						Probable	77.2	46.3				36.8	61.1	60.7	52.3				36.3	63.0
						Sub-total	77.2	46.3				36.8	61.1	60.7	52.3				36.3	63.0
	Total Ore Reserves					**Proved**	**402.2**	**57.2**				**281.5**	**65.0**	**364.9**	**57.6**				**255.5**	**64.7**
						Probable	**196.5**	**47.6**				**98.1**	**61.5**	**253.5**	**48.8**				**143.6**	**60.6**
						Sub-total	**598.6**	**54.0**				**379.6**	**64.1**	**618.4**	**54.0**				**399.1**	**63.2**
Company Kumba Iron Ore	**Grand total Ore Reserves**				20.37	**Proved**	**490.1**	**58.5**			**69.0**	**364.4**	**65.0**	**462.8**	**58.9**			**70.1**	**347.9**	**64.7**
						Probable	**241.3**	**49.8**				**140.5**	**61.2**	**296.7**	**50.8**				**184.3**	**61.2**
						Sub-total	**731.4**	**55.6**				**504.9**	**63.9**	**759.4**	**55.7**				**532.2**	**63.5**

For operations over which Exxaro has no management control, please refer to the relevant company's website for supplementary information: www.angloamericankumba.com/investors

- *The tonnages are quoted in dry metric tonnes and million tonnes is abbreviated as Mt.*
- *Rounding of figures may cause computational discrepancies.*
- *Ore Reserve figures are reported at 100%, irrespective of percentage attributable to Exxaro ownership.*
- *Saleable product figures are reported at 100%, irrespective of percentage attributable to Exxaro ownership.*
- *Yield is calculated as: saleable product tonnes/Ore Reserves tonnes x 100.*

** The cut-off grade assigned to Ore Reserves is variable and is dependent on the beneficiability and/or blending capacity of the modified ore scheduled as RoM, which is iteratively determined during LoAP scheduling to achieve a scheduling grade target that is set to meet the client product specifications. The % Fe cut-off illustrated is therefore the lowest of a range of variable cut-offs for the various mining areas.*

*** Reserve life represents the period in years in the approved LoAP for scheduled extraction of Proved and Probable Reserves. The Reserve life is limited to the period during which the Ore Reserves can be economically exploited. Where the scheduled Ore Reserves fall below 25% of the average annual production rate, the period beyond this is excluded from the Reserve life. The Reserve life also does not exceed the security of tenure expiry date.*

$ Sishen has introduced a value-based approach to mining block modelling to allow pit optimisation to determine what portion of the Measured and Indicated Mineral Resources is economically mineable and can be converted to Ore Reserves and subsequent saleable product. This involves the replacement of the 40% Fe Ore Reserve cut-off grade with a value-based cut-off approach whereby the economic mineability of each selective mining unit (SMU) in the mining block model is determined by comparing the cost of mining and beneficiating the SMU ore and the selling of the SMU product against the income generated by the SMU product type, based on the long-term price (considering grade penalties) and exchange rate. The product estimated for each SMU ore block is derived from cut-offs applied to saleable product grade and yield parameters assigned to each block via beneficiation algorithms.

[1] ***Kolomela mine:*** *Ore Reserves are reported above a processing plant feed-derived cut-off of 50.0% Fe inclusive of dilution. Kolomela's Ore Reserves decreased by 8.2Mt (-6%) from 2022 to 2023, primarily attributable to the 2023 forecasted depletion (-11.6Mt) of Ore Reserves (excluding modified Inferred Mineral Resource RoM), partially offset by other minor positive movements. The 2023 Kolomela Ore Reserve estimate was derived by depleting the 2022 LoAP of Kolomela, as the LoAP will only be updated in 2024.*

[2] ***Sishen mine:*** *Ore Reserves decreased by 19.8Mt (-3%) from 2022 to 2023, primarily as a result of a change in criteria applied during pit optimisation whereby the revenue factor used to derive the pit layout was reduced from 1.0 (2022) to 0.8 (2023), resulting in a 54.9Mt Ore Reserve being reallocated to Mineral Resources, combined with a 30.9Mt decrease as a result of the forecasted depletion for 2023. The decrease was partially offset by a 50.2Mt increase in Ore Reserves based on a new value-based approach to mining block modelling.*

Ancillary Resource and Reserve information by operation

Belfast

Belfast overview

Mining commenced	**2019**
Type of mining	Opencast
Market	Export and local market
Beneficiation	Two-stage dense medium separation (DMS) plant and crush and stack (C&S) operation
Products	CV 4 800kcal/kg and 5 300kcal/kg and 5 750kcal/kg net as received
Year-on-year RoM	↑ 19% linked with production ramp-up strategy
Year-on-year product	↑ 19% linked with production ramp-up strategy
Exploration	No exploration conducted due to drill rig unavailability based on over-commitment from contractor leading to contract cancellation
Year-on-year Resources	↓ 3% mainly as a result of depletion
Year-on-year Reserves	↓ 7% mainly as a result of depletion
Remaining LoM	10 years
Opportunities/operational excellence	Belfast licence to operate (BLTO) project pre-feasibility study to be completed in 2024

Figure 2: Belfast mine

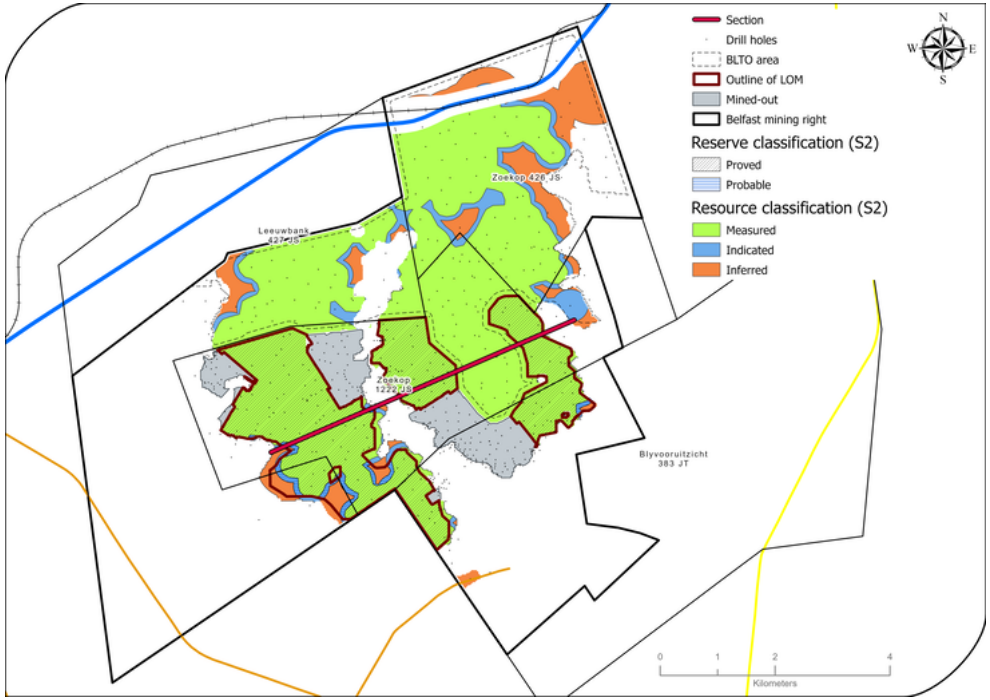
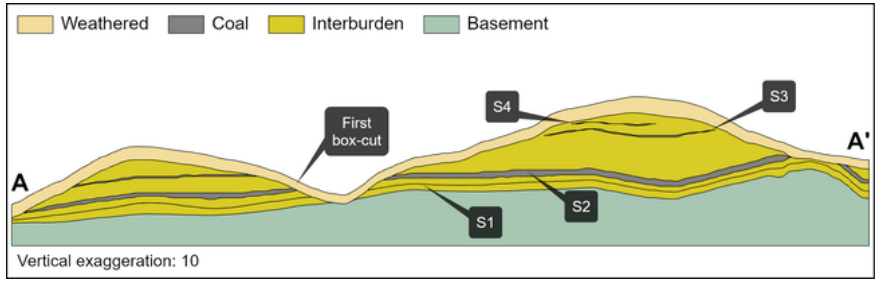


Figure 3: Belfast west-east cross-section



In 2023, Belfast achieved an annual production record of 2.91Mt versus 2.85Mt and overcame production challenges through conscientious leadership and collaborative teamwork from all the stakeholders within the value chain. Vision 2025 was launched with the purpose of driving safety and increasing production volumes to 3.5Mt.

Table 16: Belfast overview

Topic	Information	
Location	10km south-west of the town of Belfast in Mpumalanga, South Africa	
History	**Previous ownership**	**Material notes**
1967	Fuel Research Institute of South Africa	Coal Resource delineation drilling (25 drill holes)
1969	Trans-Natal Steenkoolkorporasie Beperk	Coal Resource delineation drilling (10 drill holes)
1975 to 1983	Gold Fields Mining and Development	Coal Resource delineation drilling (43 drill holes)
2001 to 2006	Eyesizwe	Coal Resource delineation drilling (155 drill holes)
2006 to 2022	Exxaro	Drilling to delineate Coal Resources (384 drill holes), detailed box cut designs, five-year mine plan infill drilling and life extension project. The mine produced first coal in April 2019 from pit 5. In 2019, it opened two box cuts on pit 1 and pit 7, ramping up production in 2020. In 2020, pit 2 was opened, followed by pit 4B box cut in 2021 and pit 4 box cut in 2022.
2023	Exxaro	Ramping up production as per the early value strategy.
Adjacent properties	The mineral tenure areas of Umsimbithi Mining (Wonderfontein coal mine) and Universal Coal (Paardeplaats) are to the west and north of Belfast, respectively.	
Infrastructure	Belfast mine is adjacent to the N4 highway that connects Pretoria and Maputo and can be accessed from the N4 via the D1110 and D1770 district roads. The mine is adjacent to the railway line to Maputo, and nearby loading facilities connect the railway line to the Richards Bay Coal Terminal. Existing Eskom power lines are on the property for electricity supply. Water is sourced on site as per the integrated water use licence (IWUL) specification. Potable water is sourced from authorised water drill holes, and process water for dust suppression and running the beneficiation plant is sourced through dewatering from pits.	
Coalfield	Belfast mine is on the far eastern edge of the Witbank coalfield. The coalfield extends about 190km east-west between Springs and Belfast and about 60km in a north-south direction between Middelburg and Ermelo. The Witbank coalfield has up to five coal seams in the middle Ecca group sediments of the Karoo supergroup. The Karoo sequence in the area is represented by the Dwyka formation and the middle Ecca with little or no lower Ecca development. The middle Ecca sequence of coal horizons, interbedded with sediments, is highly truncated due to erosion, with only minor areas where the full sequence is developed.	
Main seams	S2, S3 and S4 are exploited where economical.	
Seam development	Locally, three seams are mainly targeted (S2, S3 and S4). S5 was intersected in only a few drill holes in the northern part of the project area. S2, the most prevalent seam, is consistently developed, except in areas where it has been eroded. It has an average thickness of 2.6m and gently dips to the south. S3 and S4 are sporadically developed due to erosion, and both have an average thickness of 1.0m.	
Depositional control	Due to the mine's proximity to the northern edge of the Witbank basin, the primary control of coal development is the current weathering surface. The deposit is divided by a perennial stream into two resource blocks under two distinct spurs in the surface topography. There is no indication of pertinent faulting from the drill hole information, but potential intrusions of dolerite dykes are outlined by regional airborne magnetics, indicating the possible occurrence of regional north-south trending dykes. There are no known geological structures that may affect the geology or coal seam continuity.	
Resources and Reserves	Resources occur within most of the mining right and Reserves are limited to the southern mining right area, aligned with the existing LoMP.	
Mining method	Currently, mining occurs from five open pits using the doze-over, truck-and-shovel hybrid mining method. The LoM identifies 10 opencast pits, four or five of which will operate concurrently. There are prospects for additional opencast opportunities north of the existing operations.	
Beneficiation	Thermal coal is beneficiated in a two-stage DMS plant.	
Product	CV 4 800kcal/kg, 5 300kcal/kg, 5 750kcal/kg air-dried and filter cake.	
Market	Export market and domestic market.	
Mining right	Belfast has an approved mining right that covers 5 819.18ha.	
Environmental approvals	All environmental appeals have been favourably addressed for the declared Reserves.	
Projects/feasibility studies	The BLTO, previously Belfast life optimisation (BXP), pre-feasibility study progressed well and is anticipated to be completed in 2024. Future studies will address: • Securing surface rights • Securing environmental approvals	

Resource estimation

Table 17: Resource estimation methodology and reporting

Process	Information
Drilling, logging and sampling	Since 2019, most vertical surface drill holes have been wireline logged per Exxaro's procedure. Drilling mainly focuses on delineating the split between soft and hard OVB to support geotechnical characterisation and enhanced seam roof and floor mapping to delineate areas of seam floor rolls, seam thinning, seam thickening and seam pinching. We take photographs of the core after marking it. Geological information is captured on log sheets with lithology captured up to centimetre scale with detail. Sampling is conducted on site with the aid of wireline logs.
Laboratory and accreditation	SGS and SANAS T0561
Laboratory dispatch and receiving process	All the samples are collected, bagged and delivered to the laboratory for analysis accompanied by a dispatch sheet. The dispatch sheet also contains the sample advice that guides the laboratory on which analyses will be conducted on the samples. The receiving laboratory personnel sign the dispatch sheet to ensure chain of custody. Once the laboratory receives and signs the dispatch sheet, it is responsible for safekeeping and storing that batch of samples.
Laboratory QAQC	We ensure data integrity through rigorous procedures and supervision while processing. Audits are performed internally and externally as part of the assurance and control process. SGS is accredited for analytical work and participates in monthly local and international round robins.
Data datum	WGS 84 – LO29
Drill hole database	acQuire
Number of drill holes in mining right	816
Number of drill holes used for Resource estimation	687
Number of drill holes used for classification	388
Data compositing and weighting	Data compositing is conducted per seam using a weighted value from individual samples that make up the seam, along with each sample's relative density and length. This is conducted in GEOVIA Minex™.
Data validation	Conducted using queries in acQuire, Minex™ and Excel
Geological modelling software	GEOVIA Minex™
Estimation technique	Growth algorithm
Previous model date	2018
Last model update	2022
Grid mesh size	25m x 25m
Scan distance	2 000m
Data boundary	200m
Model build limits	Upper: limit of weathering and topography/collar Lower: basement/Dwyka
Model outputs	Roof, floor and thickness grids generated for structure Raw and wash quality grids
Changes to modelling process	None
Thickness cut-off and extraction height considerations	Opencast ≤0.5m
Quality cut-offs (adb)	Ash ≥50%
Geological loss applied	5%

Table 18: Resource classification criteria

Category	Type of drill holes	Drill hole spacing	Structurally complex areas	Drill holes/ ha
Measured	Cored drill holes with applicable coal qualities	0m to 350m	May be more conservative after consideration of RODA	0.16
Indicated	Cored drill holes with applicable coal qualities	350m to 500m	May be more conservative after consideration of RODA	0.01
Inferred	Cored drill holes with applicable coal qualities	500m to 1 000m	May be more conservative after consideration of RODA	0.02

Table 19: RPEEE considerations

Item	Criteria	Criteria met	Comment
Geological data	Data has been validated and signed off by Competent Person.	Yes	Considers geological structures and depositional extent, as well as seam thickness ≤0.5m, ≥50% ash content with coal qualities reported on an adb.
Geological model	Geological model has been considered and signed off.	Yes	2022
Structural model	Structural model was considered and signed off.	Yes	2022
Mining	Mining assumptions were considered and defined.	Yes	Opencast
Assurance	Exxaro internal review and external audit conducted.	Yes	Internal review in 2022 and external audit by EY in 2020.
Economic evaluation	Exploitation study with economic and mining assumptions, including geotechnical and geohydrological assumptions.	Yes	Belfast's pit layouts were revised in 2023 to address operational challenges and improve the Reserve utilisation.
Environmental	Reasonable demonstration that environmental approvals can be obtained within the context of local, regional and national governmental legislation.	Yes	Environmental management plan, IWUL and National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) licences are in place and compliant.
Tenure	Formal tenure must be a reasonable demonstration that a mining right approval can be obtained within the context of local, regional and national governmental legislation.	Yes	Tenure is secured. Surface rights are secured for majority of current LoM with outstanding surface rights for two portions under procurement negotiations. For the BLTO Reserves, surface access is secured and surface acquisitions are in process.
Infrastructure	Assumptions used should be reasonable and within known or assumed tolerances or have examples of precedence.	Yes	Existing infrastructure is adequate or can be upgraded with new required infrastructure under construction.
Market	Potential market for the product with a reasonable assumption that this market is sustainable.	Yes	RB2, RB3, RB4 and filter cake.

Reserve estimation

Table 20: Reserve estimation

Topic	Information
Software	Open Cut Coal Solution (OCCS)
Reserving process	Scheduling of Reserves is determined using a mining scheduling application (Scheduler) from OCCS, the same software used to develop the LoMP schedule. The geological 3D model used for the Resource statement is referred to as the Reserve geological 3D model. The geological model is supplied to mining, projects and technology in the form of Minex™ grids. The grids are then imported into a reserving application (Reserver) from the same OCCS software. This application validates the geological information received by checking the integrity of the geological structure and its quality, ensures wash table values are consistent, and converts the geological 3D model into mineable block sizes.
Conversion classification	Indicated Resources are generally converted to Probable Reserves and Measured Resources to Proved Reserves after considering the applicable modifying factors. If one or more of the modifying factors have not been fulfilled, the Measured Resource is either not converted or the Measured Resource is converted but downgraded to Probable Reserves and the associated risk is clearly stated. Inferred Resources are not converted to Coal Reserves.
Inferred Resources inside LoM	1.0Mt of Inferred Resources are included in the LoMP, representing 2.9% of the LoMP, and are not considered material. Inferred Resources, on the western edge of the pit, will only be reached towards the end of LoM.
	Modifying factors
Average thickness cut-off	S2 ≤0.8m, S3 and S4 ≤1.0m
Quality cut-offs	No quality cut-offs. Economic cut-offs are applied.
Mining loss	0.1m
Boundary pillar	N/A
Dilution	0%

Table 20: Reserve estimation continued

Topic	Information
Contamination	0.1m
Mining recovery efficiency	100% (already accounted in mining loss)
Planned average slope angles	90 degrees on hards and on softs (there is a 45m-wide bench between hards and softs, as softs are stripped a strip ahead of intended/planned hards face).
Practical plant yield	Considered in the reserving process, as per the wash table data.
Strip ratio cut-off	Considered in the reserving process using the economic model, developed during the exploitation strategy, to get economical mining boundaries.
Environmentally sensitive areas	Areas considered based on the applicable environmental approvals.
Legal	Applicable mining right considered, and all the reserved areas are within the mining rights boundary and have obtained the water use licence thereof. The purchase of two portions of surface rights is pending.
Social	Grave site identified; no impact on the Reserve as final void stockpiles were relocated on design proposal. The last family on the Reserve is still to be relocated and the process is at an advanced stage.
Geohydrological	Applicable surface and groundwater models considered.

Table 21: Belfast Coal Resource and Coal Reserve statement

Category	2023 (Mt)	2022 (Mt)	Difference in tonnes (Mt)	Difference (%)	Reason for change
Measured	98.4	101.6	(3.2)	(3)	Mining depletion (3.3Mt) and geological loss as a result of weathered coal in pit 4 (0.1Mt) were slightly offset by reconciliation (0.3Mt).
Indicated	8.0	8.0			
Inferred	13.3	13.2			
Total Coal Resources	**119.7**	**122.8**	**(3.2)**	**(3)**	
Proved	33.2	35.8	(2.6)	(7)	The decrease is mainly due to mining depletion (3.3Mt) that was slightly offset by model refinement (0.4Mt) and reconciliation (0.3Mt).
Probable	1.4	1.4			
Total Coal Reserves	**34.6**	**37.2**	**(2.6)**	**(7)**	

- *Rounding of figures may cause computational discrepancies.*
- *Tonnages are quoted in metric tonnes and million tonnes (Mt). Coal Resources are quoted as MTIS.*

Exploration summary

Table 22 outlines the exploration for the reporting year. For detailed expenditure, refer to Table 64.

Table 22: Exploration summary

Objectives	Progress in reporting year	Plans for next reporting year
	No drilling was conducted in 2023	51 drill holes are planned as infill drill holes in the current operating pits and to increase resource confidence in future planned opencast pits.

Risks

Table 23: Belfast risks

Risk	Description	Mitigation
Surface rights	Securing surface rights in current LoM areas over portions 9 and 15 of Leeuwbank 427JS.	Property valuation concluded on both properties and negotiations in progress. Capital for the procurement of these properties has been included in the 2025 capital programme.
Encumberments on the Reserve	Relocation of last residents on the Reserve.	Relocation process in advanced stages with reasonable expectation that Exxaro will be successful.
Transnet Freight Rail (TFR) performance	TFR offtake was lower than planned.	Alternative market offtake agreements to mitigate poor performance from TFR reoccurring in 2024.
Qualities	Sporadic sulphur challenges experienced within mining blocks.	Planning for blocks that have low sulphur. Investigating opportunities to blend coal from different blocks. Intensive in-pit sampling programme before coal is dispatched to C&S. Investigating alternative markets that allow for a 1.2% sulphur product.

Ancillary Resource and Reserve information by operation continued

Other than the risks listed on the previous page, there are no known environmental, social, political and governance risks that could potentially impact the exploitation of the Coal Reserves.

Operational excellence

Belfast experienced several challenges at the start of the reporting year that impacted production targets. In response, Belfast implemented several actions that contributed to a record production second half of the year and steady state for the operation. The appointment of new mining partners in a short period and steep ramp-up curve for production resulted in an annual production record of 2.9Mt within only nine months. A process implemented to fully integrate the mining partners and operational team across the mining value chain clearly communicated extraction plans, and visualisation of progress supported this great achievement. The foundation of inclusivity, teamwork, accountability and production excellence has driven the team to achieve this great milestone and set the platform for future performance.

From the left: Pateka Themba, Jonathan Stewart, Zwele Hlatshwayo, Alf Dednam (Belfast Reserve Competent Person), Gcobani Gcayi (Belfast Resource Competent Person) and Vaughn Collins, Resource and Reserve technical specialists from our MAM and coal teams

Leeuwpan

Leeuwpan overview

Mining commenced	1992
Type of mining	Opencast
Market	Export and domestic market
Beneficiation	Two DMS plants and two C&S and bypass plants
Products	4 200kcal/kg, 4 800kcal/kg and 5 300kcal/kg, peas and duff net as received
Year-on-year RoM	↑ 30% related to increased OVB removal. However, this is 13% below budget
Year-on-year product	↑ 23% related to increased OVB removal. However, this is 18% below budget
Exploration	No exploration conducted in 2023 due to a delayed contractor procurement process
Year-on-year Resources	↓ 9% mainly as a result of depletion, mining loss and sterilisation
Year-on-year Reserves	↓ 14% mainly as a result of depletion, sterilisation and model refinement
Remaining LoM	Six years
Opportunities/operational excellence	UB pit evaluation scheduled for 2024. Activity-based planning model to be conducted in 2024

Figure 5: Leeuwpan cross-section through pit OI

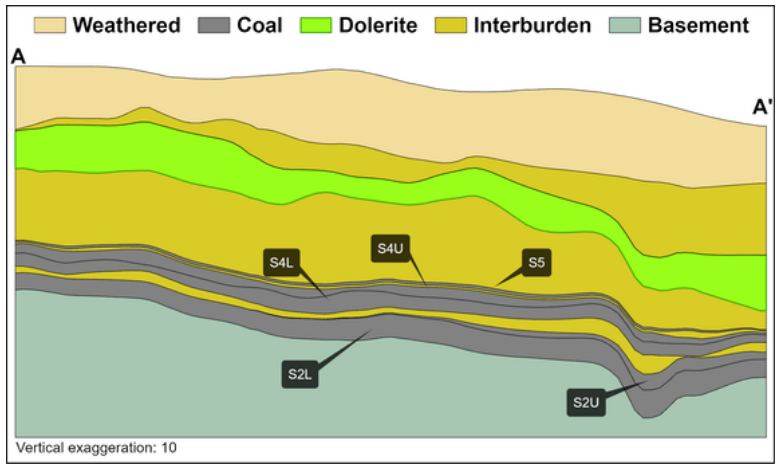
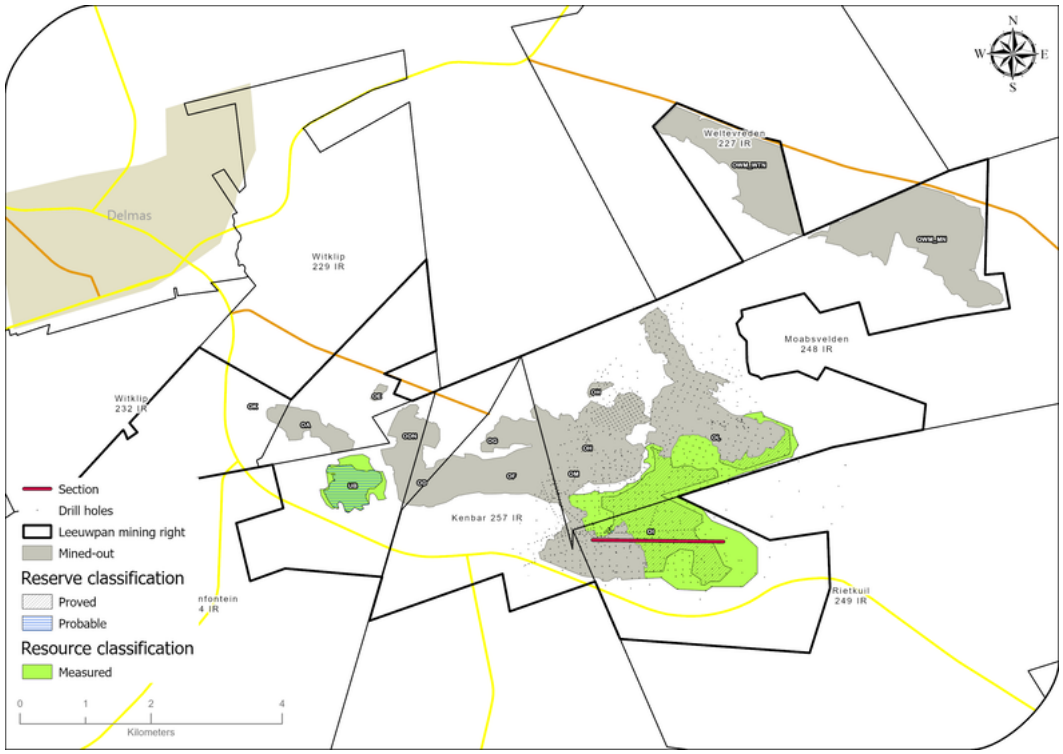


Figure 4: Leeuwpan mine



Leeuwpan strives to operate safely and reached 33 years fatality free. In 2023, production focused in OI west and OL eastern Reserves due to lower stripping ratios. Despite multiple optimisation initiatives, production RoM, product and sales were below budget due to pit liberation challenges.

Some of the challenges experienced were higher OVB stripping ratios than budgeted, material re-handling, poor compliance to plan, poor sales, and low inventory for the plants.

Table 24: Leeuwpan overview

Topic	Information	
Location	10km south-east of the town of Delmas in Mpumalanga, South Africa.	
History	**Previous ownership**	**Material notes**
1988 to 2006	Iscor – Iscor mining – Kumba	Exploration began in 1990, the first box cut was commissioned in 1992 and rights were ceded to Exxaro in 2006. ~400 exploration drill holes drilled.
2006 to 2022	Exxaro	Infill exploration drilling (~1 800 drill holes); the mine has been operating for approximately 32 years. OL has been operating since 2013, OI since 2018 and the western OI extension since 2020.
2023	Exxaro	Depletion of OI west mining area. All areas were updated to Measured status.
Adjacent properties	Stuart Colliery, Delta Mining Company and HCI Khusela Coal mines own property near Leeuwpan. Thaba Chueu Mine (silica mine) is adjacent to Leeuwpan.	
Infrastructure	Leeuwpan lies alongside the R50 provincial road and is serviced by a railway line with a rapid load-out station inside Leeuwpan's rail loop. Eskom supplies electricity to the mine directly through a substation at Witklip, which is linked to a nearby Eskom power line. Potable water is supplied from drill holes and pumped into different storage facilities due to the presence of Escherichia coli (E. coli) bacteria. This is used as grey water and purified water is purchased for drinking. Process water is supplied from a closed system, which includes the plant, slimes dams and pit dams. Water replenishment for processing comes from the pits.	
Coalfield	Leeuwpan mine is in the Delmas coalfield, on the western border of the Witbank coalfield. The geology within the Delmas coalfield is similar to that of the Witbank coalfield. Like the Witbank coalfield, the Delmas coalfield has up to five coal seams in the middle Ecca group sediments of the Karoo supergroup. The Karoo sequence in the area is represented by the Dwyka formation and the middle Ecca with little or no lower Ecca development. The middle Ecca sequence of coal horizons, interbedded with sediments, is highly truncated due to erosion with minor areas where the full sequence is developed. The basement is generally the Malmani dolomites from the Transvaal supergroup.	
Main seams	We identified two coal seams at Leeuwpan: top coal (TC) seam and bottom coal (BC) seam. The BC seam correlates with the S2 of the Witbank and Highveld coalfields and the TC seam correlates with S4 and S5. The BC seam qualities are generally higher than the TC seam qualities.	
Seam development	The coal seams at Leeuwpan are primarily interbedded with sandstone, shale and carbonaceous shale.	
Depositional control	The coal was deposited on glacial sediments of Dwyka tillite, which in turn was deposited on the dolomite of the Transvaal supergroup. A significant amount of magma intruded as concordant sills of dolerite in the Karoo strata in the Delmas area. Thin dolerite dyke structures that transgress the stratigraphy are associated with the dolerite intrusion. Factors controlling geological and quality continuity are mainly surface weathering, significant variation in seam thickness due to an undulating tillite floor, faulting associated with dolerite activity and dolomitic basement, and devolatilisation and weathering due to dolerite intrusions (sills and dykes).	
Resources and Reserves	Coal Resources and Coal Reserves occur in opencast pits OI, OL and UB.	
Mining method	Leeuwpan is an opencast operation with Reserves in various pits mined simultaneously. Current mining operations are on the OL and OI Reserves. The mine uses a conventional truck-and-shovel mining method.	
Beneficiation	Leeuwpan has two DMS plants that beneficiate coal primarily for the thermal export market and two crushing plants (C&S and bypass plants) that handle selectively mined thermal coal either for the domestic market or the export market, depending on the quality. The second DMS plant, commissioned in 2016, is operated by an independent contractor, whereas the original plant is operated by Exxaro.	
Product	The dry crushing and screening plants are capable of producing either a 4 200kcal/kg, 4 800kcal/kg or 5 300kcal/kg product depending on the inherent coal qualities.	
Market	Leeuwpan supplies domestic and export markets.	
Mining right	Leeuwpan has an approved mining right that covers 4 269ha. Execution is pending following a section 102 application to consolidate the two mining rights.	
Environmental approvals	Environmental authorisations are in place for the declared Reserves.	
Projects/feasibility studies	None	

Resource estimation

Table 25: Resource estimation methodology and reporting

Process	Information
Drilling, logging and sampling	Vertical surface drill holes are drilled and subsequently logged on site. Lithological codes are used when capturing the lithology. Photographs of the core are taken after marking it. Samples are split on the lithological contact, if needed, using a chisel and hammer to ensure a clean break. Each sample is put in an individual bag with all materials represented in that interval, ensuring no contamination occurs between the materials to be sampled. Two sample tags are marked using a permanent marker. One sample tag is placed inside the bag and the other on the outside; the bag is then sealed with a cable tie.
Laboratory and accreditation	SGS, SANAS T0561
Laboratory dispatch and receiving process	All samples collected and bagged are registered in a sample sheet, which is also used as a dispatch sheet. The receiving laboratory personnel sign the dispatch sheet after ensuring that the number and sample ID on the dispatch sheet match the samples to be analysed. Once the laboratory receives and signs the dispatch sheet, it is responsible for safekeeping and storing that batch of samples.
Laboratory QAQC	SGS is accredited for analytical work and participates in monthly local and international round robins.
Data datum	Cape datum – LO29
Drill hole database	acQuire
Number of drill holes in mining right	4 616
Number of drill holes used for Resource estimation	733
Number of drill holes used for classification	630
Data compositing and weighting	Data compositing is conducted per seam using a weighted value from individual samples that make up the seam, along with each sample's relative density and length. This is conducted in GEOVIA Minex™.
Data validation	Conducted using queries in acQuire, Minex™ and Excel.
Geological modelling software	GEOVIA Minex™
Estimation technique	Growth algorithm
Previous model date	2021
Last model update	2023
Grid mesh size	20m x 20m
Scan distance	1 000m
Data boundary	200m
Model build limits	Upper: limit of weathering and topography/collar Lower: basement/Dwyka
Model outputs	Roof, floor and thickness grids generated for seam structure Raw and wash quality grids
Changes to modelling process	None
Thickness cut-off and extraction height considerations	2023 model ≤0.5m (S5 ≤1m)
Quality cut-offs (adb)	Ash ≥50%, a non-material amount of coal ≥50% ash may be included to ensure optimised extraction.
Geological loss applied	5% to 100% based on geological loss domains (5% standard geological loss is applied but may vary based on the consideration of structural complexity (dolerite sill breakthrough – 50% loss within determined spatial extent and fault displacement zone – 100%) and seam floor adulation (10% loss)).

Table 26: Resource classification criteria

Category	Type of drill holes	Drill hole spacing	Structurally complex areas	Drill holes/ ha
Measured	Cored drill holes with applicable coal qualities	0m to 100m	May be more conservative after consideration of RODA	1.04
Indicated	Cored drill holes with applicable coal qualities	100m to 200m	May be more conservative after consideration of RODA	N/A
Inferred	Cored drill holes with applicable coal qualities	200m to 1 000m	May be more conservative after consideration of RODA	N/A

Table 27: RPEEE considerations

Item	Criteria	Criteria met	Comment
Geological data	Data has been validated and signed off by Competent Person.	Yes	Seam depth, seam thickness ≤0.5m all seams except S5 thickness ≤1m, ≥50% ash content but a non-material amount of coal with ≥50% ash may be included to ensure optimised extraction. Coal qualities are reported on an adb.
Geological model	Geological model was considered and signed off.	Yes	2023
Structural model	Structural model was considered and signed off.	Yes	2023
Mining	Mining assumptions were considered and defined.	Yes	Opencast
Assurance	Exxaro internal audits and external audit conducted.	Yes	Internal review in 2023 and external audit by EY in 2021.
Economic evaluation	Exploitation study with economic and mining assumptions, including geotechnical and geohydrological assumptions.	Yes	LoM schedule updated and the evaluation of a new market and a neighbouring resource (2023).
Environmental	Reasonable demonstration that environmental approvals can be obtained within the context of local, regional and national governmental legislation.	Yes	Current required approvals in place.
Tenure	Formal tenure must reasonably demonstrate that a mining right approval can be obtained within the context of local, regional and national governmental legislation.	Yes	Mining right valid until 2039 with no impediments noted.
Infrastructure	Assumptions used should be reasonable and within known or assumed tolerances or have examples of precedence.	Yes	Current infrastructure.
Market	A potential market for the product with a reasonable assumption that this market is sustainable.	Yes	Current market. Market option review for low volatile coal.

Reserve estimation

Table 28: Reserve estimation

Topic	Information
Software	OCCS
Reserving process	Reserve scheduling is determined using a mine scheduling application (Scheduler) from OCCS, which is the same software used to develop the LoMP schedule. The geological 3D model used for the Resource statement is referred to as the Reserve geological 3D model. The geological model is supplied to mining, projects and technology in the form of Minex™ grids. The grids are then imported into a reserving application (Reserver) from the same OCCS software. This application validates the geological information received by checking the integrity of the geological structure and its quality, ensures wash table values are consistent, and converts the geological 3D model into mineable block sizes. Careful product selection and balancing of remaining Reserves is required at Leeuwpan to ensure maximum value for Exxaro.
Conversion classification	Indicated Resources are generally converted to Probable Reserves and Measured Resources to Proved Reserves, after consideration of all applicable modifying factors. If one or more of the modifying factors have not been fulfilled, a Measured Resource is either not converted or the Measured Resource is converted but downgraded to a Probable Reserve and the associated risk is clearly stated. This is the case for UB, where it is classified as a Probable Reserve because of additional modifying factors such as low volatiles and the limited market for this particular quality of coal. Inferred Resources are not converted to Coal Reserves.
Inferred Resources inside LoM	No Inferred Resources inside LoM.
	Modifying factors
Average thickness cut-off	0.5m all seams except S5, which is 1.0m.
Quality cut-offs	N/A
Mining loss	S5 0.31m, S4U 0.12m, S4L 0.12m, S2U 0.5m, S2L 0.12m, UB S2 0.26m.
Boundary pillar	100m boundary pillar along the new R50 road at OI West pit.
Dilution	S5 0.05m, S4U 0.11m, S4L 0.12m, S2U 0m, S2L 0.11m, UB S2 0.25m.
Contamination	Included in the rest of the modifying factors.
Mining recovery efficiency	Included in the rest of the modifying factors.
Planned average slope angles	45 degrees. For highwall stability, soft material is mined at least one strip ahead of hard material and coal mining activities.

Table 28: Reserve estimation continued

Topic	Information
Practical plant yield	90% DMS and 90% Fraser Alexander DMS with slimes loss on DMS of 9% and 15% on Fraser Alexander DMS.
Strip ratio cut-off	Strip ratio is determined using the energy strip ratio assessment and is considered in the reserving process using the economic model to get mining boundaries.
Environmentally sensitive areas	Environmentally sensitive areas applications made and approval acquired before mining.
Legal	Applicable mining right considered and all the reserved areas are within the mining rights boundary.
Social	Applicable communities considered. Socially sensitive areas in the mining right (such as graveyards) are excluded from Reserves in the reserving process.
Geohydrological	Applicable surface and groundwater models are considered. The pit floor was considered to minimise water handling in the pit face.

Table 29: Leeuwpan Coal Resources and Coal Reserves statement

Category	2023 (Mt)	2022 (Mt)	Difference in tonnes (Mt)	Difference (%)	Reason for change
Measured	63.4	65.8	(2.4)	(4.0)	The decrease is due to depletion (4.4Mt), disposals (1.3Mt) and sterilisation (0.9Mt). This was offset by a reconciliation increase of (0.5Mt) and the upgrade of Inferred Resources (3.6Mt).
Indicated	—	—			
Inferred	—	3.6	(3.6)	(100.0)	Upgraded resource confidence (3.6Mt).
Total Coal Resources	63.4	69.4	(6.0)	(9.0)	
Proved	30.5	36.1	(5.6)	(16.0)	The decrease is due to depletion (4.5Mt), model refinement (0.8Mt) and sterilisation (0.8Mt), which was slightly offset by reconciliation (0.6Mt).
Probable	3.3	3.3	—	—	
Total Coal Reserves	33.8	39.4	(5.6)	(14.0)	

- *Rounding of figures may cause computational discrepancies.*
- *Tonnages quoted in metric tonnes and million tonnes (Mt). Coal Resources quoted as MTIS.*

Exploration summary

Table 30 outlines exploration for the reporting year. For detailed expenditure, refer to Table 64.

Table 30: Leeuwpan exploration summary

Objectives	Progress in reporting year	Plans for next reporting year
Increase confidence in the UB and OI east pits.	No drilling was conducted in 2023 due to contractual challenges.	Planning includes 15 holes; 10 in the UB pit to increase Resource confidence and confirm new seam nomenclature, and the remaining five holes are planned in the OI east area to delineate the Resource boundary.

Risks

Table 31: Leeuwpan risks

Risk	Description	Mitigation
Dolerite sill impact on slope stability	Reserve blocks UB and OI have a dolerite sill overlying the coal strata and the sill orientation affects slope stability.	Apply RODA to identify the areas of high geological risk. The bench design is modified based on dolerite dipping towards the seam.
Dolerite sill impact on coal devolatilisation	The proximity of the dolerite sill may devolatilise or burn the coal seam.	Higher geological losses are applied in the geological model based on the sill's proximity to the seams. An integrated MRM grade control process is implemented, highlighting expected Resource/Reserve anomalies (including dykes, sills and weathering) to the mining team.
Major/minor faults	Major faults with displacements greater than the seam widths occur between OL and OI. This is also associated with sill transgression. Minor faults cause slight seam displacements which affect coal and quality continuity.	Inclusion in the RODA plan and higher geological losses applied to major fault zones.
Floor undulations	Undulating floor conditions cause challenging and complicated mining environment (ie reduced production tempos and contamination).	Floor gradient is included in the RODA. Use of floor contours to plan ramp gradients in each Reserve area.
Coal quality	In-seam quality deviations are generally localised and are associated with minor channel washout.	Continuously monitor quality, integrated into the grade control process.
Non-compliance to plan (bridge pit)	Delays to mining the OI-OL bridge pit will result in pit room constraints once the OL pit has been depleted.	Developing activity-based planning model to indicate impact of mining OI pit from one face.

Other than the risks listed on the previous page, there are no known environmental, social, political and governance risks that could potentially impact the exploitation of the Coal Reserves.

Operational excellence

Leeuwpan conducted six operational excellence initiatives in 2023 to improve its value add to the core value chain. The focus was on OVB removal to increase coal inventory and plant utilisation. To align with operational excellence and Reserve optimisation, the UB coal was redefined, and the geological model will be updated in 2024. Additionally, Resources outside LoM will be re-evaluated to optimise pit boundary delineation. An activity-based planning model will be built to evaluate the mining options for optimal production.

Leeuwpan technical specialists and Competent Persons. From the left: Justice Kgarume, Maggi Bestenbier, Rofhiwa Malogwa, Teboho Dibate and Phenyo Thobejane

Matla

Matla overview

Mining commenced	1983
Type of mining	Underground
Market	Captive market
Beneficiation	Crush and screened
Products	Eskom exclusive
Year-on-year RoM	↓ 2% due to pit room constraints. RoM 2% higher than budget
Year-on-year product	↓ 2% due to pit room constraints. Product 2% higher than budget
Exploration	18 drill holes drilled
Year-on-year Resources	↓ 3% mainly as a result of depletion, new information that led to disposals and sterilisation
Year-on-year Reserves	↓ 6% mainly as a result of depletion, methodology change and model refinement
Remaining LoM	1+ years
Opportunities/operational excellence	A coal washability study to improve RoM qualities has kicked off. Additional drilling in 2024 will augment the coal washability quality information guiding the project.

Figure 6: Matla mine

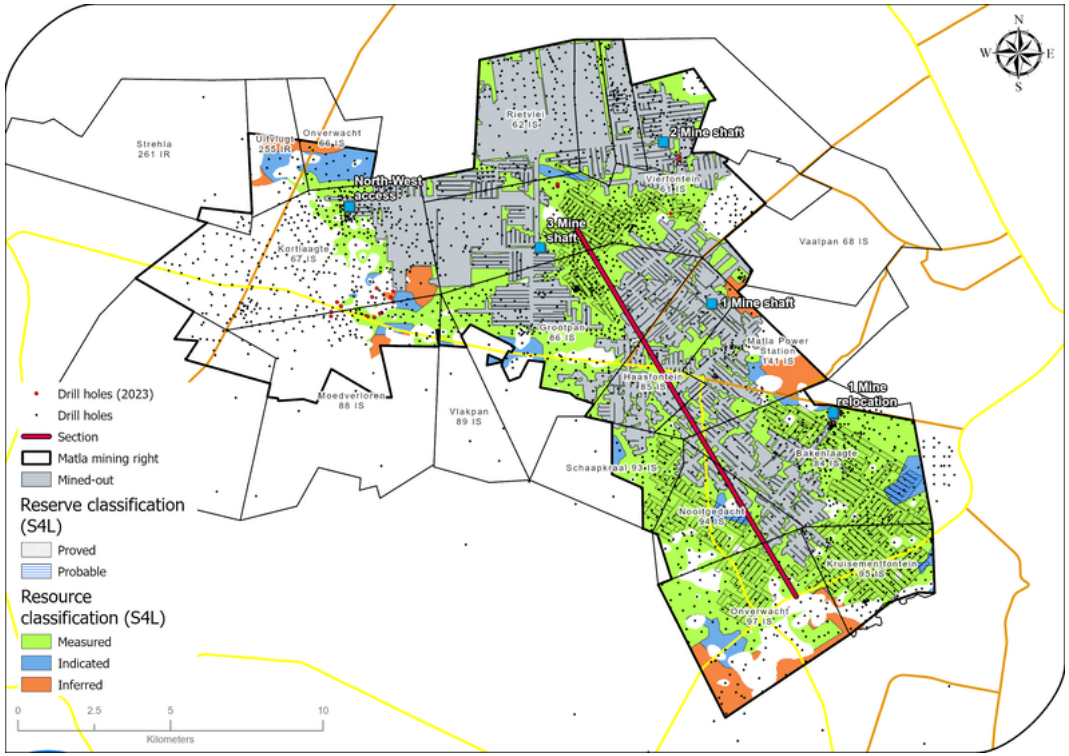
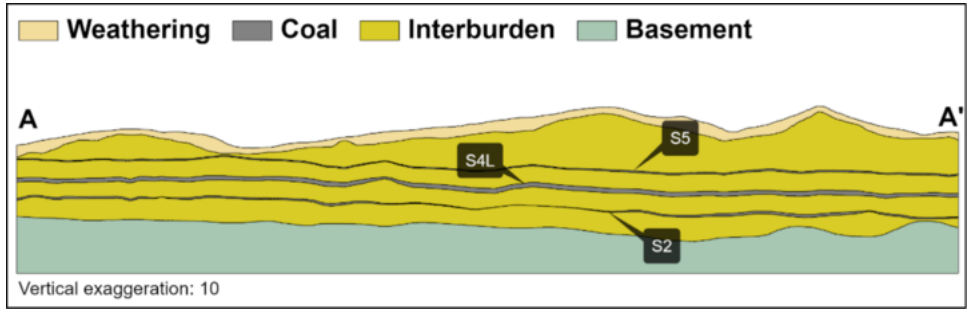


Figure 7: Matla cross-section



The three major LoM projects that will unlock access to 85% of the current LoM are still ongoing. The NWA incline project at Mine 2 successfully completed drop raises and mined 105.8Kt in 2023 whereas the NWA decline project at Mine 3 successfully reached Seam 2 in October 2023.

Through operational excellence and teamwork, Matla achieved the 2023 budget tonnes notwithstanding pit room challenges. Due to delays in project implementation, mining has been conducted in areas that were previously not in the LoM due to quality and thickness considerations. The mining of these Resource areas contributes to the current coal quality challenges experienced, which will be alleviated once the projects are implemented.

Table 32: Matla overview

Topic	Information	
Location	15km west of the town of Kriel in Mpumalanga, South Africa.	
History	**Previous ownership**	**Material notes**
1976 to 1990	Trans Natal Mines	Construction began in 1976 with full production in 1983. ~465 exploration drill holes drilled.
1990 to 2006	Eyesizwe	Mining rights ceded to Exxaro in 2006. Continuous exploration drilling ~1 000 drill holes.
2006 to 2022	Exxaro	Full production until Mine 1 closure in 2016. Mine 2 and Mine 3 continue to produce ~6Mtpa with ongoing exploration drilling to support operations. Continuous exploration drilling ~1 840 drill holes.
2023	Exxaro	Expansion projects implementation to unlock 85% of Reserves. Eighteen drill holes completed for the year.
Adjacent properties	Seriti's Kriel Colliery neighbours Matla to the east and Zibulo (Seriti) and Khutala (Thungela) are situated to the north.	
Infrastructure	Matla is situated on the P53-1 and R547 secondary roads branching off the R580 and R545. Existing infrastructure supporting the three shaft complexes includes three ventilation shafts, a network of conveyor belts, coal silos and stockpiles, a crushing and screening plant, four pollution-control dams, a hospital, accommodation facilities, offices, workshops and a water treatment plant. Potable water is received from Eskom and no potable water plant exists on the mine property. Electricity is sourced from Eskom (Matla power station). All coal is conveyed from the mine directly to Eskom's Matla power station.	
Coalfield	Matla mine is situated in the Highveld coalfield to the south of the Witbank coalfield. The coal seams are developed in the Vryheid Formation of the Karoo supergroup. The stratigraphic sequence in the Matla area includes five coal seams that can be easily correlated with seams found in the Witbank coalfield.	
Main seams	The principal economic seams currently exploited are S2 and S4, with mining of S5 terminated in 1998 due to high levels of contamination and a subsequent increase in the abrasive index.	
Seam development	Coal seams in the area are generally flat and continuous with subsequent igneous activity resulting in displacements and devolatilisation of coal seams in localised areas. The S5 is most prominent in the Mine 2 and Mine 3 areas and, to a limited extent, in the western limb of the southern part of the mining right area. The roof comprises approximately 0.5m of thick sandy micaceous shale at Mine 2 that thickens up to approximately 1.6m in Mine 3. The seam consists of mixed coal and torbanitic material with an average thickness of 1.5m. Economic S4 exists in the Mine 1, Mine 2 and Southern Reserve areas and, to a limited extent, in the Mine 3 area. At Mine 3, the seam splits into two thin, poor quality horizons towards the west and is thus excluded from the mineable Reserves. The best quality S4 is located at Mine 1 and at the eastern edges of Mine 2. The seam is composed of dull lustrous coal interspersed with bright coal bands. In-seam partings typically consist of discontinuous lenses of shales and siltstones less than 0.1m thick, but these may thicken locally to 0.3m. Carbonaceous limestone lenses are also prevalent within the central portion of the Mine 2 area. The S2 at Matla is well developed in the north-western part of the mining area in the Mine 2 and Mine 3 Resource areas. It thins out to the south, where the thickness averages between 1.2m and 2.5m. Much of the coal in this area is mined as a low seam. The S2 between Mine 1 and Mine 2 has been burned by a prominent dolerite sill and is thus unmineable. S2 in the Mine 1 area is generally poor quality and discontinuous due to sill activity. As such, it is not mined in this area.	
Depositional control	The coal was deposited on glacial sediments of Dwyka tillite, which in turn was deposited over a granitic basement. The Matla mining area is characterised by two distinct dolerite types – the B8 (porphyritic) and B4 (olive-rich) types – which have varying effects on seam displacements and coal burning and devolatilisation. A dolerite sill with an average thickness of 10m is generally found above S5 in Mines 2 and 3. However, the sill intersects the coal seams and underlies S2 in Mine 1 and S4 on the south-western part of the Reserves. This sill has burned and devolatilised S2 on the southern part of the mining area in Mine 1. Floor rolls have been encountered in S2 workings, creating challenges in isolated mining areas. The floor rolls strike north-east-south-west, vary in width between 50m and 200m and have amplitudes up to 1.5m. The floor rolls are more prominent if the seam floor is close to the basement contact. Sandstone lenses encountered are generally less than 0.5m in width but can reach up to 1.5m in thickness.	
Resources and Reserves	Coal Resources and Coal Reserves occur within the domains of Mines 1, 2 and 3. The Coal Reserves align with the existing LoMP. The reporting of LoM is restricted to the mineral right lapse date, although there are Coal Reserves well beyond this date.	
Mining method	Matla comprises three underground production facilities: Mine 1, Mine 2 and Mine 3. All three are long-life assets, each with a specific operating capacity comprising conventional coal circuits to produce bituminous coal. Production at Mine 1 was stopped in 2015 due to pillar instability and is planned to resume in 2025. Mines 2 and 3 use bord-and-pillar methods to mine S2 and S4. Shortwall mining is also utilised to conduct mining of S2 in Mine 2 and this is scheduled to cease in 2024.	
Beneficiation	None of the coal mined at Matla is beneficiated, but it is crushed and screened (sized) before being conveyed to the power station.	
Product	Matla mine produces thermal coal exclusively for Eskom.	
Market	Captive market: Eskom.	
Mining right	Matla has an approved mining right that covers some 23 494ha.	
Beneficiation	None of the coal mined at Matla is beneficiated, but it is crushed and screened (sized) before being conveyed to the power station.	
Product	Matla mine produces thermal coal exclusively for Eskom.	
Market	Captive market: Eskom.	

*Table 32: **Matla overview** continued*

Topic	Information
Mining right	Matla has an approved mining right that covers some 23 494ha.
Environmental approvals	The IWUL has expired, but a formal process is in place for renewal. Discussions and close cooperation with the Department of Water and Sanitation (DWS) are ongoing.
Projects/feasibility studies	Three major LoM projects exist at Matla, namely the Matla Mine 1 relocation project (MM1R), the Mine 2 north-west access incline project and the Mine 3 north-west access decline project. The MM1R project is currently in progress and includes the construction of a box cut, portals (declines from the box cut to access UG workings), silos and overland conveyors which creates a new access point to Mine 1, with conveyor infrastructure transporting the coal directly to Matla power station. The box cut and associated sumps, carbonaceous stockpiles and water storage infrastructure were completed in 2022. The portals were completed in December 2022, with successful holing into the old mine workings. Remaining work entails conveyor belt structures and plant facilities for the coal transport from the mine to the existing Matla plant. Production from MM1R is expected in 2025. However, an early coal strategy is targeting the production of coal from Mine 1 in 2024, where the coal will be trucked to the Matla stockyard until the final overland conveyor and associated infrastructure has been completed. The north-west access incline project entails the construction of an incline from the S2 to the S4 to access the future LoM Reserves at Matla Mine 2. The incline intersected S4 coal in September 2022. The inclines were completed and the drop raises were completed in November 2023. Final civil works and conveyor infrastructure will be completed in the first quarter of 2024 before commencing production from this project. A total of 105 886 tonnes was mined from the incline project in 2023 while construction of the drop raises was ongoing. The north-west access decline project entails the construction of a decline from the S4 to the S2 at Mine 3. The project was stopped between 2020 and 2022 but recommenced in November 2022. The decline intersected the target S2 in September 2023. Run-arounds and pit room space creation on the S2 are still outstanding, along with the construction of a permanent conveyor belt and associated civil structures. Mining will commence at the project in 2024. Due to a requirement by the Eskom-owned Matla power station to review and potentially increase the quality specification of coal used for electricity generation, various coal quality improvement studies have been initiated during 2023. The option to beneficiate the coal requires additional exploration sample washability data, which has been scoped and planned to start in 2024. The drilling to obtain the relevant data will run over three to four years and target the S4 at Mine 1 and Mine 2 and the S2 at Mine 3. The information will be critical in the evaluation of washability characteristics, which will be used as the basis for quality improvement initiative studies.

The new entrance to Matla Mine 1

Resource estimation

Table 33: Resource estimation methodology and reporting

Process	Information
Drilling, logging and sampling	Surface vertical, surface inclined and underground horizontal drilling methods are employed at Matla. Only the vertical surface drill holes are used for Resource modelling. All drill holes are geologically logged on a detailed log sheet with the content dictated by the Exxaro logging procedure. Logging is conducted by recording of lithology down to 1cm detail on logging sheets, according to the classification of the lithology. Once all core and sample markings are in place, the core is photographed on a 1m interval basis. Once correlated, sample intervals are defined based on lithological contacts and logical boundaries along the drill hole, across the named intervals or seams. If the entire unit is homogenous, samples are then collected at 1.5m intervals. All samples are placed into plastic sample bags and a sample tag is placed inside the bag with a duplicate attached to a cable tie on the bag's exterior. The sample tags are used to identify the samples according to a sampling convention, which is recorded in the log sheet and geological database to allow the laboratory results to be assigned to the correct interval in each specific drill hole.
Laboratory and accreditation	SGS South Africa, SANAS T0561
Laboratory dispatch and receiving process	All samples are allocated unique alphanumeric IDs corresponding to the associated drill hole ID, seam sampled and number of the individual sample. These samples are collected, bagged and registered in a sample sheet which is also used as a dispatch sheet. All exploration samples are weighed on site prior to dispatch and recorded at the mine. The laboratory reports the weight of each individual sample and these results are compared to the mine weights to validate that the correct samples were conveyed properly and safely to the laboratory. The receiving laboratory personnel sign the dispatch sheet after ensuring that the number and sample ID on the dispatch sheet match the samples to be analysed. The analyses required are also clearly explained in the sample dispatch sheet. All sample results are validated following a standard procedure including visual, logical and mathematical verification before acceptance and capture into the mine's database.
Laboratory QAQC	As part of the procurement process, Matla conducted QAQC on various laboratories.
Data datum	Cape datum – LO29
Drill hole database	acQuire
Number of drill holes in mining right	2 694
Number of drill holes used for Resource estimation	S2 – 1 921 S4 – 2 479
Number of drill holes used for classification	S2 – 1 921 S4 – 2 479
Data compositing and weighting	Data compositing is conducted per seam using a weighted value from individual samples that make up the seam, along with each sample's relative density and length. This is conducted in GEOVIA Minex™.
Data validation	Conducted using queries in acQuire, Minex™ and Excel.
Geological modelling software	GEOVIA Minex™
Estimation technique	Growth algorithm
Previous model date	2022
Last model update	2023
Grid mesh size	25m x 25m
Scan distance	2 000m
Data boundary	200m
Model build limits	Upper: limit of weathering and topography/collar Lower: basement/Dwyka
Model outputs	Roof, floor and thickness grids generated for seam structure. Raw quality grids.
Changes to modelling process	None
Thickness cut-off and extraction height considerations	≤1.8m
Quality cut-offs (adb)	DAFV ≤ 26% CV ≤15MJ/kg, Ash ≥50%
Geological loss applied	10% (may vary considering RODA)

Table 34: Resource classification criteria

Category	Type of drill holes	Drill hole spacing	Structurally complex areas	Drill holes/ ha
Measured	Cored drill holes with applicable coal qualities	0m to 350m	Infill drilling is conducted where basement highs and or seam structure create uncertainty around continuity.	S2 – 0.14 S4 – 0.13
Indicated	Cored drill holes with applicable coal qualities	350m to 500m	Infill drilling is conducted where basement highs and or seam structure create uncertainty around continuity.	S2 – 0.04 S4 – 0.05
Inferred	Cored drill holes with applicable coal qualities	500m to 1 000m	Infill drilling is conducted where basement highs and or seam structure create uncertainty around continuity.	S2 – 0.02 S4 – 0.02

Table 35: RPEEE considerations

Item	Criteria	Criteria met	Comment
Geological data	Data has been validated and signed off by Competent Person.	Yes	Seam depth ≤40m, seam thickness ≤1.8m, dry ash free volatiles ≤26%, CV≤15MJ/kg and ash ≥50% with coal qualities reported on an adb.
Geological model	Geological model has been considered and signed off.	Yes	2023
Structural model	Structural model was considered and signed off.	Yes	2023
Mining	Mining assumptions considered and defined.	Yes	Underground
Assurance	Exxaro internal audits and external audit.	Yes	Internal review 2023.
Economic evaluation	Exploitation study with economic and mining assumptions, including geotechnical and geohydrological assumptions.	Yes	LoM schedule revised to align with project dates (2023).
Environmental	Reasonable demonstration that environmental approvals can be obtained within the context of local, regional and national governmental legislation.	Yes	Current required approvals in place. An application for stooping was submitted and there is a reasonable expectation that the approval will not be withheld. Surface acquisitions for future stooping can be achieved based on the current acquisition strategy.
Tenure	Formal tenure must reasonably demonstrate that a mining right approval can be obtained within the context of local, regional and national governmental legislation.	Yes	The mining right expires in 2025. Application to renew is in progress and there is reasonable expectation that it will be renewed with no impediments noted.
Infrastructure	Assumptions used should be reasonable and within known or assumed tolerances or have examples of precedence.	Yes	Current infrastructure.
Market	A potential market for the product with a reasonable assumption that this market is sustainable.	Yes	Current coal supply agreement (CSA) in place until June 2024. Extension period and terms under negotiation. All considerations remain. Exxaro has reasonable expectation that the CSA will be renewed.

Reserve estimation

Table 36: Reserve estimation

Topic	Information
Software	Underground Coal Solution (UGCS)
Reserving process	Scheduling of the Coal Reserve is determined using mine scheduling applications from UGCS. The geological 3D model used for the Coal Reserve estimation is referred to as the Reserve 3D model. The Coal Resource model uses the full coal seam while the Reserve model only defines a select mining height. The process ensures the model represents reality regarding the technical capability of current production equipment. Resources are converted to Reserves where the Resource confidence, continuity and other factors (including economic, environmental, safety and social aspects) allow for the reasonable expectation of successful extraction. Reserves are converted using modifying factors which account for layout design and associated losses. The Reserves stated are subject to verification according to an approved fact pack which sets out the standards and considerations for all reserving and scheduling processes. This document is reviewed annually and vetted by all relevant stakeholders.
Conversion classification	At Matla, Indicated Resources are generally converted to Probable Reserves and Measured Resources to the Proved Reserve category, except if any modifying factors have not been (partly) fulfilled, where the Resource is either not converted or downgraded to the Probable Reserve category, clearly stating the outstanding requirement and risk.
Inferred Resources inside LoM	Some 5Mt of Inferred Resources are included in the LoMP, representing 3.2% of the LoMP, and are not considered material.
Modifying factors	
Average thickness cut-off	≤1.8m, low seam ≤2.1m, high seam ≤3.6m and ≥4.8m.

Table 36: Reserve estimation continued

Topic	Information
Quality cut-offs	DAFV ≤26% and minimum individual areas of 18.5Mj/kg AD CV are delineated in the geological model and used as exclusion zones for the mine plan. All areas of less than 17.0Mj/kg AR CV are excluded from the mine plan, unless required for development.
Mining loss	Already included in the model, based on specific geological conditions and mining restrictions.
Depth to roof	40m unless rock strength allows otherwise.
Safety factor	Main development >2.1, secondary panels >1.8 and tertiary panels >1.6.
Bord width	<7.5m
Barrier pillar	Main development 19m, secondary and tertiary panels 17m.
Pillar centres	Main development 24m, secondary panels 20m and tertiary panels 19m.
Boundary pillar	Main development 24m, secondary and tertiary panels 17m.
Mining height	Low seam ≤2.1m, high seam ≤3.6m and ≥4.8m.
Extraction factor	Low seam 58%, S2 48%, S4 50% and 100% for shortwall mining.
Dilution	Already included in the model.
Contamination	Low seam 2.1m plus 10cm roof cut. Other seams 7cm roof cut.
Practical plant yield	N/A
Strip ratio cut-off	N/A
Environmentally sensitive areas	Areas underlying wetlands and other eco-sensitive areas are excluded from Reserves. A higher safety factor is used underneath rivers and surface structures.
Legal	Reserves are downgraded from Proved to Probable where surface ownership is pending for stooping.
Social	Applicable communities considered.
Geohydrological	Applicable surface and groundwater models considered.

Table 37: Matla Coal Resources and Coal Reserves statement

Category	2023 (Mt)	2022 (Mt)	Difference in tonnes (Mt)	Difference (%)	Reason for change
Measured	634	657	(23)	(4)	The decrease is the result of depletion (10.1Mt), new information (4.3Mt) and sterilisation (9.2Mt).
Indicated	92	91	1.4	2	The increase is due to new information (1.1Mt).
Inferred	85	87	(2)	(3)	The decrease is the result of depletion (0.2Mt), new information (0.2Mt) and sterilisation (1.1Mt).
Total Coal Resources	810	835	(25)	(3)	
Proved	126	130	(4)	(3)	The decrease is mainly due to depletion (5.4Mt) and the update of the LoMP (1.1Mt). This was offset by upgraded Probable Reserves (2.1Mt).
Probable	31	38	(7)	(18)	The decrease is due to an upgrade of Probable Reserves (2.1Mt) and reconciliation (4.7Mt).
Total Coal Reserves	157	167	(10)	(6)	

- *Rounding of figures may cause computational discrepancies.*
- *Tonnages quoted in metric tonnes and million tonnes (Mt). Coal Resources quoted as MTIS.*

Exploration summary

Table 38 outlines the exploration for the reporting year. For detailed expenditure, please refer to Table 64.

Table 38: Matla exploration summary

Objectives	Progress in reporting year	Plans for next reporting year
Drill at low seam access areas and additional short-term information at Mine 3 S4 and Mine 2 S2.	As a result of the contractual and timely availability of service providers, only 18 of the planned 30 holes were completed. Better resource definition was achieved, ensuring coal continuity and coal quality information.	A new drilling tender is progressing well to ensure an additional three rigs to ramp up to 80 holes. The objective is to obtain samples for washability test work to support the Matla quality improvement study.

Risks

Table 39: Matla risks

Risk	Description	Mitigation
Limited pit room due to project execution delays	Approximately 85% of the current Reserves are within the delayed expansion projects. The delayed LoM expansion projects have resulted in limited pit room availability with the risk of having to mine in structurally complex and or low-quality coal areas.	Continuous investigations on accessing new mining areas that were previously excluded from the LoM either due to quality, structural complexity or geological confidence. Layouts optimised to achieve RoM blend of required product quality.
Geological structures	High-risk geological structures impact mining due to ground stability and the need to develop through these structures to access mineable Reserves. Structures include dolerite sills and dykes, faults and jointed ground within known shear zones.	Structure delineation is conducted through surface directional and underground horizontal drilling, targeting structures defined using geophysical interpretation. The resultant structural data informs the mine plan layout, orientation, roof and sidewall support during excavation.
Eskom purchasing of surface farms to commence with stooping	Stooping is a total extraction mining method that will have an impact on the surface farmland. Require ownership of farms where stooping is planned.	Eskom to purchase surface ownership of a list of farms as per CSA. Stooping ground below private land is reported as Probable Reserves.
Environmental authorisation for stooping	The environmental management plan for total extraction during stooping can commence when land ownership has been secured.	Eskom to purchase surface ownership of a list of farms as per CSA.
Economic	Eskom CSA expired in June 2023 and has been extended by one year. Terms of the extension are under negotiation between Exxaro and Eskom, which will define the outcome of the agreement at the end of the current extension. This risk carries implications for the mine contract extension as well as the potential change in product quality specification that will impact the current LoM assumptions.	There is reasonable expectation for the renewal of this contract. Ongoing projects for LoM expansion are in progress along with constant communication on the contractual way forward post-June 2024.
Tenure	Mining right expires in 2025.	The updated mine works programme is completed and under review, to be submitted in the first quarter of 2024 in line with the requirements from the director general. There is a reasonable expectation that the extension will be granted.

Other than the risks listed above, there are no known environmental, social, political and governance risks that could potentially impact the exploitation of the Coal Reserves.

Operational excellence

85% of Reserves are inaccessible due to project implementation delays, with full production scheduled for 2027. The delays in project completion have resulted in the requirement to identify additional mining areas through additional drilling and short-term interpretations to evaluate viability for short-term mining to safeguard production. The exploration targeted thicker coal seams at Mine 3 S2 low seam to reduce contamination and improve the overall quality mix. Geological and geotechnical studies were undertaken to improve the understanding of structurally complex conditions in previously unmineable areas in Mine 3 S4. A high resolution geological and rock engineering model was built to guide mining in the shortwall section. The success of these initiatives is evident in producing RoM that exceeded the 2023 budget, an outstanding achievement for Matla given the existing pit room constraints.

From the left: Mark Dimmick-Touw (Matla Resource Competent Person) and Thato Moabi (Matla Reserve Competent Person)

Grootegeluk

Grootegeluk overview

Mining commenced	1980
Type of mining	Opencast
Market	Domestic and export markets
Beneficiation	Four DMS beneficiation plants and two crushing and screening plants
Products	Various sized metallurgical coal products at 15% ash and 11.25% ash, semi-soft coking coal at 10.3% ash, as well as thermal coal at 33.2% ash
Year-on-year RoM	↓1% logistics constraints and reduced sales demand
Year-on-year product	↓7% reduced sales demand and fines handling
Exploration	41 drill holes were completed during the year
Year-on-year Resources	↓1% mainly as a result of depletion
Year-on-year Reserves	↓2% mainly as a result of depletion
Remaining LoM	18+ years (constraint by current tenure period)
Opportunities/operational excellence	Short-term modelling targeted at improving estimation and recoveries on bottom benches

Figure 9: Grootegeluk cross-section

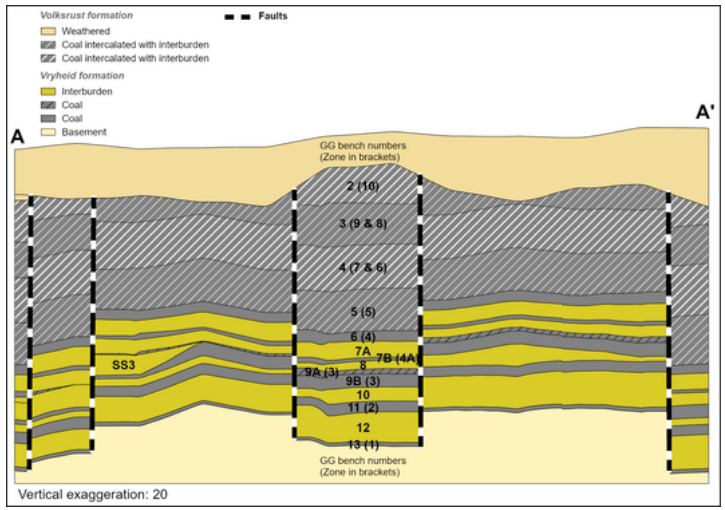
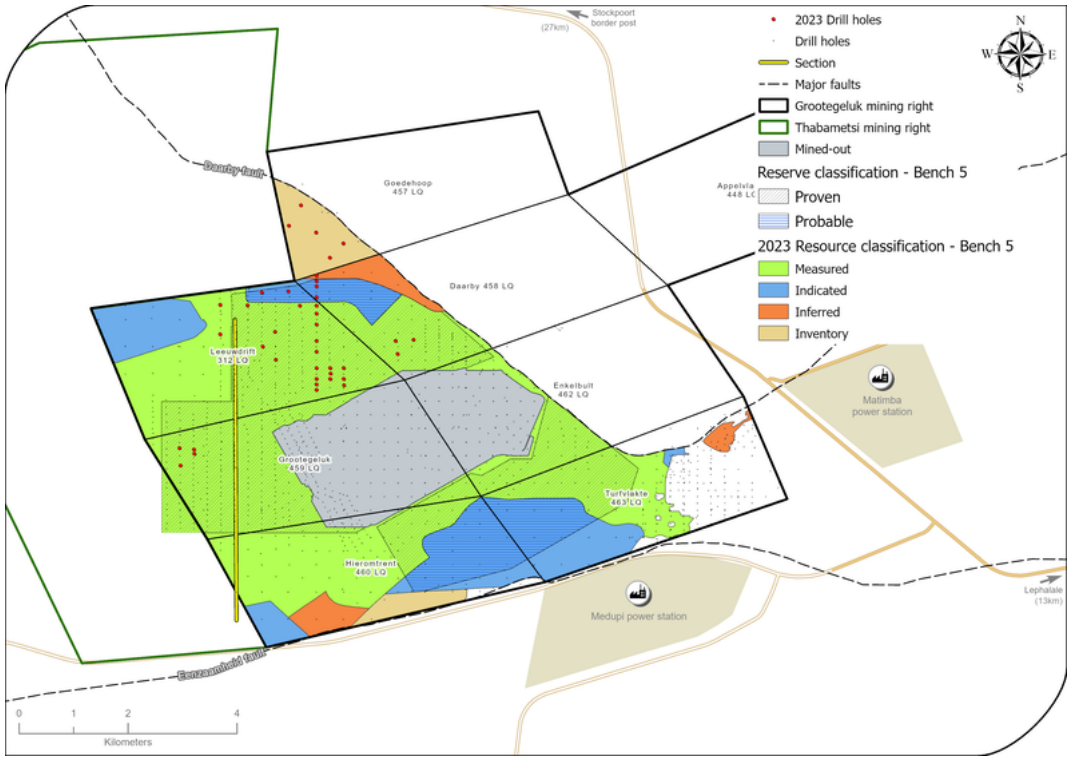


Figure 8: Grootegeluk mine



Grootegeluk is a mature mine that has been operating since 1980. Despite the poor performance from TFR and reduced sales compared to budget, Grootegeluk had good cost management and profit margins. With Medupi Unit 4 coming back online in Q4 2024, there are good prospects on increased coal offtake for 2024 onwards. PwC conducted an audit on the internal Resource and Reserve estimation process at Grootegeluk in 2023 with no major findings and one minor level 3 finding. The finding was addressed in the 2023 annual Resource and Reserve report. As mining progresses westwards, there is an increase in the complexity of geological structures and mitigation measures have been adopted to focus on geotechnical and geological controls. Grootegeluk is continuously seeking ways to improve extraction of Coal Reserves.

Table 40: Grootegeluk overview

Topic	Information	
Location	25km west of the town of Lephalale in Limpopo, South Africa	
History	**Previous ownership**	**Material notes**
1960s to 1980	Yskor – Iscor – Iscor mining – Kumba	Exploration drilling (~200 drill holes)
1980 to 2020	Kumba – Kumba coal – Exxaro Resources	Mine commissioned in 1980. Mine in operation for approximately 43 years. Continuous exploration drilling to increase Resource confidence and aid structural delineation and OVB classification (~1 480 drill holes).
2021 to 2022	Exxaro Resources	Pit layout shifted in 2021 according to the latest wings exploitation strategy. GG 6 plant commissioned in 2022. Ninety exploration drill holes completed.
2023	Exxaro Resources	Optimisation initiatives
Adjacent properties	The Thabametsi project, an Exxaro mining right, adjacent to the western boundary of the operation.	
Infrastructure	Grootegeluk can be reached from Lephalale via the hard-topped Nelson Mandela Drive which is linked to the R510 road connecting Lephalale to the town of Vaalwater to the south and the Stockpoort border post between South Africa and Botswana to the north. Power supply to the mine is obtained directly from Matimba power station via two 132kV lines that supply the mine's three 840MVA transformers. Raw water is delivered to the mine and to a water treatment plant on the farm in Zeeland by the 700mm diameter Hans Strijdom pipeline. The pipeline originates at the Mokolo Dam. Potable water from the Zeeland water treatment plant is in turn routed to the mine and local communities.	
Coalfield	Grootegeluk is located in the Waterberg coalfield and the coal seams are from the Volksrust and Vryheid formations.	
Main seams	The upper part of the coal deposit, the Volksrust Formation (approximately 60m thick) is classified as a thick interbedded seam deposit type, comprising intercalated mudstone or carbonaceous shale and bright coal layers. The Vryheid Formation (approximately 55m thick) forms the lower part of the coal deposit and comprises carbonaceous shale and sandstone with interbedded dull coal seams varying in thickness from 1.5m to 9m. It is therefore classified as a multiple-seam deposit type.	
Seam development	These coal seams are subdivided into 11 coal zones, further divided into separate coal and non-coal samples for analysis. A total of 77 samples are analysed per full succession drill hole. The Volksrust Formation consists of 30 coal samples and 30 non-coal samples whereas the Vryheid Formation consists of 13 coal samples and four non-coal samples.	
Depositional control	The Zoetfontein fault forms the boundary of the Waterberg coalfield in the north and the Eenzaamheid fault forms the boundary in the south. The Daarby fault, with a throw of some 350m, divides the coalfield into a deep north-eastern portion and a shallow south-western portion. On average, the first fresh coal in the shallow south-western portion is 20m below surface. The lowermost coal seam (Zone 1) occurs at a depth of about 130m in the shallow portion of the coalfield, but this may vary depending on the local structure. The predominantly horizontal coal-bearing formations have a very gentle dip to the south-east near Grootegeluk. Only a few dolerite dykes outcrop in the south-eastern portion of the Waterberg coalfield, and no sills have been encountered in any exploration drill holes drilled in the mining right area to date.	
Resources and Reserves	The Resource extent is restricted by the depositional controls discussed above. The Reserves are restricted within the Resource blocks. The reporting of LoM is limited to the lapse of the mining right, although Coal Reserves exist well beyond this date. A small area of Coal Resources is located within the adjacent Thabametsi mining right included in the Grootegeluk LoM (Figure 14) due to practical pit design considerations. Exxaro owns both rights.	
Mining method	Grootegeluk comprises one open-pit mine with three OVB benches, 10 RoM benches and four interburden benches. A series of parallel benches is advanced progressively across the deposit via drilling, blasting, loading and hauling with truck-and-shovel fleets. RoM is transported to the Grootegeluk beneficiation complex via haul trucks and in-pit crushing and conveying systems.	
Beneficiation	Grootegeluk uses six processing plants to beneficiate coal. This includes four DMS beneficiation plants and two crushing and screening plants.	
Product	Various sized metallurgical coal products at 15% ash and 11.25% ash, semi-soft coking coal at 10.3% ash and thermal coal at 33.2% ash are railed to various customers and shipped to international customers via an export harbour. A small portion of the total product is sold on site to smaller customers and dispatched by road.	
Market	Domestic and export markets.	
Mining right	Grootegeluk has an approved mining right that covers some 8 703.35ha.	
Environmental approvals	All environmental appeals have been favourably addressed for the declared Reserves.	
Projects/feasibility studies	There are no feasibility studies directly linked to Resources and Reserves or changes in the LoMP that are currently underway. There are, however, projects on the relocation of the in-pit crusher and a study on the efficient and effective management of the Grootegeluk trucks and shovels. Grootegeluk mine is a mature operation that is currently in steady-state production. The current installed capacity is sufficient to satisfy current and foreseeable demand. Despite this, optimising the use of the installed capacity is a continuous process that is assessed and adjusted as required.	

Resource estimation

Table 41: Resource estimation methodology and reporting

Process	Information
Drilling, logging and sampling	To have sufficient material available from each sample for the required suite of analyses to relative densities of 2.20g/m^3, large diameter: 123mm diameter rotary core drill holes. The large diameter drill holes are drilled in between the existing 500m x 500m grid of small diameter drill holes. This placement of large diameter drill holes was so the analysis of samples from the large diameter drill holes could be used to supplement the analysis of existing small diameter drill holes where samples and density fractions were absent. Sampling of drill holes is only conducted after the stratigraphy has been correlated. The geologist in charge supervises all drill hole drilling and is responsible for logging and sampling.
Laboratory and accreditation	Bureau Veritas, SANAS T0469.
Laboratory dispatch and receiving process	Each sample submitted to the laboratory is accompanied by a unique sample number for validation and tracking, as well as a submission list that serves as a sample advice sheet with instructions for analysis.
Laboratory QAQC	Audits are performed internally and externally as part of the QAQC. Bureau Veritas is accredited for analytical work and participates in monthly local and international round robins.
Data datum	WGS84 – LO27
Drill hole database	acQuire
Number of drill holes in mining right	1 617 (including Thabametsi mining right area)
Number of drill holes used for Resource estimation	1 341
Number of drill holes used for classification	581
Data compositing and weighting	Data compositing is conducted per seam using a weighted value from individual samples that make up the seam, along with each sample's relative density and length. This is conducted in acQuire.
Data validation	Conducted using queries in acQuire, Minex™ and Excel
Geological modelling software	GEOVIA Minex™
Estimation technique	Growth algorithm
Previous model date	2020
Last model update	2022
Grid mesh size	20m x 20m
Scan distance	1 000m
Data boundary	100m
Model build limits	Upper: limit of weathering and topography/collar Lower: Zone 1 floor The model extent is limited by the Daarby and Eenzaamheid faults
Model outputs	Roof, floor and thickness grids generated for structure Raw and wash quality grids
Changes to modelling process	None
Thickness cut-off and extraction height considerations	Opencast ≤0.5m
Quality cut-offs (adb)	≥65% ash Volksrust Formation coal, ≥50% ash Vryheid Formation coal
Geological loss applied	Variable per bench, calculated each year considering geological model estimation error and physical geological loss. 0.5 to 0.75% for Proved Reserves, 1 to 1.5% for Probable Reserves

Table 42: Resource classification criteria

Category	Type of drill holes	Drill hole spacing	Structurally complex areas	Drill holes/ ha
Measured	Cored drill holes with applicable coal qualities	0m to 500m	(Matrix) Additional geophysically logged drill holes needed	0.10
Indicated	Cored drill holes with applicable coal qualities	500m to 1 000m	(Matrix) Additional geophysically logged drill holes needed	0.05
Inferred	Cored drill holes with applicable coal qualities	1 000m to 3 000m	(Matrix) Additional geophysically logged drill holes needed	0.02

Table 43: RPEEE considerations

Item	Criteria	Criteria met	Comment
Geological data	Data has been validated and signed off by Competent Person.	Yes	Geological structures, seam thickness ≤0.5m, ash content ≥65% ash Volksrust Formation coal and ≥50% ash Vryheid Formation coal. Coal qualities reported on an adb.
Geological model	Geological model has been considered and signed off.	Yes	2022
Structural model	Structural model was considered and signed off.	Yes	2022
Mining	Mining assumptions were considered and defined.	Yes	Opencast
Assurance	Exxaro internal audits and an external audit were conducted.	Yes	Internal review on Resource processes and LoM in 2022, external process audit by PwC in 2023.
Economic evaluation	Conducted an exploitation study with economic and mining assumptions, including geotechnical and geohydrological assumptions.	Yes	Exploitation strategy over mining right.
Environmental	Reasonable demonstration that environmental approvals can be obtained within the context of local, regional and national governmental legislation.	Yes	All applicable approvals are in place.
Tenure	Formal tenure must reasonably demonstrate that a mining right approval can be obtained within the context of local, regional and national governmental legislation.	Yes	Mining right with no impediments is valid until 2041 and there is a reasonable expectation that the right will be renewed.
Infrastructure	Assumptions used should be reasonable and within known or assumed tolerances or have examples of precedence.	Yes	Existing infrastructure is adequate and can be upgraded with new required infrastructure under construction.
Market	A potential market for the product with a reasonable assumption that this market is sustainable.	Yes	Current CSAs for domestic and export markets.

Reserve estimation

Table 44: Reserve estimation

Topic	Information
Software	OCCS
Reserving process	Production scenarios are defined by scrutinising different market demand scenarios for product sales and evaluating estimated future installed production capacity. Ultimately, care is taken to select the most probable scenario to be scheduled as the LoMP. Once the RoM and product schedule are completed, a process is followed whereby the OVB and interburden scheduling is altered to obtain a "smoothed" year-on-year ex-pit profile to prevent erratic mining equipment requirements. The pit shell is designed from an economic and product quality perspective to ensure the longevity of the Grootegeluk operation.
Conversion classification	Indicated Resources are generally converted to Probable Reserves and Measured Resources to Proved Reserves after consideration of all applicable modifying factors. If one or more of the modifying factors have not been fulfilled, Measured Resources are either not converted or the Measured Resources are converted but downgraded to Probable and the associated risk is clearly stated. Inferred Resources are not converted to Coal Reserves.
Inferred Resources inside LoM	Some 73Mt of Inferred Resources are included in the LoMP, representing 2.9% of the LoMP, and are not considered material. The impact of the Inferred Resources is known with the majority occurring at the tail end of the LoMP and addressed by an integrated exploration plan that is reviewed every year.
	Modifying factors
Average thickness cut-off	≤0.5m
Quality cut-offs	≥65% ash content (raw in situ)
Mining loss	No loss applied as all mining boundaries are reached, and no pillars are left.
Boundary pillar	N/A
Dilution	Applied to in situ mineable Reserves due to the inter-layered composition of the deposit.
Contamination	Varies per bench: 0 to 0.75m applied to interburden seams.

Table 44: Reserve estimation continued

Topic	Information
Mining recovery efficiency	Varies per bench: 0 to 0.75m depending on bench height.
Planned average slope angles	<61.7 degrees
Practical plant yield	Considered in the reserving process as per wash table information per combination of blocks per planning increment and the empirically determined practical yield adjustment factor.
Strip ratio cut-off	Energy strip ratio >7GJ/ex-pit tonne. Kept at an average of 0.74 for the next five years as per FC9+3 2023.
Environmentally sensitive areas	Areas underlying wetlands and other eco-sensitive areas are excluded from the Reserves, distance as per environmental requirements.
Legal	The layout is within the mining right boundary and not closer than 15m.
Social	The pit layout has no known socially sensitive areas (for example, graveyards and dwellings).
Geohydrological	Areas identified are flagged and excluded or reclassified in the reserving process.

Table 45: Grootegeluk Coal Resources and Coal Reserves statement

Category	2023 (Mt)	2022 (Mt)	Difference in tonnes (Mt)	Difference (%)	Reason for change
Measured	2 978	3 039	(60)	(2)	Decrease is due to depletion (59Mt), disposal of bench 7B and bench 13 (1Mt) and sterilisation (2Mt). This was slightly offset by reconciliation (2Mt).
Indicated	967	967			
Inferred	178	178			
Total Coal Resources	**4 123**	**4 184**	(60)	(2)	
Proved	1 971	2 034	(63)	(3)	Depletion (58Mt) and mining recovery efficiency (6Mt), including weathering, undermining, faulting and construction of in-pit ramps, resulted in the decrease.
Probable	550	550			
Total Coal Reserves	**2 521**	**2 584**	(63)	(2)	

- *Rounding of figures may cause computational discrepancies.*
- *Tonnages quoted in metric tonnes and million tonnes (Mt). Coal Resources quoted as MTIS.*

Exploration summary

Table 46 outlines the exploration for the reporting year. For detailed expenditure, please refer to Table 64.

Table 46: Exploration summary

Objective	Progress in reporting year	Plans for the next reporting year
Geological and geotechnical OVB material characterisation, geotechnical characterisation of the coal benches, delineation of structures and resource classification	28 percussion holes drilled for OVB material classification and to aid fault delineation in structurally complex areas. Three rotary core triple tube drill holes drilled for geotechnical characterisation of the coal benches. 10 deep rotary core drill holes drilled to obtain samples for quality analysis and to aid in Resource classification.	Eight rotary core drill holes for Resource estimation and classification. 23 percussion drill holes for OVB classification and structural delineation. Three rotary core drill holes for geotechnical characterisation of the coal benches.

Risks

Table 47: Grootegeluk risks

Risk	Description	Mitigation
Economic	In recent years, logistical constraints caused by a shortage in the supply of trains from TFR have hampered the delivery of higher-value products from the mine. In addition, like any commodity, coal is subject to price fluctuation, which can have varying impacts on profitability.	The mine's primary product is power station coal, for which long-term supply agreements are in place with Eskom. Exxaro constantly monitors prevailing market conditions to ensure an optimal product mix that will ensure sustainability. Logistical challenges are addressed as a continuous effort to ensure product to market are realised.
Backfill construction material availability	Backfill infrastructure construction material availability (blue shale), which is due to increased OVB weathering as mining progresses west, poses a risk to both the efficiency and integrity of advancing pit infrastructure which is critical for GGC pit dynamics.	Bench 12 material mined during the construction of sumps is used to manage this risk. This will be the case for the sumps to be constructed in the next five years. Bench 10 material is also available for this purpose in areas where mining without contamination is practical. A borrow pit in the north pit is also included in the LoMP should the two mentioned mitigations not be sufficient to manage the risk.
Increase in sulphur content	Increase in the sulphur content of benches used to produce semi-soft coking coal (SSCC) and on the benches used for dry crush and screen power station coal production.	Blending the SSCC-producing benches and dry crush and screen benches is still the best solution for this risk. GG7 plant has the capacity to wash the coarse fraction where pyritic sulphur deports.
Faulting	The structure interpretation (fault position) in the geological model is based on drill hole information that is widespread in the Inferred category.	Additional percussion boreholes are drilled in structurally complex areas after they are covered by the normal cored exploration drill hole grid to finalise the position and characteristics of the faults, by geophysical logging of the drill holes. These additional drill holes assist in better understanding the potential impacts of the structures on operations to derive mitigating exploitation strategies.

Other than the risks listed above, there are no known environmental, social, political and governance risks that could potentially impact the exploitation of the Coal Reserves.

Operational excellence

Operational excellence initiatives focused on improving estimation confidence on the bottom benches to improve on coal recoveries. The initiatives included differential loss factor domaining, where different loss factors were applied to different mining areas within a bench. Using pre-split drill holes for in-pit Resource classification as an additional grade control tool was adopted to increase estimation confidence and subsequently led to high-precision loading. Grootegeluk continuously strives to improve efficiencies and optimise the available Coal Resources and Coal Reserves.

Stacker for discard backfill at Grootegeluk

Thabametsi

Thabametsi overview

Mining commenced	Project phase
Type of mining	Opencast
Market	Domestic
Beneficiation	No beneficiation
Products	Power station coal for an on-site IPP as part of phase 1
Year-on-year RoM	N/A
Year-on-year product	N/A
Exploration	No exploration conducted in 2023
Year-on-year Resources	No change
Year-on-year Reserves	No change
Remaining LoM	23 years
Opportunities/operational excellence	Grootegeluk is considering scenarios as to extract maximum value through an integrated approach for the Waterberg business.

Figure 10: Thabametsi resource

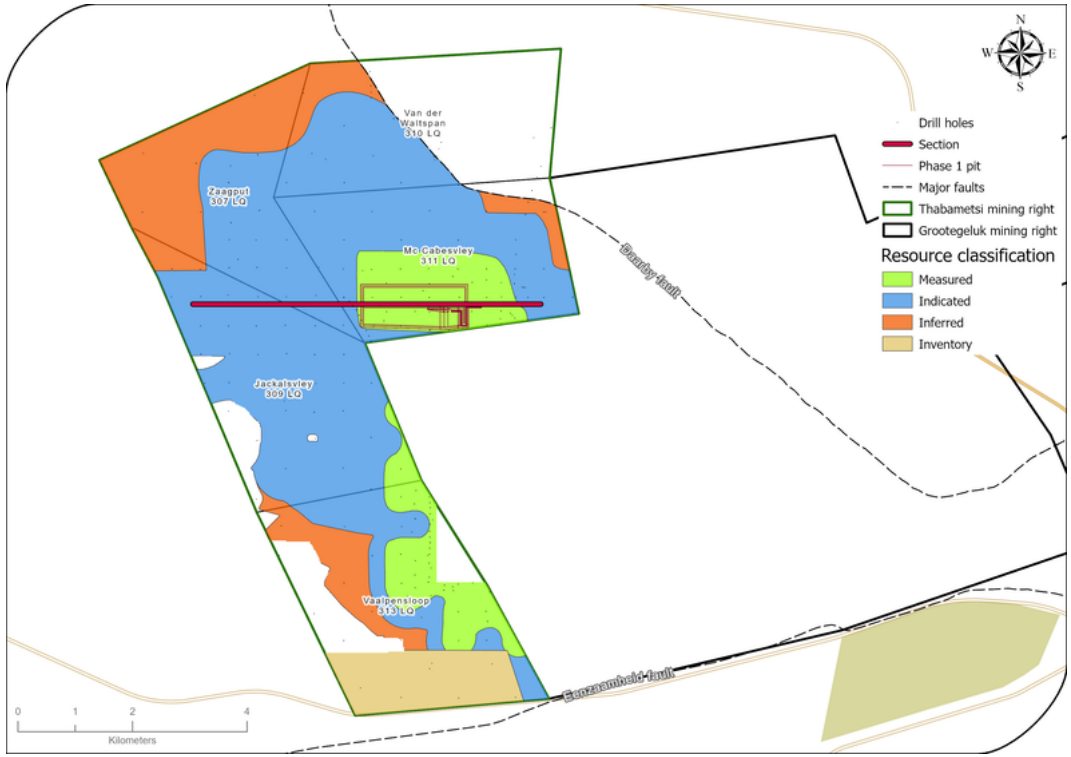
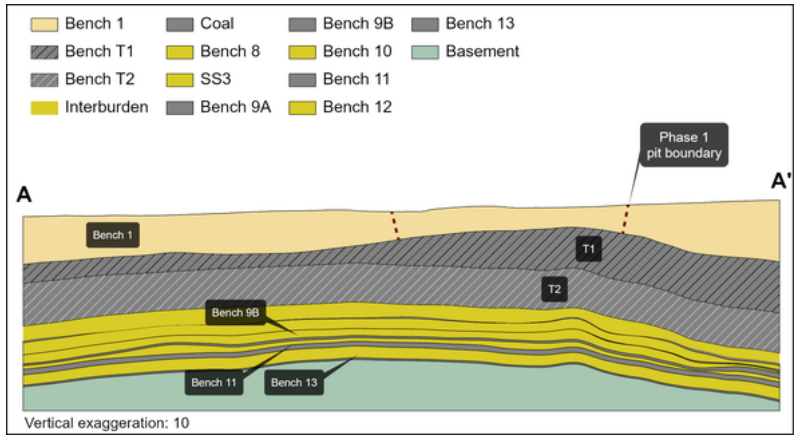


Figure 11: Thabametsi cross-section



Thabametsi is divided into a northern opencast portion and a southern underground portion. The northern opencast portion aims to produce power station coal for an on-site IPP, and the southern underground portion is earmarked for beneficiated high-value products. As outlined last year, we evaluated the potential of the Thabametsi mining right, a large Coal Resource next to the Grootegeluk coal mine, after the associated IPP project was cancelled. Exxaro has compiled a consolidation plan which will be submitted for approval at the applicable authorities.

Table 48: Thabametsi overview

Topic	Information	
Location	22km west of the town of Lephalale in Limpopo, South Africa	
History	**Previous ownership**	**Material notes**
1976 to 1988	Iscor – Iscor mining	Exploration drilling
1989 to 2006	Kumba	Exploration drilling
2007 to 2015	Exxaro Resources	Prospecting right and exploration activities
2016 to present	Exxaro Resources	Mining right registered in 2016, valid until 2046
Adjacent properties	Grootegeluk mine to the east	
Infrastructure	Thabametsi is adjacent to Grootegeluk and therefore uses the same infrastructure. It can be reached from Lephalale via the hard-topped Nelson Mandela Drive, which is linked to the R510 road connecting Lephalale to the town of Vaalwater to the south and the Stockpoort border post between South Africa and Botswana to the north. Power supply to Grootegeluk is obtained directly from the power station via two 132kV lines. Raw water is delivered to the mine and to a water treatment plant on the farm in Zeeland by the 700mm diameter Hans Strijdom pipeline. The pipeline originates at the Mokolo Dam in the Waterberg Mountain.	
Coalfield	Waterberg coalfield	
Main seams	The upper part of the coal deposit, the Volksrust Formation (approximately 60m thick), is classified as a thick interbedded seam deposit type, comprising intercalated mudstone or carbonaceous shale and bright coal layers. The Vryheid Formation (approximately 55m thick) forms the lower part of the coal deposit and comprises carbonaceous shale and sandstone with interbedded dull coal seams varying in thickness from 1.5m to 9m. It is therefore classified as a multiple-seam deposit type.	
Seam development	The geology is similar to Grootegeluk's, but practical mining practice required a different bench configuration. In the north, the full succession of the Volksrust and Vryheid formations are present. However, further south, the Volksrust Formation thins out and eventually disappears. A pertinent channel sandstone in the northern portion of the project area affects benches 9A and 9B.	
Depositional control	The Zoetfontein fault forms the boundary of the Waterberg coalfield in the north while the Eenzaamheid fault forms the boundary in the south. The Daarby fault, with a throw of some 350m, divides the coalfield into a deep north-eastern portion and a shallow south-western portion. On average, the first fresh coal in the shallow south-western portion is 20m below surface. The lowermost coal seam (Zone 1) occurs at a depth of about 130m in the shallow portion of the coalfield, but this may vary depending on the local structure. The predominantly horizontal coal-bearing formations have a very gentle dip to the south-east near Grootegeluk. Only a few dolerite dykes outcrop in the south-eastern portion of the Waterberg coalfield, and no sills have been encountered in any exploration drill holes drilled in the mining right area to date.	
Resources and Reserves	The Resource extent is restricted by the depositional controls discussed above. The Reserves are restricted within the Resource blocks.	
Mining method	The project area is divided into a northern opencast portion and a southern underground area.	
Beneficiation	N/A	
Product	The northern portion aims to produce power station coal for an on-site IPP as part of phase 1.	
Market	Domestic	
Mining right	Thabametsi has an approved mining right that covers some 5 455ha.	
Environmental approvals	All environmental appeals have been favourably addressed for the declared Reserves.	
Projects/feasibility studies	A feasibility study on phase 1 was successfully concluded in 2016, and studies on extending the phase and the southern project area are ongoing. In October 2016, the South African Minister of Mineral Resources and Energy announced that the Thabametsi power project, for which the Thabametsi project has a 30-year CSA, had been selected as a preferred bidder in the first bid window of South Africa's coal-baseload IPP procurement programme. The subsequent process to realise this initiative has progressed over the last few years. The project development agreement with our IPP project partner lapsed during the previous reporting year, and we subsequently changed our reporting of Proved Reserves to the Probable category to address this uncertainty. Exxaro is currently ensuring that all compliance actions are executed.	

Loading coal at Grootegeluk

Resource estimation

Table 49: Resource estimation methodology and reporting

Process	Information
Drilling, logging and sampling	Logging and sampling follow the same protocols as at Grootegeluk mine.
Laboratory and accreditation	Bureau Veritas, SANAS T0469.
Laboratory dispatch and receiving process	Sampling of drill holes is only conducted after the stratigraphy has been correlated. The geologist in charge supervises all drill hole drilling and is responsible for logging and sampling. Each sample submitted to the laboratory is accompanied by a unique sample number for validation and tracking, and a submission list that serves as a sample advice sheet with instructions for analysis.
Laboratory QAQC	The laboratory follows one of four standard suites of analysis for each sample from Grootegeluk, namely Volksrust Formation coal, Volksrust Formation shale, Vryheid Formation coal and Vryheid Formation shale. Emphasis is placed on ensuring data integrity through rigorous procedures and supervision while processing. Audits are performed internally and externally as part of the assurance and control process. Bureau Veritas is accredited for analytical work and participates in monthly local and international round robins.
Data datum	WGS84 – LO27
Drill hole database	acQuire
Number of drill holes in mining right	218
Number of drill holes used for Resource estimation	116
Number of drill holes used for classification	116
Data compositing and weighting	Coal analysis and beneficiation module in Sable Data Works Proprietary Limited
Data validation	Conducted using queries in acQuire, Minex™ and Excel
Geological modelling software	GEOVIA Minex™
Estimation technique	Growth algorithm
Previous model date	2014
Last model update	2015
Grid mesh size	45m x 45m
Scan distance	1 000m
Data boundary	300m
Model build limits	Upper: limit of weathering and topography/collar Lower: Zone 1 floor
Model outputs	Roof, floor and thickness grids generated for structure Raw and wash quality grids
Changes to modelling process	None
Thickness cut-off and extraction height considerations	Opencast ≤0.5m
Quality cut-offs (adb)	Ash ≥65%
Geological loss applied	Variable per bench based on the adjacent Grootegeluk methodology

Table 50: Resource classification criteria

Category	Type of drill holes	Drill hole spacing	Structurally complex areas	Drill holes/ ha
Measured	Cored drill holes with applicable coal qualities	0m to 350m	(Matrix) Additional geophysically logged drill holes needed	0.08
Indicated	Cored drill holes with applicable coal qualities	350m to 500m	(Matrix) Additional geophysically logged drill holes needed	0.04
Inferred	Cored drill holes with applicable coal qualities	500m to 1 000m	(Matrix) Additional geophysically logged drill holes needed	0.01

Table 51: RPEEE considerations

Item	Criteria	Criteria met	Comment
Geological data	Data has been validated and signed off by Competent Person.	Yes	Geological structures, seam thickness ≤0.5m, ash content ≥65%. Coal qualities reported on an adb.
Geological model	Geological model has been considered and signed off.	Yes	2015
Structural model	Structural model was considered and signed off.	Yes	2015
Mining	Mining assumptions were considered and defined.	Yes	Opencast and underground.
Assurance	Exxaro internal audits and an external audit were conducted.	Yes	2015
Economic evaluation	Exploitation study with economic and mining assumptions, including geotechnical and geohydrological assumptions.	Yes	Studies that underpin the IPP study and mining right mine works programme.
Environmental	Reasonable demonstration that environmental approvals can be obtained within the context of local, regional and national governmental legislation.	Yes	All environmental approvals and land ownership in place.
Tenure	Formal tenure must reasonably demonstrate that a mining right approval can be obtained within the context of local, regional and national governmental legislation.	Yes	Mining right expires in 2046 with no impediments noted. A proposal was submitted to the applicable authorities regarding a revised mine works programme.
Infrastructure	Assumptions used should be reasonable and within known or assumed tolerances or have examples of precedence.	Yes	Current infrastructure.
Market	A potential market for the product with a reasonable assumption that this market is sustainable.	Yes	IPP and current Grootegeluk steam coal market.

Reserve estimation

Table 52: Reserve estimation

Topic	Information
Software	XPAC
Reserving process	For phase 1 of the IPP feasibility study, XPAC mine scheduling software is used to derive remaining saleable Reserves from RoM Reserves in the approved pit layout. After converting the geological model's grids to the appropriate format, the floor, roof and thickness data and the quality data for each bench are imported into the XPAC model. With this model, validations are performed to evaluate the data for possible mistakes such as incremental yields for each bench rising with increases in relative float densities.
Conversion classification	Indicated Resources are generally converted to Probable Reserves and Measured Resources to Proved Reserves after consideration of all applicable modifying factors. If one or more of the modifying factors have not been fulfilled, Measured Resources are either not converted or are converted but downgraded to Probable and the associated risk is clearly stated. Inferred Resources are not converted to Coal Reserves. The Coal Reserves are based on a bankable feasibility project level of investigation. The project development agreement with our IPP project partner lapsed during the previous reporting year and we subsequently changed our reporting of Proved Reserves to the Probable category to address this uncertainty. Exxaro is currently ensuring that all compliance actions are executed.
Inferred Resources inside LoM	N/A
	Modifying factors
Average thickness cut-off	≤1m
Quality cut-offs	Raw CV ≤11Mj/kg
Mining loss	*T1 – 0.5m losses to OVB *T2 – 0.25% of coal left in pit bottom
Boundary pillar	N/A
Dilution	Applied to in situ mineable Reserves due to inter-layered composition of deposit.
Contamination	T2 – 0.3m
Mining recovery efficiency	No additional losses due to proposed mining method. Coal transfer between benches T1 and T2 will balance out over time as both go to the same plant.
Planned average slope angles	35 degrees
Practical plant yield	Crushing and screening process 98%

Table 52: Reserve estimation continued

Topic	Information
Strip ratio cut-off	Energy strip ratio >7Gj/ex-pit tonnes Strip ratio <0.3m3/t
Environmentally sensitive areas	No sensitive areas in the pit layout.
Legal	The layout is within the mining right boundary.
Social	The pit layout has no known socially sensitive areas (for example, graveyards and dwellings).
Geohydrological	No areas identified in the mining area.

* *T1 and T2 mining benches (Figure 17).*

Table 53: Thabametsi Coal Resources and Coal Reserves statement

Category	2023 (Mt)	2022 (Mt)	Difference in tonnes (Mt)	Difference (%)	Reason for change
Measured	270	270			
Indicated	749	749			
Inferred	2 857	2 857			
Total Coal Resources	**3 876**	**3 876**			No change
Proved					
Probable	130	130			
Total Coal Reserves	**130**	**130**			

- *Rounding of figures may cause computational discrepancies.*
- *Tonnages quoted in metric tonnes and million tonnes (Mt). Coal Resources quoted as MTIS.*

Exploration summary

Table 54 outlines the exploration for the reporting year. For detailed expenditure, please refer to Table 64.

Table 54: Exploration summary

Objectives	Progress in reporting year	Plans for next reporting year
	No drilling.	Desktop studies to further optimise extraction alternatives.

Risks

Table 55: Thabametsi risks

Risk	Description	Mitigation
Market	The project development agreement with our IPP project partner lapsed.	Exxaro concluded the evaluation of the potential of the Thabametsi mining right. We compiled a consolidation plan which will be submitted to the applicable authorities for approval. We have a reasonable expectation that the consolidation plan will be accepted and implemented.

Other than the risks listed above, there are no known environmental, social, political and governance risks that could potentially impact the exploitation of the Coal Reserves.

Operational excellence

Grootegeluk is considering scenarios to extract maximum value through an integrated approach for the Waterberg business.

Mafube

Mafube overview

Mining commenced	2018 (Nooitgedacht)
Type of mining	Opencast
Market	Export
Beneficiation	Two-stage DMS plant
Products	CV 4 600kcal/kg and 5 800kcal/kg net as received
Year-on-year RoM	↓12% mining ceased in Patattafontein as a result of competing mining right applications, altering the LoM schedule to resume mining once resolved
Year-on-year product	↓10% impacted by the change in RoM schedule
Exploration	182 drill holes focused on increasing geological confidence
Year-on-year Resources	No change, mainly due to new information offsetting mining depletion
Year-on-year Reserves	↓6% as a result of production and excluded area based on environmental considerations
Remaining LoM	20 years
Opportunities/operational excellence	Due diligence on S4 exploitation strategy planned for 2024

Figure 12: Mafube mine

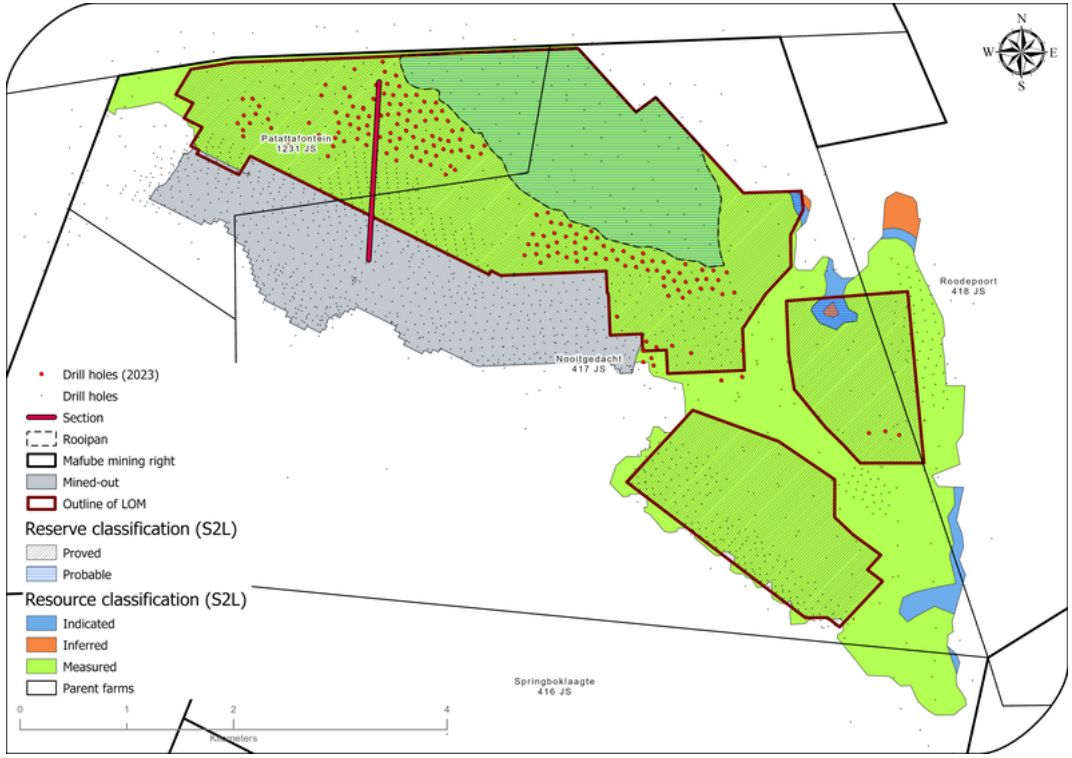
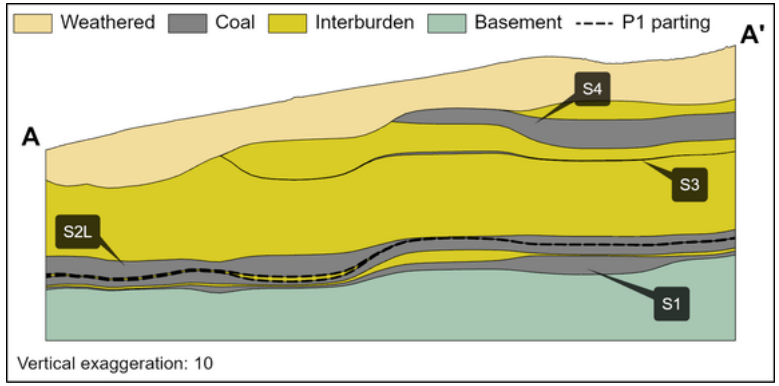


Figure 13: Mafube west-east cross-section



50%
attributable to Exxaro

Table 56: Mafube overview

Topic	Information	
Location	30km east of the town of Middelburg in Mpumalanga, South Africa	
History	**Previous ownership**	**Material notes**
1950 to 2017	Anglo American Coal	Coal Resource delineation drilling (~900 drill holes).
2017 to 2021	Mafube Coal	Coal Resource delineation drilling and five-year mine plan infill drilling (731 drill holes). Mining ceased at Springboklaagte in 2018 and commenced at Nooitgedacht the same year.
2022 to present	Thungela	Resource definition drilling to support and derisk the mine plan (~370 drill holes).
Adjacent properties	Most of the properties next to Mafube are owned by the Glencore Operations South Africa Proprietary Limited (Glencore) – Phembani Group's Umcebo Holdings Mining Proprietary Limited (Umcebo). Other nearby owners of coal rights are Arnot Colliery (now owned by the Arnot OpCo consortium, consisting of former Arnot Colliery employees, communities and Wescoal Holdings Limited); Nucoal Mining (ground to the west of Mafube); Sumo Colliery Proprietary Limited and Optimum Colliery.	
Infrastructure	The mine is accessible by tarred regional roads leading off the N4 national road, and a railway line traverses the property in the north, connecting the rail load-out terminal with the Richards Bay Coal Terminal. Eskom supplies direct bulk power at two points: the main consumer substation adjacent to the coal processing plant and the Overland Conveyor No 3 substation. Potable water is sourced on site per the IWUL specification from three authorised production drill holes at Springboklaagte and one at Nooitgedacht.	
Coalfield	Mafube mine is situated near the northern edge of the Witbank coalfield. The coalfield extends about 190km east-west between Springs and Belfast, and about 60km in a north-south direction between Middelburg and Ermelo. The Witbank coalfield has up to five coal seams in the middle Ecca group sediments of the Karoo supergroup. The Karoo sequence in the area is represented by the Dwyka formation and the middle Ecca with little or no lower Ecca development. The middle Ecca sequence of coal horizons, interbedded with sediments, is highly truncated due to erosion. Only four of the five main coal seams occur within Mafube, and S5 has been eroded.	
Main seams	S4, S2L and S1.	
Seam development	S4 is confined to the deeper parts (north-west) of the mining area, and S3 is thin and of no current economic significance. An upper sub-seam, designated S2 upper (S2U), is sometimes present. The S2U and S2 lower (S2L) are separated by a thin but distinctive parting (designated S2 parting (P2) with an average thickness of 0.25m). The S2U is fairly thin and consists of poorer quality coal; it is therefore not economic. S2L is the main economic seam with an average thickness of 4.91m. The quality is variable due to interbedded bright and dull coal plies with some shale and carbonaceous shale, mudstone and occasional sandstone bands. S1 is thin (average thickness of 0.75m) and continuous throughout the Mafube area. It lies approximately 0.5m below the S2L. Two minor seams occasionally occur below S1 (designated S1L and S1LL). They are, however, of no economic significance.	
Depositional control	Due to the mine's proximity to the northern edge of the Witbank basin, the primary control of coal development is surface topography and the pre-Karoo basement floor. Despite aeromagnetic tentatively identifying some north-south trending lineaments, there is minor influence from geological faulting, thrusting and intrusions within the Mafube area. These aeromagnetic structures have not been confirmed by subsequent drilling. There are no known major geological structures that may affect the geology or coal seam continuity.	
Resources and Reserves	Resources occur within most of the mining right and are limited by the boundary and the limit of weathering (coal sub-crop), whereas the Reserves are limited by the mining economics aligned with the existing LoMP strategy.	
Mining method	The extraction of coal is based on the opencast mining method. Six opencast pits have been identified as per the LoM. Four to five will operate concurrently.	
Beneficiation	Thermal coal is beneficiated in a two-stage DMS plant.	
Product	CV 4 600kcal/kg and 5 800kcal/kg net as received.	
Market	Export market.	
Mining right	Mafube has two granted and executed new order mining rights that cover 10 933ha in total. We are addressing competing applications.	
Environmental approvals	All environmental approvals and authorisations are in place for the declared Reserves with the exception of the Rooipan Reserves which are reported as Probable pending the approval of the IWUL and environmental authorisations.	
Projects/feasibility studies	The debottlenecking project, which aims to enable an RoM production ramp-up to 7Mt per annum, is currently on hold pending Rooipan IWUL approval.	

Resource estimation

Table 57: Resource estimation methodology and reporting

Process	Information
Drilling, logging and sampling	Mafube has typically used conventional core drilling (diamond drilling) for most of the holes drilled. This produces a 63.5mm diameter solid core for logging and sampling. Full core is usually produced once competent strata have been intersected. Open-hole drilling techniques are employed for the near-surface OVB material (usually by-products of current day weathering). The core is measured, any core loss is identified and recorded, and important geological units are marked off before logging commences. The core is logged by the field geologist responsible for Mafube exploration drilling. Core logging data is recorded manually on the borehole coding sheets ("logging sheets") using a logical letter coding system ("Dictionary of Codes"). This data is then captured into Excel and imported into the acQuire database where standard QAQC routines ensure the correctness of the data. Since 2019, most vertical surface drill holes have been wireline logged for the purpose of enhanced seam roof and floor mapping to delineate areas of seam floor rolls, seam thinning, seam thickening and seam pinching. Photographs of the core are taken after marking the core. Geological information is captured on log sheets with lithology captured up to centimetre details. Sampling is conducted on site with the aid of wireline logs as per Mafube sampling standard.
Laboratory and accreditation	Bureau Veritas Inspectorate Laboratories Proprietary Limited and SANAS T0313.
Laboratory dispatch and receiving process	All samples collected and bagged are registered in a sample control sheet and the sample advice sheet. Once the samples are entered onto the sample control sheet , sample request forms are generated which keep record of samples requested and sent to the laboratory. On receiving the samples, the laboratory personnel ensure that the number and sample identity on the sample request forms match the samples to be analysed. The laboratory personnel then sign the sample request forms in duplicates with one copy remaining at the lab and the other filed by the exploration geologist at the mine.
Laboratory QAQC	Emphasis is placed on ensuring data integrity through rigorous procedures and supervision while processing. Audits are performed internally and externally as part of the assurance and control process. Bureau Veritas is accredited for analytical work and participates in monthly local and international round robins.
Data datum	WGS 84 – LO29
Drill hole database	acQuire
Number of drill holes in mining right	1 836
Number of drill holes used for Resource estimation	1 342
Number of drill holes used for classification	S1 – 552 S2L – 1 836 S4 – 126
Data compositing and weighting	Data compositing is conducted per seam using a weighted value from individual samples that make up the seam, along with each sample's relative density and length. This is conducted in GEOVIA Minex™.
Data validation	Conducted using queries in acQuire and Excel
Geological modelling software	GEOVIA Minex™
Estimation technique	Growth algorithm
Previous model date	2020
Last model update	2023
Grid mesh size	25m x 25m
Scan distance	2 000m
Data boundary	200m
Model build limits	Upper: limit of weathering and topography/collar Lower: basement/Dwyka
Model outputs	Roof, floor and thickness grids generated for structure Raw and wash quality grids
Changes to modelling process	None
Thickness cut-off and extraction height considerations	S1 ≤0.8m, S2L ≤1.0m, S4 ≤1.0m
Quality cut-offs (adb)	Ash ≥50%
Geological loss applied	Sub-outcrop/Inferred – 30% Indicated – 12% Measured – 10%

Table 58: Resource classification criteria

Category	Type of drill holes	Drill hole spacing	Structurally complex areas	Drill holes/ ha
Measured	Cored drill holes with applicable coal qualities	0m to 350m	Geoloss domains of 10%	0.08
Indicated	Cored drill holes with applicable coal qualities	350m to 500m	Geoloss domains of 12%	0.04
Inferred	Cored drill holes with applicable coal qualities	500m to 1 000m	Geoloss domains of 30%	0.01

Table 59: RPEEE considerations

Item	Criteria	Criteria met	Comment
Geological data	Data has been validated and signed off by Competent Person.	Yes	Geological structures and depositional extent are considered, as well as seam thickness, with coal qualities reported on an adb.
Geological model	Geological model has been considered and signed off.	Yes	
Structural model	Structural model was considered and signed off.	Yes	2023
Mining	Mining assumptions considered and defined.	Yes	Opencast
Assurance	Exxaro internal audits and an external audit conducted.	Yes	External independent review by SRK in 2020.
Economic evaluation	Exploitation study with economic and mining assumptions, including geotechnical and geohydrological assumptions.	Yes	Mafube early value exploitation strategy and debottleneck project.
Environmental	Reasonable demonstration that environmental approvals can be obtained within the context of local, regional and national governmental legislation.	Yes	Environmental management plan, IWUL and NEMA licences in place and compliant. Application for authorisation in terms of the NEMWA or in terms of NEMA for the mining of Pan 11 (Rooipan) has been prepared and submitted. The submission was made after the completion of the required technical specialist studies. Final EIR/EMPr was submitted on 30 October 2023 to the Department of Mineral Resources and Energy (DMRE) and on 20 November 2023 to the DWS. Reports are under review for approval. The addition of the designs for the new water uses (PCD) necessitated withdrawal and relaunching in the eWULAAS to amend water uses. Approval from the DWS moved to the third quarter of 2024.
Tenure	Formal tenure must reasonably demonstrate that a mining right approval can be obtained within the context of local, regional and national governmental legislation.	Yes	Tenure is secured. Surface right ownership is secured for current LoM.
Infrastructure	Assumptions used should be reasonable and within known or assumed tolerances or have examples of precedence.	Yes	Existing infrastructure is adequate or can be upgraded with new required infrastructure under construction.
Market	Potential market for the product with a reasonable assumption that this market is sustainable.	Yes	Both primary and middlings products are sold to joint venture partners for their individual export markets.

Reserve estimation

Table 60: Reserve estimation

Topic	Information
Software	OCCS
Reserving process	Scheduling of the Reserve is determined using a mining scheduling application (Scheduler) from OCCS, which is the same software used to develop the LoMP schedule. The geological model is supplied to mining, project and technology in the form of Minex™ grids. The grids are then imported into a reserving application (Reserver) from the same OCCS software. This application validates the geological information received by checking the integrity of the geological structure and its quality, ensures wash table values are consistent, and converts the geological 3D model into mineable block sizes.
Conversion classification	Indicated Resources are generally converted to Probable Reserves and Measured Resources to Proved Reserves after consideration of all applicable modifying factors. If one or more of the modifying factors have not been fulfilled, the Measured Resource is either not converted, or the Measured Resource is converted but downgraded to Probable (as is the case with Rooipan) and the associated risk is clearly stated. Inferred Resources are not converted to Coal Reserves.

Table 60: Reserve estimation continued

Topic	Information
Inferred Resources inside LoM	Some 0.2Mt of Inferred Resources are included in the LoMP, representing 0.2% of the LoMP, and are not considered material.
	Modifying factors
Average thickness cut-off	S1 cut-off of 0.8m, S2L cut-off of 1.0m, S4 cut-off of 1.0m
Quality cut-offs	Ash <50% cut-off VM >17% cut-off
Mining loss	10% mining loss is subtracted from the mineable Resource to calculate the uncontaminated RoM.
Boundary pillar	N/A
Dilution	Already included in geological model
Contamination	0.1m
Mining recovery efficiency	100% (already accounted in mining loss)
Planned average slope angles	90 degrees on hards and 45 degrees on softs
Practical plant yield	Considered in the reserving process
Strip ratio cut-off	Considered in the reserving process using the economic model, developed during the exploitation strategy, to get mining boundaries
Environmentally sensitive areas	100m boundary
Legal	Applicable mining right considered as well as competing applications
Social	Applicable communities considered
Geohydrological	Applicable surface and groundwater models considered

Table 61: Mafube Coal Resources and Coal Reserves statement

Category	2023 (Mt)	2022 (Mt)	Difference in tonnes (Mt)	Difference (%)	Reason for change
Measured	141.0	125.0	16.0	13	Mining depletion (4.8Mt) and sterilisation of Resources (1.8Mt) was greatly offset by new information (22.6Mt).
Indicated	2.2	16.3	(14.1)	(87)	The decrease is due to new information (15.1Mt) offset by reconciliation (1.0Mt).
Inferred	0.6	2.5	(1.9)	(76)	The decrease is the result of new information (1.9Mt).
Total Coal Resources	**143.8**	**143.8**	(11.8)	(9)	
Proved	82.6	80.6	2.0	2	The decrease due to depletion (4.8Mt) and sterilisation (4.6Mt) was offset by new information (4.0Mt) and an upgrade from Probable Reserves (7.4Mt).
Probable	32.0	40.8	(8.8)	(22)	The decrease is the result of new information (7.4Mt) and sterilisation (~1.3Mt).
Total Coal Reserves	**114.7**	**121.4**	(6.7)	(6)	

- *Rounding of figures may cause computational discrepancies.*
- *Tonnages quoted in metric tonnes and million tonnes (Mt). Coal Resources quoted as MTIS.*

Exploration summary

Table 62 outlines the exploration for the reporting year. For detailed expenditure, refer to Table 64.

Table 62: Exploration summary

Objectives	Progress in reporting year	Plans for next reporting year
The 2023 exploration programme was primarily directed at acquiring Resource confidence, enhancing geological modelling and quality estimation as well as infill drilling for the five-year LoMP.	170 of the planned 182 holes were completed in the reporting year. 12 additional holes were drilled in the new MGG box cut area. Exploration results overall confirmed the continuity of the coal seams.	182 drill holes are planned as infill drilling.

Risks

Table 63: Mafube risks

Risk	Description	Mitigation
Environmental	Environmental approval for Rooipan	Application for authorisations in terms of the NEMWA or in terms of NEMA for the mining of Pan 11 (Rooipan) has been submitted. The submission was made after the completion of the required technical studies. Final EIR/EMPr was submitted on 30 October 2023 to DMRE and to DWS on 20 November 2023. Reports are under review for approval. The addition of the designs for the new water uses (PCD) necessitated withdrawal and relaunching in the eWULAAS to amend water uses. Approval from DWS moved to the third quarter of 2024. We have reasonable expectation that the approvals will not be withheld.
Social	Failure to reach consensus on grave relocation within the Coal Resource area	Extensive engagement was undertaken with affected parties during grave relocation negotiations. SAHRA permit has been received.
Competing applications	Competing coal prospecting right application over Patattafontein	Mafube Proprietary Limited has recently been notified of a legal challenge in respect of the historic sub-division of portion 1 of the farm Patattafontein 412 JS, which, if not resolved, may have a non-material impact on the Reserve basis and mine planning.

Other than the risks listed above, there are no known environmental, social, political and governance risks that could potentially impact the exploitation of the Coal Reserves.

Operational excellence

Mafube Colliery positions itself as the benchmark operation for its shareholders. It prioritises employee safety, and its stakeholder management enables strong relationships with surrounding communities and its environment. Its operational excellence strategy applies the theory of constraints as the operating philosophy to optimise business performance and ensure profitability for shareholders.

Automated dozing in action at Mafube. From the left: Sheperd Nkadimeng (general manager), Mogodi Mahapa (mining manager) and seated Ernest Sibanyoni (training officer)

Exploration expenditure

Table 64: Exploration expenditure

Project or mining operation	2022 actual		2023 actual				2024 planning[1]	
	Number of drill holes	Total cost (Rm)	Number of drill holes	Drilling cost (Rm)	Analysis and other costs (Rm)	Total cost (Rm)	Number of drill holes	Total cost (Rm)[2]
Grootegeluk	72	12.6	41	7.5	10.4	17.9	34	23.5
Matla[3]	76	20.4	18	13.4	0.3	13.7	80	28.9
Belfast	None		None				51	1.4
Leeuwpan	11	0.6	None				15	1.0
Thabametsi project[4]	18	3.0	None			0.5		0.2
Other (projects not reported on)								
Total	177	36.6	59	20.9	10.7	32.1	180	55.0
Moranbah South project (not under operational control)[5]	4	A$9.85m	10	A$4.023m	A$3.97m	A$8.0m	9	A$5.0m
Mafube (not under operational control)	191	11.2	182	8.7	3.8	12.5	163	14.1

[1] *Non-committed.*
[2] *Includes all associated exploration costs such as drilling, geophysics surveys and geotechnical, hydrogeological and metallurgical test work. Excludes personnel costs.*
[3] *2023 cost includes horizontal drilling.*
[4] *Includes Resource studies.*
[5] *Total cost includes the commencement of 33km^2 3D seismic in 2023. This completion and three water monitoring holes are planned for 2024.*

Exploration results are outlined in the Ancillary section within the discussions of the individual operations. We did not conduct exploration in areas not included in the Coal Resource statement. Exploration plans are available on request from the group company secretary.

Buffer silo between Mine 1 and Matla power station

Endorsement

The Exxaro executive management team appoints the lead Competent Persons.

The Exxaro lead Coal Resource Competent Person is Henk Lingenfelder, who is a member of the Geological Society of South Africa and registered (400038/11) with the SACNASP. He has a BSc (Geology) (Hons) and 28 years of experience as a geologist in coal, iron ore and industrial minerals.

The person in Exxaro designated to take corporate responsibility for Coal Resources, Henk Lingenfelder, the undersigned, has reviewed and endorsed the reported estimates.

Henk Lingenfelder

BSc (Geology) (Hons)
PrSciNat (400038/11)
Group manager: MAM
263B West Avenue, Die Hoewes
Centurion 0163
South Africa

South African Council for Natural Scientific Professions

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Silverton
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Gauteng
South Africa

The Exxaro lead Coal Reserve Competent Person is Chris Ballot, a mining engineer registered (20060040) with the Engineering Council of South Africa. He has 27 years of experience in various technical and management roles in iron ore, mineral sands and coal. His qualifications include BEng (Mining), GDE and MBA.

The person in Exxaro designated to take corporate responsibility for Coal Reserves, Chris Ballot, the undersigned, has reviewed and endorsed the reported estimates.

Chris Ballot

BEng (Mining)
ECSA 20060040
Group manager: mining
263B West Avenue, Die Hoewes
Centurion
0163
South Africa

Engineering Council of South Africa

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Bruma
2026
Gauteng
South Africa

Both parties are permanently employed by Exxaro: Henk Lingenfelder as the group manager: MAM and Chris Ballot as the group manager: mining. Both parties consented to the inclusion of the Resource and Reserve estimates in the 2023 integrated report. Exxaro has written confirmation from the Competent Persons that the reporting complies with the SAMREC Code, the relevant portions of Table 1 and the JSE Listings Requirements (section 12.13), in the form and context in which it was intended (in line with the JSE Listings Requirements section 12.13(i)(6)), and that they consent to the publication of the report.

Abbreviations

adb	Air-dried basis
Ag	Silver
BC	Bottom coal
BLTO	Belfast licence to operate
BMM	Black Mountain Mining
CSA	Coal supply agreement
C&S	Crush and stack
Cu	Copper
CV	Calorific value
DMRE	Department of Mineral Resources and Energy
DMS	Dense medium separation
DWS	Department of Water and Sanitation
ECSA	Engineering Council of South Africa
ESG	Environmental, social and governance
ha	Hectare
IM	Inherent moisture
IPP	Independent power producer
IWUL	Integrated water use licence
JORC Code	Australasian Code for Reporting of Exploration Results, Mineral Resources and Mineral Ore Reserves, 2012
JSE	JSE Limited (founded in 1887 as the Johannesburg Stock Exchange)
kcal/kg	Kilocalories per kilogram
LoAP	Life of asset plan
LoM	Life of mine
LoMP	Life of mine plan
MJ/kg	Megajoules per kilogram
Mn	Manganese
MRM	Mineral Resource Management
MTIS	Mineable tonnes in situ
Mt/Mtpa	Million tonnes/per annum
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
NEMWA	National Environmental Management: Waste Act, 2008 (Act 59 of 2008)
OC	Opencast mining method
OCCS	Open Cut Coal Solution (mine scheduling software)
OVB	Overburden
Pb	Lead
QAQC	Quality assurance and quality control
RODA	Risk and opportunity domain analysis
RoM	Run of mine
RPEEE	Reasonable prospects for eventual economic extraction
S	Sulphur
SACNASP	South African Council for Natural Scientific Professions
SAMREC	South African Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves, 2016
SANS	South African National Standard
SSCC	Semi-soft coking coal
TC	Top coal
TFR	Transnet Freight Rail
UG	Underground mining method
UGCS	Underground Coal Solution (mine scheduling software)
VM	Volatile matter
Zn	Zinc

Appendix

Table 65: Shareholding and tenure of reported Mineral Resources and Mineral Reserves

Tenure information						
Complex	**UG/OC**	**Name of right**	**Type**	**Status**	**Expiry date**	**Impediments**
Matla	Matla (UG)	Matla (327MR*)	Mining right	Executed	4 March 2025	
Leeuwpan	Leeuwpan (OC)	Leeuwpan (157MR)	Mining right	Registered	31 May 2039	
		Leeuwpan Ext (171MR)	Mining right	Registered	31 May 2039	
Mafube	Mafube (OC)	Mafube (172MR)	Mining right	Registered	30 July 2030	
		Nooitgedacht (10026MR)	Mining right	Registered	13 November 2043	
Belfast	Belfast (OC)	Belfast (431MR)	Mining right	Registered	20 February 2043	
Grootegeluk	Grootegeluk (OC)	Grootegeluk (46MR)	Mining right	Registered	13 February 2041	
Thabametsi	Thabametsi (UG and OC)	Thabametsi (10013MR)	Mining right	Registered	20 May 2046	
Australian region	Moranbah South (OC and UG)	MDL277 and 377	Mineral development licences	Granted	31 July 2026 and 30 September 2023	
		EPC548	Exploration permit	Granted	20 February 2027	
Base metals	Deeps and Swartberg (zinc, lead, copper and silver)		Converted right	Executed	30 September 2038	
	Gamsberg North and Gamsberg East prospecting (zinc)		Converted right	Executed	18 August 2038	
Iron ore	Kolomela		Converted right	Registered (amendments registered)	17 September 2038	
	Sishen mine		Converted right	Registered (amendments registered)	10 November 2039	

* *Mining right.*

Table 66: Coal production figures (Mt)

Operation	**Product**	2022	**2023**	2024 forecast	2025 forecast
Grootegeluk	Thermal coal	27.9	26.1	26.1	26.7
Grootegeluk	Metallurgical coal	2.0	2.5	2.47	3.0
Matla	Thermal coal	6.2	6.0	5.02	6.2
Leeuwpan	Thermal coal	2.6	3.2	2.35	4.4
Belfast	Thermal coal	2.4	2.9	3.33	3.6
Mafube (buy-ins from joint venture)	Thermal coal	2.1	1.6	1.83	2.0

Administration

Group company secretary and registered office

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Absa Sandton North
15 Alice Lane
Sandton
2196
Telephone: +27 11 895 6000

Joint equity sponsor

Tamela Holdings Proprietary Limited
Ground Floor
Golden Oak House
Ballyoaks Office Park
35 Ballyclare Drive
Bryanston
2021
Telephone: +27 11 783 5027/4907

Company registration number

2000/011076/06
JSE share code: EXX
ISIN code: ZAE000084992
ADR code: EXXAY
Bond code: EXX005
ISIN number: ZAG000160334

Independent external auditor

For the financial year ended 31 December 2023
KPMG Inc
85 Empire Road
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2193
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2123
Telephone: +27 11 647 7111

Commercial banker

Absa Bank Limited

Corporate law adviser

Inlexso Proprietary Limited
Building 3 Summit Place
221 Garsfontein Road
Menlyn
Pretoria
0181
Telephone: +27 12 942 5555

Transfer secretaries

JSE Investor Services Proprietary Limited
One Exchange Square
Gwen Lane
Sandown
Sandton
2196
PO Box 4844
Johannesburg
2000
Telephone: 086 154 6572 or 011 713 0800

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Sb
13 26.982
Al
29 63.546
Cu
Copper
Al2O3
Bauxite
Zr
15 30.974
P
Phosphorus
27
Co
Cobalt
58.933
25 54.938
Mn
Manganese
Pt
Platinum
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