Exxaro Resources Limited Consolidated Mineral Resources and Mineral Reserves report

2022

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 is aligned with section 12.13 of the JSE Listings Requirements and 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:

Malusi Buthelezi

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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 2022, 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

14 April 2023

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, who is a member of the Geological Society of South Africa (GSSA) and professionally registered with the South African Council for Natural Scientific Professions (SACNASP). He has a BSc (Geology) (Hons) and 27 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: geosciences

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 26 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 in the full-time employment of Exxaro; Henk Lingenfelder as the group manager: geosciences and Chris Ballot as the group manager: mining. Both parties consented to the inclusion of the Resource and Reserve estimates in the 2022 integrated report. 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.

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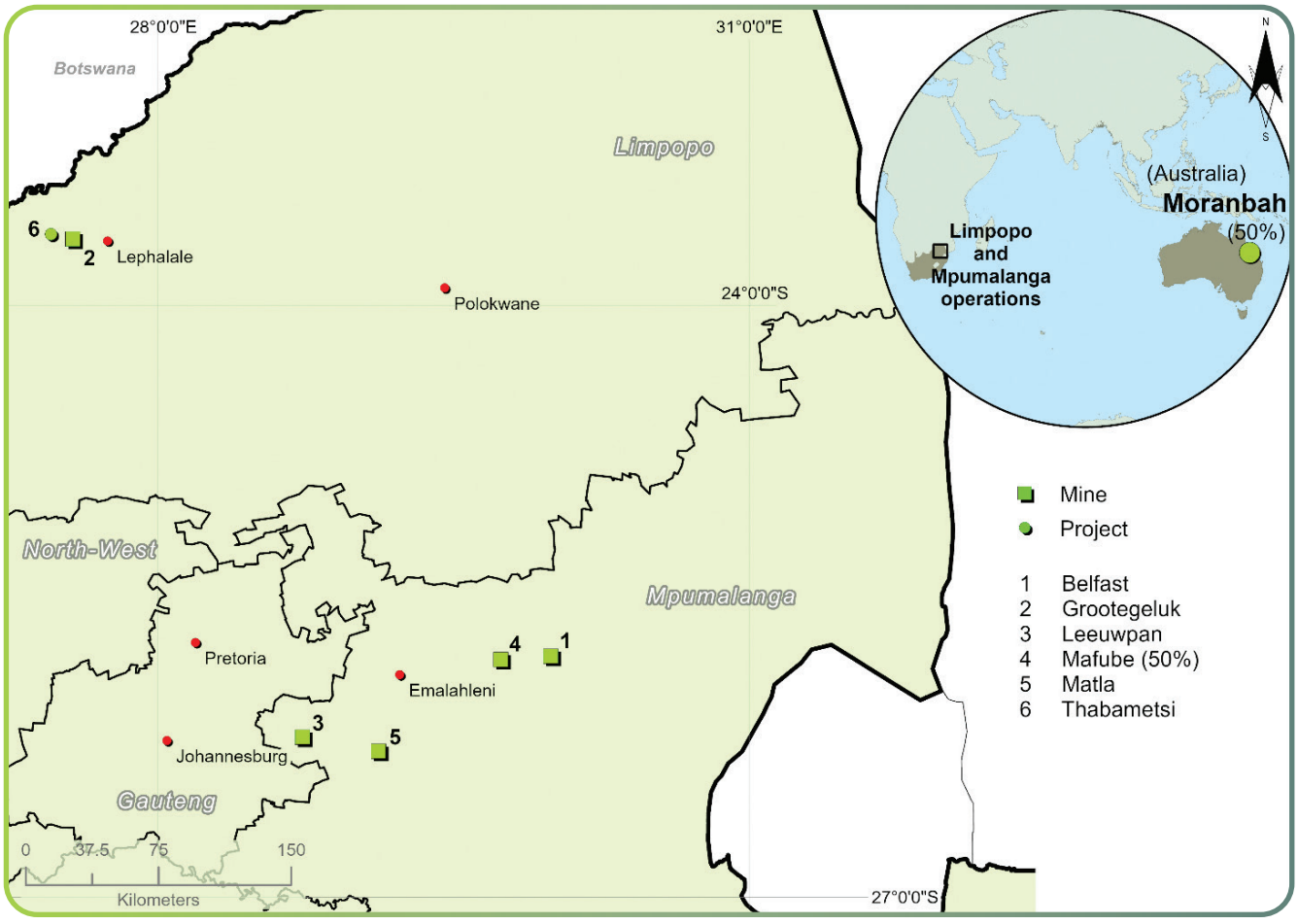
Performance at a glance

Exxaro continuously strives to enhance the estimation and reporting of our Resources and Reserves. Our estimation and reporting strategy focuses on sustaining our mineral asset base by employing responsible and innovative technical management. We continuously review the value extracted from mineral assets with mine planning, considering knowledge of the mineral asset's geological complexities and its opportunities.

Achievements

- The application and/or update of new geological models and subsequent update of mine plans at five operations.
- Updated Grootegeluk mine's life of mine plan (LoMP), ensuring the integration of backfill and mining activities within a consolidated plan, which enables detailed material destination scheduling.
- Reserve reporting, for the first time, from Open Cut Coal Solution (OCCS) and Underground Coal Solution (UGCS) mine planning software for Grootegeluk and Matla mines, respectively.
- The Matla team's ongoing innovative efforts to unlock additional ground for mining while the delays in the life expansion projects are addressed.
- Progress on the studies conducted at our coking coal Moranbah South project in Australia.

Figure 1: Locations of our coal operations and projects



Strategy and overview of estimates

Exxaro's world-class Coal Resource portfolio comprises fully and jointly owned operations and projects in South Africa and Australia. Our fully owned operations and projects in South Africa are in the large and highly prospective Waterberg coalfield in Limpopo and the more mature Highveld and Witbank coalfields in Mpumalanga.

Our **Coal Resource and Coal Reserve estimation strategy** focuses on providing trustworthy estimates by employing responsible and innovative technical management principles. Our Competent Persons are the custodians of the mineral assets and are therefore accountable for ensuring the integrity of our Resource and Reserve estimates by applying pioneering technology and trusted knowledge and experience. Our projects, operations and expansion initiatives are built on these trusted and assured Coal Resources and Coal Reserves, creating a platform for the LoMP from which annual business plans are derived. The Mineral Resource managers of each operation are the custodians of the LoM and ensure professional execution of the business plans, stimulating profitability and return on investment while guarding against irresponsible exploitation.

The early value coal exploitation plans supporting our **Sustainable Growth and Impact strategy** are implemented at all our operations. Our technical teams now focus on value optimisation within the framework of these plans. The effort is clearly demonstrated in the application and/or update of new geological models and subsequent updates of mine plans at five of our operations.

On-mine **exploration** campaigns conducted during 2021/2022 targeted areas of geological complexity, explored for additional mining ground in facing life extension project delays, and enhanced our level of confidence of the geology in the short to medium term and LoMPs.

New information at our flagship **Grootegeluk** mine was crucial in updating the 2022 LoMP, compiled with OCCS software. Several significant achievements with this new plan were reached. Strategic backfill is a vital aspect in the effective execution of Grootegeluk. New information distinguishing between the various overburden material types contributed to integrating the backfill and mining activities into a consolidated plan, enabling detailed material destination scheduling. The plan made provision for a sump strategy for effective in-pit water management which addressed a historical operational challenge within the large open pit. The plan includes consolidation and redefinition of certain waste mining benches based on economical and practical considerations. This change improved mining activity sequencing to ensure the continuous supply of suitable material to all specified destinations. The conclusion of the integrated plan is an exceptional achievement for Exxaro. As outlined last year, we evaluated the potential of the Thabametsi mining right, a large Coal Resource adjacent to our Grootegeluk mine, after the cancellation of the associated independent power producer (IPP) project. Exxaro has compiled a consolidation plan which will be submitted to the applicable authorities for approval.

New exploration information was valuable at our **Matla** mine, where three mine expansion projects are in various stages of implementation. These development projects contain an estimated 83% of Matla Coal Reserves. Timely funding and execution are vital to enable suitable run of mine (RoM), as the impact of current delays is demonstrated in this year's decrease in production figures. In two mining areas, horizontal and vertical exploration drilling contributed to identifying additional ground for mining, while project delays were addressed. Mining is continuing at Mine 3 Seam 4 (S4) (initially earmarked to cease mining in 2018) and Mine 2 Seam 2 (S2) (initially earmarked to cease mining in 2020), because the team applied innovative exploration and short-term mine planning to identify additional mining blocks under challenging conditions.

Studies to fully optimise the licence to mine area are progressing well at our **Belfast** mine, with the conclusion of exploration work to the north of the current operations. Work is ongoing to complete the exploitation plan and to obtain applicable environmental and access approvals. Production at the mine came under pressure in the second half of the year due to challenges relating to the performance of the mining business partner. We are addressing these challenges.

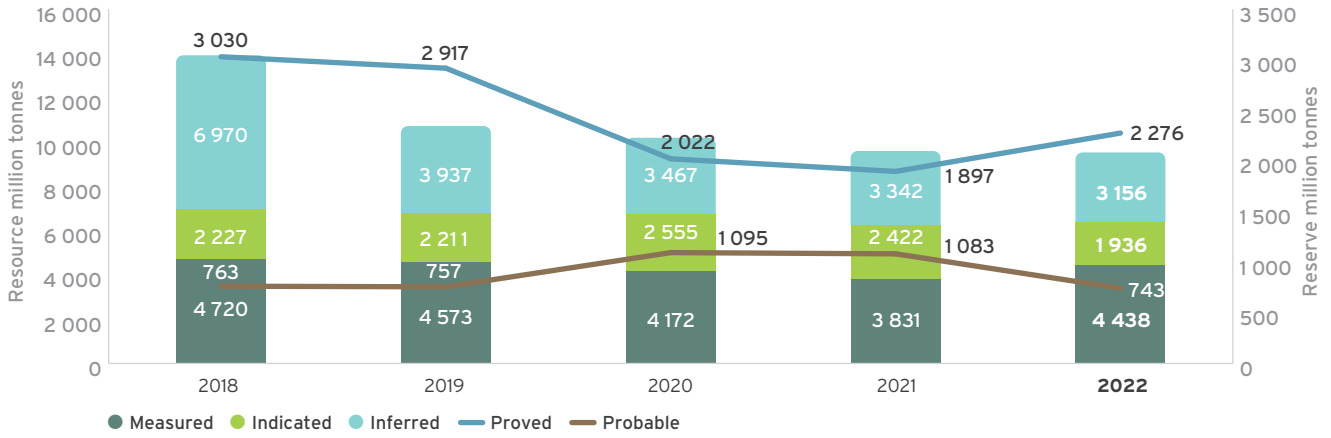
We obtained new information during the exploration campaign, specifically after approval was received to drill the Rooipan area, that contributed to the review and update of the **Mafube** LoMP. The update considers the practical and economic viability of Reserve areas previously excluded, as well as the Rooipan area, for which legislative submissions have been completed.

Progress on studies at our high-value coking coal **Moranbah South project**, located in the Bowen Basin, eastern Australia is on track. The joint venture (JV) conducted several surface-to-seam and vertical drill holes as well as an airborne-magnetic geophysical survey to validate the geological structural interpretation and to enhance the coal quality characterisation. Ongoing exploration information will contribute to the exploitation plan we are developing for this project.

We continuously strive to enhance the level of estimation and reporting of Resources and Reserves, committed to our **governance structures and associated assurance processes**. In 2022, we conducted internal reviews during the update of the geological and structural models at three of our operations (two models were concluded in 2021, although not used) as well as during the update of five LoMPs. We noted findings and implemented and signed off on corrective measures before proceeding with any subsequent estimation processes. We conducted technical reviews on development projects with specific focus on the estimation that underpins these projects. We reviewed the Grootegeluk alternative mining solution (AMS), Belfast's pit 4 and life expansion and the Moranbah South project. Two comprehensive audits on Coal Resource estimation were conducted on the Belfast and Grootegeluk operations. No findings that could materially impact our estimates were reported. We however noted and are implementing actions to address minor findings to increase the effectiveness of our estimation practices and compliance to our internal procedures. PwC conducted an audit on our internal Resource and Reserve estimation process and no critical findings were reported. We submitted a summary of our exploration information for the reporting year to the Council for Geosciences considering the recently promulgated Geosciences Act regulations in March 2022.

Strategy and overview of estimates continued

Figure 2: Exxaro's attributable Coal Resources and Coal Reserves



Tonnages are quoted in metric tonnes and million tonnes is abbreviated as Mt

Our total **attributable Coal Resource** decreased by 1%, primarily due to mining that was offset by new exploration information acquired at our various operations. On-mine drilling increased the level of geological confidence, resulting in material movements from Inferred to Indicated and to the higher confidence Measured category.

Our total **attributable Coal Reserve** increased by 1%, primarily as a result of updated LoMPs.

Two operations reported material changes in total Coal Resources and/or Coal Reserves. A ~23% increase in total Coal Resources at Mafube mine is the result of new exploration information and the movement of the Rooipan area from Inventory to Coal Resources based on environmental approvals received to drill within this area. The significant increase (~144%) in the total Coal Reserves is the result of an updated LoMP that includes the MGF and MGA

Reserve areas, as well as the Rooipan area after consideration of the successful submission of the integrated water use licence (IWUL) application. The Reserves within Rooipan are reported as Probable, pending the approval of the IWUL application.

A 15% decrease in Coal Resources at Leeuwpan mine is due to mining and disposals resulting from re-interpretation and subsequent reclassification of coal material outside the LoMP during the geological modelling process.

For all other operations, other than normal LoM depletion, no material changes to the total attributable Coal Resource and Coal Reserve estimates are reported. We do not know of any pertinent technical and operational risks or other material conditions, other than those declared in the Ancillary section, that may impact the company's ability to mine or explore.

Figure 3: Exxaro's performance

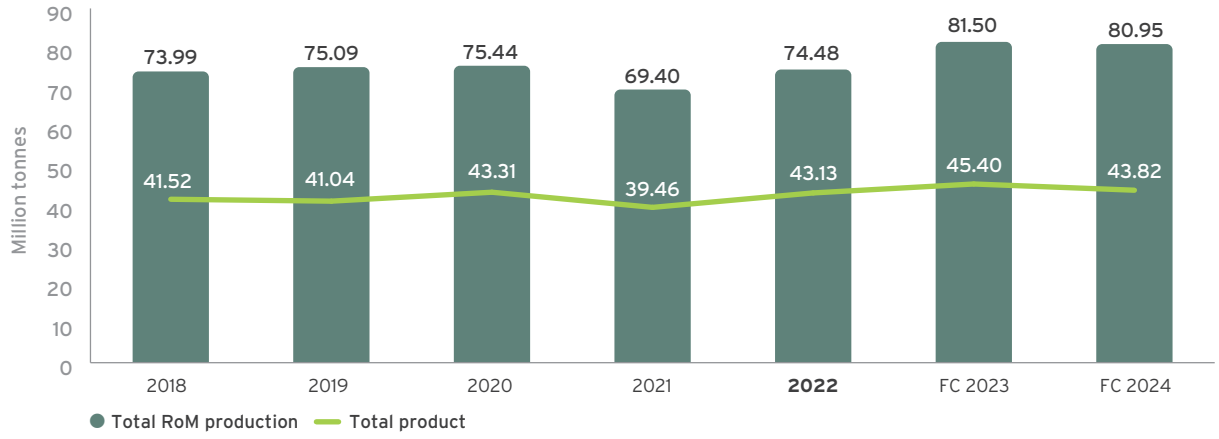


Figure 4: Locations of Matla projects

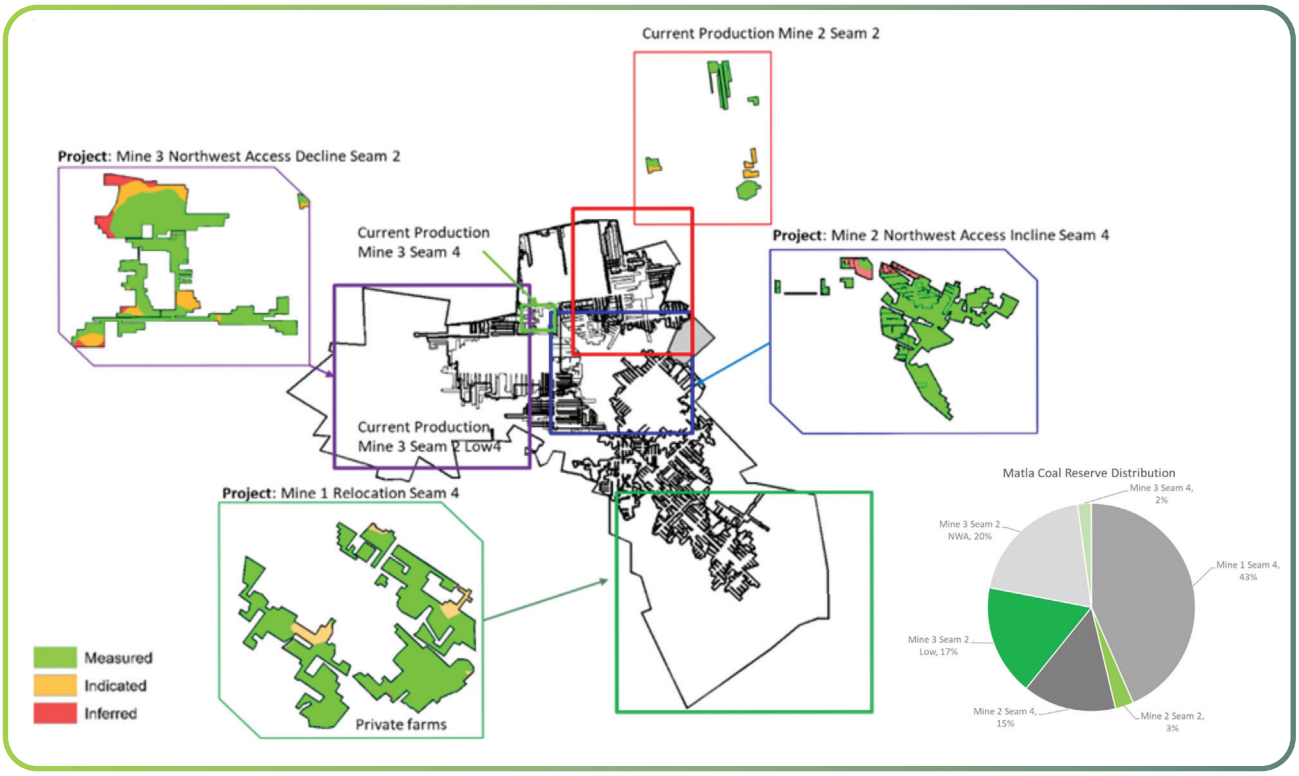
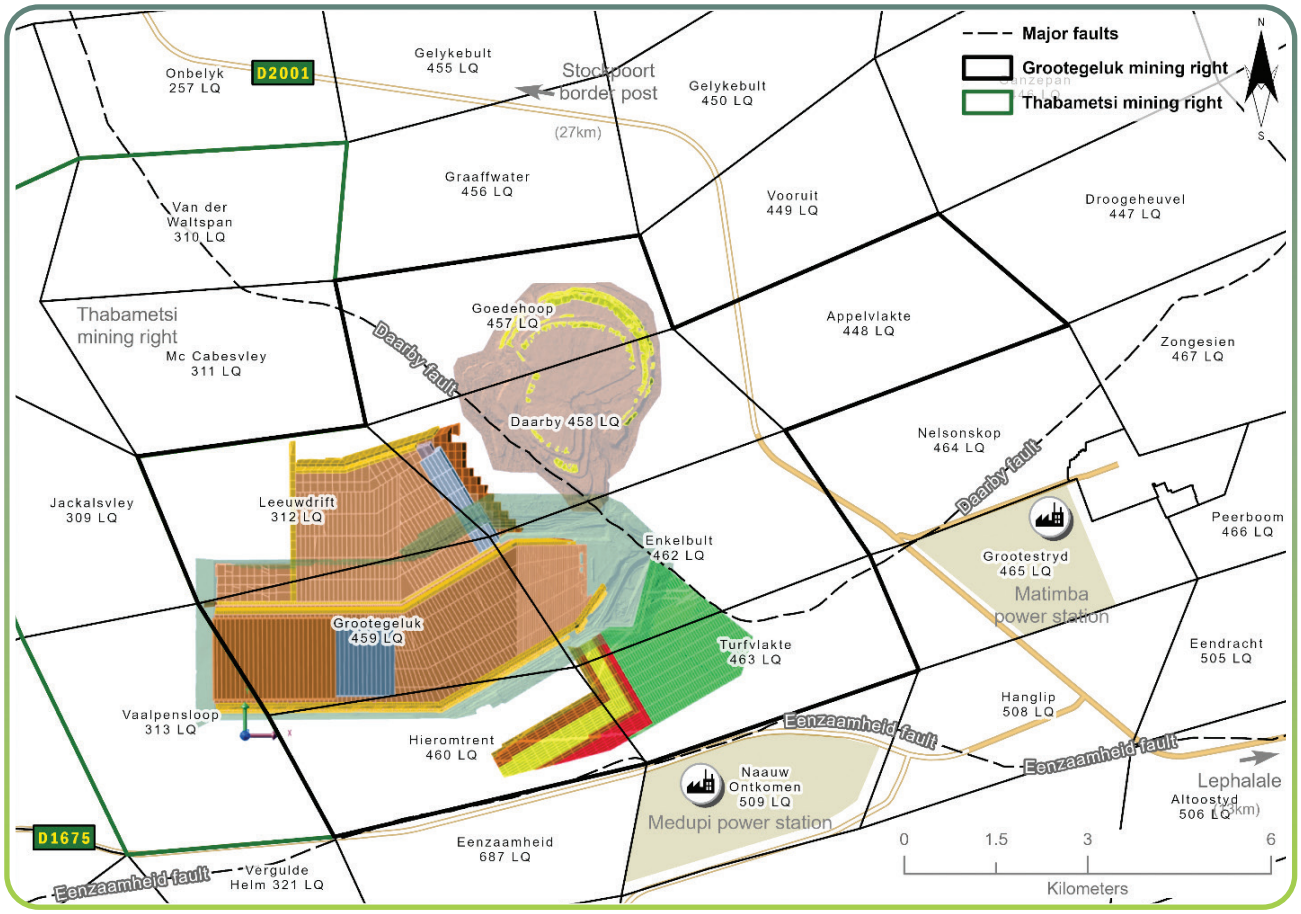


Figure 5: Grootegeluk LoM



How we report

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	Updated in 2022 to align with new minerals strategy	Followed 2022 estimation schedule for operations under Exxaro's control	Considered, reviewed and updated procedures as required
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 2022 update	2022 Mineral Reserves fact packs updates for Matla, Belfast, Grootegeluk, Leeuwpan and Mafube	Updated for 2022
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 Grootegeluk and Leeuwpan	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 2022 update	Reports updated for Mafube, Belfast 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 employed full time at the operation as the resident geologist or mineral resources manager. In the case of projects, the Competent Persons conducted appropriate site visits to the mineral property being evaluated. All operations under Exxaro's control were visited by the relevant Competent Persons.

Exxaro's **lead Competent Persons** are appointed by the management team.

Competent Persons continued

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	27	Group manager: geosciences	SACNASP (400038/11)	C Ballot	26	Group manager: mining	ECSA (20060040)
Belfast mine	G Gcayi	15	Resident geologist, Belfast	SACNASP (400299/11)	Al Dednam	11	Manager: MRM and optimisation, Belfast	Southern African Institute of Mining and Metallurgy (710051)
Grootegeluk mine	S Mhlongo	11	Resident geologist, Grootegeluk	SACNASP (400044/18)	R Teffo	14	Manager: mining, Grootegeluk	ECSA (2021800057)
Leeuwpan mine	JK Kgarume	9	Resident geologist, Leeuwpan	SACNASP (117081/17)	M Sethethi	16	Mine manager, Leeuwpan	ECSA (20095030)
Matla mine	M Dimmick-Touw	9	Resident geologist, Matla	SACNASP (400134/16)	TF Moabi	17	MRM manager, Matla	SACNASP (400067/08)
Thabametsi project	S Mhlongo	11	Resident geologist, Grootegeluk	SACNASP (400044/18)	C Ballot	26	Group manager: mining	ECSA (20060040)
Mafube (Nooitgedacht and Wildfontein)	D Xaba	23	Geology manager production, Thungela Resources	SACNASP (400115/01)	NJ van der Merwe	15	Technical services manager, Thungela Resources	ECSA candidate (2021900118)
Moranbah South, Australia	AJ Laws	27	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	22	Director and corporate consultant: resource geology, SRK Consulting (UK)	AusIMM (Competent Person: Geology), Fellow of the Geological Society of London (FGS)	J Miles	33	Associate principal consultant: mining engineering, SRK Consulting (UK)	Member of the Institute of Materials Minerals and Mining (CEng)
Gamsberg	M Campodonic	22	Director and corporate consultant: resource geology, SRK Consulting (UK)	AusIMM (Competent Person: Geology), FGS	J Miles	33	Associate principal consultant: mining engineering – SRK Consulting (UK)	Member of the Institute of Materials Minerals and Mining (CEng)
Kumba Iron Ore	J Britz	18	Principal: resource geology, Sishen Iron Ore Company Proprietary Limited (SIOC)	SACNASP (400423/04)	T Otto	18	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.*
** 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 to 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	Lists new information since the last estimation, e.g. 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 surface and the intersection to the seams is considered as 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 redrilling drill holes. Core recovery is continuously reviewed and any shortcomings are actively addressed through downhole geophysical surveys, seam validations and redrilling.
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 results indicated no significant difference.
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 geological integrity and continuity of data in a spatial and geostatistical sense with domaining and structural interpretations.
Data modelling	GEOVIA Minex™ is used for coal modelling and the Minex™ growth algorithm is the preferred interpolation technique with Esri's ArcGIS 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 these 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 and is aligned 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. 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 reasonable prospects for eventual economic extraction (RPEEE) are shown in Table 5. Reporting includes technical information that requires subsequent calculations to derive subtotals, 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 effected if necessary. Reports are endorsed by management and used to compile the consolidated Coal Resources and Coal Reserves report.

RPEEE consideration

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 of the 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

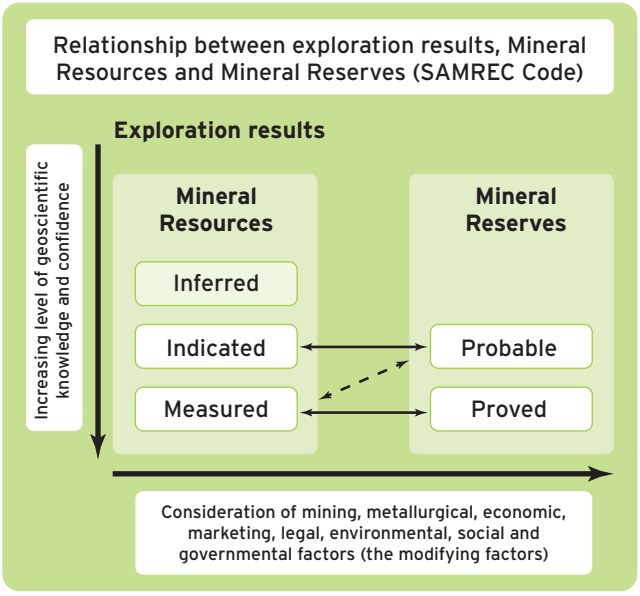
Item	Criteria	Considerations
Geological data	Data validated and signed off by a Competent Person	Seam depth, extent, thickness, geological structure and seam quality (cut-off)
Geological model	Geological model considered and signed off	
Structural model	Structural model considered and signed off	
Mining	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	Formal tenure must be demonstrated and, if any potential 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/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	

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 sustainability of the company. The optimisation of mineral assets beyond what is generally referred to as Mineral Resource management is being 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 6: Relationship between exploration results, Mineral Resources and Mineral Reserves SAMREC Code



Reserve estimation methodology summary continued

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 report 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 plans together with the structural plan, geotechnical review report, 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	On 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 data conversion has been conducted correctly. This information is reviewed by the manager: strategic mine planning and design and signed off as acceptable by the Resources and Reserves 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/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.
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 inter-burden material unintentionally added to the mining horizon as a result of mining operations and equipment used • Free moisture accounts for the change in the 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 Exxaro Coal Reserve estimation procedure, as described in 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 for 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 that were 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 and are not 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.

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.

Tier 1

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.

In 2022, **tier 1** assurance was undertaken for the Belfast, Matla and Grootegeluk 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.

LoMPs were reviewed at our Belfast, Matla, Grootegeluk, Leeuwpan and Mafube operations.

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 g**overnance framework**, while **ensuring accountability** and **consequence management**.

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 geosciences policy and the associated Coal Resource reporting and estimation procedures were conducted for Belfast and Grootegeluk mines. A formal review was done on OCCS reporting at Grootegeluk culminating in approval for use in LoM planning. A summary of findings is listed in Table 7.

Tier 3

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**.

On **tier 3**, PwC conducted an audit on our internal Resource and Reserve estimation process in 2022 and no critical findings were reported.

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 AMS	Review various technology alternatives for the transportation of overburden material from the pit to the backfill system	The overburden (OVB) was modelled and levels of confidence assigned to the different geological zones. Additional drilling is required in specific areas.	The AMS study concluded that the base case trucking solution was the most economical mining solution as opposed to an overburden in pit crush and convey system.
Moranbah South assurance phase 1	Development, operating, processing and transport of coal for the associated Resource	Exploration to enhance geological structural interpretation as well as coal characterisation should proceed to inform the exploitation plan.	The assurance review highlighted technical aspects on gas, geological structure, geotechnical and mining height considerations that requires optimisation to reach the applicable stage gate.
Belfast pit 4 box cut	Develop and execute the pit 4 box cut, to access the pit 4 Reserves aligned to the Belfast LoMP	We performed exploration drilling to increase the level of confidence in the pit 4 area ensuring the correct placement of the box cut and delineate the Resource extent.	The layout was reviewed based on the updated geological model. The mine design was appraised, with various box cut layouts and designs evaluated to determine the optimised option.
Matla primary production equipment	Replacement and refurbishment of Matla's primary production equipment	We evaluated the Matla Seam 2 thickness based on the latest (2022) geological model.	Mining through areas where seam thickness is less than 1.6m will result in contamination as to accommodate the continuous miner and associated equipment.
Belfast LoM optimisation project	Project to enable Exxaro to optimise the full Belfast mining right	We updated the geological model.	Underground and surface mining methods were evaluated resulting in surface mining as the option going forward.

Table 7: Tier 2 internal reviews findings

Area under review	Finding	Conclusion and recommendation*
Belfast	Core photographs	Current core photographs to be labelled according to the drill hole number and depth range in sequence.
	Core recovery	Core recovery to be captured for each drill run.
	Sample mass records	All samples to be weighed and validated with laboratory measurement.
	Wireline logs	Misalignments must be investigated and adjusted where required on an "if not, why not?" basis.
Grootegeluk	Sign-off of exploration plan	Surveyor and environmental manager to sign off on exploration plans for effective planning and compliance to authorisations.
	Capture metadata	Optimise the capturing of metadata to enhance value add.
	End of hole depth check	Record stick-up measurements in log sheet.

** 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. The FTSE Russell ESG Index group ranks Exxaro number one in ESG performance-selected resources company metrics. Everything we do today is geared towards ensuring a safer and more productive tomorrow. Our sustainability is founded on creative, 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 are able to 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 aimed at monitoring and ensuring 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 good 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 who facilitates tailings maintenance and monitoring. All regulatory five-yearly inspections are conducted by a third-party consulting firm. There are dashboards and quarterly inspections are conducted on the tailings dams in an effort to promote continuous monitoring. Systems in place include training to equip all site engineers with the required technical skills to carry out inspections, which include continuous oversight of asset maintenance.

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

Air quality management

Air quality management is among our top priorities due to the negative impacts of pollutants such as dust and particulate matter (PM10 and PM2.5) prevalent in mining areas.

Our mitigation measures include:

- Application of 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 waste management 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 waste 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 yearly. 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.

Summarised group Mineral Resource and Mineral Reserve estimates

This section outlines the reported Mineral Resources and Mineral Reserves remaining as at 31 December 2022. Mineral Resource and Mineral Reserve 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 Gamsberg and Black Mountain Mining (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.

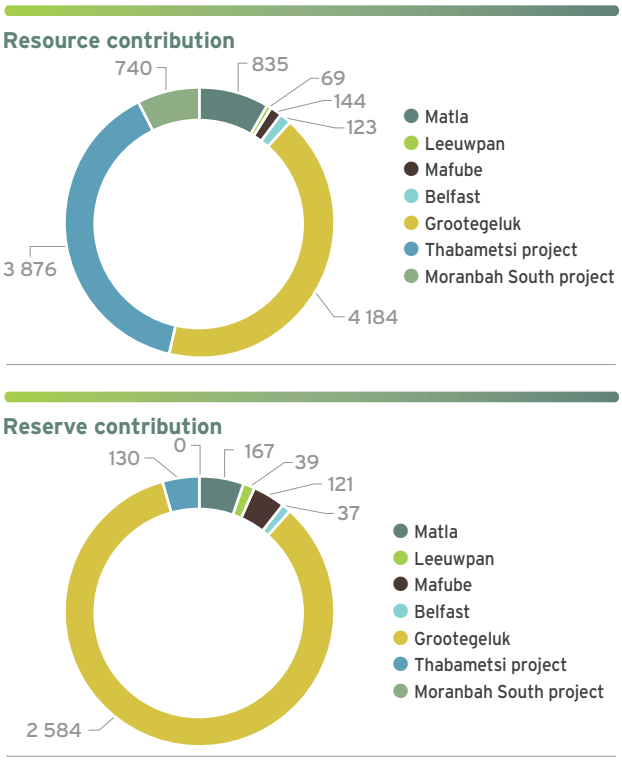
We provide Coal Resource estimates within LoMP and applicable modifying factors when converting Coal Resources to Coal Reserves. Mineral Resources and Mineral Reserves are reported at 100% irrespective of the percentage attributable to Exxaro.

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	2022 MTIS (Mt)
Exxaro attributable tonnes	Measured	4 438
	Indicated	1 936
	Inferred	3 156
Total Coal Resources		**9 530**
	Proved	2 276
	Probable	743
Total Coal Reserves		**3 019**

Figure 7: Exxaro's Coal Resources and Coal Reserves attributable contribution (Mt)



Coal Resources

The table below details the total inclusive Coal Resources estimated as at 31 December 2022.

Table 9: Coal Resources and qualities

Operation[1]	Location[3]	Resource category	2022 Tonnes and quality[4] Tonnes (Mt)	CV MJ/kg	% Ash	% IM	% VM	% S	2021 Tonnes and quality[4] Tonnes (Mt)	CV MJ/kg	% Ash	% IM	% VM	% S	% change in tonnes[5]
Matla mine[6] (UG) (captive market) Mpumalanga 100% attributed to Exxaro[2]		Measured	657.3	19.9	30.3	4.6	22.1	1.0	639.3	20.6	29.6	4.6	20.6	1.0	3
		Indicated	90.6	20.5	28.6	4.7	22.0	0.8	114.0	20.7	28.7	4.5	20.7	0.8	(21)
		Inferred	87.4	20.3	29.7	4.4	21.4	0.8	93.2	21.0	28.1	4.4	21.0	0.8	(6)
		Total	835.2	20.0	30.0	4.6	22.0	0.9	846.5	20.7	29.3	4.5	20.7	1.0	(1)
		Resources inside LoMP	308.2	20.8	28.0	4.8	22.9	1.0	280.9	21.3	27.7	4.8	23.1	1.0	10
Leeuwpan mine[7] (OC) (commercial market) Mpumalanga 100% attributed to Exxaro[2]		Measured	65.8	20.3	30.2	3.3	18.9	1.1	77.9	20.0	31.3	3.2	18.6	1.2	(16)
		Indicated	0.0						0.0						
		Inferred	3.6	19.8	35.4	2.5	14.9	0.9	3.6	20.1	34.6	2.6	14.7	1.0	0
		Total	69.4	20.3	30.5	3.2	18.7	1.1	81.5	20.0	31.5	3.2	18.4	1.2	(15)
		Resources inside LoMP	40.5	20.3	29.5	3.2	19.8	1.2	49.1	20.0	30.6	3.1	19.5	1.3	(17)
Mafube mine[8] (OC) (commercial market) Mpumalanga 50% attributed to Exxaro[2]		Measured	125.0	20.2	29.2	3.7	21.1	0.9	104.3	21.4	26.8	3.9	22.1	1.0	20
		Indicated	16.3	20.4	29.8	3.6	21.7	0.9	9.9	21.7	26.0	3.9	22.4	1.0	65
		Inferred	2.5	19.1	32.2	3.7	19.7	0.8	2.6	21.7	25.9	3.9	22.1	0.9	(4)
		Total	143.8	20.2	29.3	3.6	21.2	0.9	116.8	21.5	26.7	3.9	22.1	1.0	23
		Resources inside LoMP	127.1	20.0	29.7	3.6	21.1	0.9	53.4	22.0	25.6	4.0	22.0	1.1	138
Belfast mine[9] (OC) (mining right) Mpumalanga 100% attributed to Exxaro[2]		Measured	101.6	23.7	21.7	3.6	22.9	1.2	68.3	24.8	18.6	3.6	23.2	1.1	49
		Indicated	8.0	22.8	24.5	3.5	22.5	1.3	19.9	22.3	25.3	3.6	22.0	1.1	(60)
		Inferred	13.3	22.3	25.2	3.7	21.9	1.1	33.8	21.5	27.0	3.4	20.9	0.8	(61)
		Total	122.9	23.5	22.3	3.6	22.7	1.2	121.9	23.5	22.0	3.5	22.4	1.0	1
		Resources inside LoMP	38.9	24.8	18.8	3.6	23.6	1.2	41.1	25.0	18.5	3.5	23.5	1.2	(5)
Grootegeluk mine (OC) (commercial market) Limpopo 100% attributed to Exxaro[2]	Volksrust Formation	Measured	2 297	14.2	54.7	1.8	19.7	1.2	1 833	14.1	54.8	1.7	19.6	1.2	25
		Indicated	738	14.1	55.2	1.7	19.5	1.4	1 118	14.1	55.0	1.7	19.6	1.2	(34)
		Inferred	144	14.0	55.0	1.9	19.5	1.3	262	14.3	54.0	1.8	19.8	1.4	(45)
		Total	3 179	14.1	54.8	1.8	19.6	1.3	3 213	14.1	54.8	1.7	19.6	1.2	(1)
		Resources inside LoMP	2 272	14.2	54.6	1.7	19.8	1.2	2 312	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	742	24.0	27.2	1.9	22.3	2.2	648	24.0	27.4	1.8	22.2	2.2	15
		Indicated	229	24.0	27.8	1.7	21.9	2.3	303	23.7	28.4	1.7	22.1	2.3	(25)
		Inferred	34	24.2	26.7	1.9	21.9	2.1	76	23.6	28.9	1.7	21.5	2.2	(55)
		Total	1 004	24.0	27.3	1.8	22.2	2.2	1 027	23.9	27.8	1.8	22.1	2.2	(2)
		Resources inside LoMP	524	24.5	25.9	1.8	22.6	2.3	601	23.8	27.9	1.8	22.3	2.3	(13)
Total Grootegeluk mine[10] (OC) (commercial market) Limpopo 100% attributed to Exxaro[2]		Measured	3 039	16.6	48.0	1.8	20.3	1.5	2 481	16.7	47.7	1.8	20.3	1.5	22
		Indicated	967	16.4	48.7	1.7	20.1	1.6	1 421	16.1	49.3	1.7	20.1	1.4	(32)
		Inferred	178	15.9	49.6	1.9	19.9	1.4	338	16.4	48.4	1.8	20.2	1.6	(47)
		Total	4 184	16.5	48.2	1.8	20.2	1.5	4 240	16.5	48.3	1.8	20.2	1.5	(1)
		Resources inside Grootegeluk opencast LoMP	2 796	16.2	49.2	1.7	20.3	1.4	2 913	16.2	49.1	1.7	20.3	1.4	(4)
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 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[11] (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	28.2	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 2022 only.
[3] Locality maps are for illustrative purposes only. Detailed maps are provided in the ancillary section.
[4] Raw coal qualities (adb); CV: calorific value (gross), IM: inherent moisture, S: total sulphur and VM: volatile matter.
[5] The percentage difference between 2022 reported MTIS and 2021 reported MTIS. Brackets signify a decrease.
[6] The positive movement between categories and the increase in Resources inside LoMP are the result of new information.
[7] The decrease of 12.5Mt is the result of mining (4.3Mt), model update (~1.5Mt), disposals (~4.5Mt), mining losses (~0.7Mt) and reconciliation (~2.2Mt).
[8] The increase in total and inside LoMP Resources and the positive movement between categories is the result of new information and the inclusion of the Rooipan area (~33Mt).
[9] The positive movement between categories is the result of new information.
[10] The positive movement between categories is the result of new information.
[11] 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 2022.

Table 10: Coal Reserves

Operation[1]	Location[3]	LoM (years)[4]	Category	2022 RoM and saleable tonnes[5] RoM (Mt)	RoM moisture %	Export (Mt)	Thermal (Mt)	Metal-lurgical (Mt)	2021 RoM and saleable tonnes[5] RoM (Mt)	RoM moisture %	Export (Mt)	Thermal (Mt)	Metal-lurgical (Mt)	% change in RoM[6]
Matla (UG) (captive market) 100% attributed to Exxaro[2]		2+	Proved	129.6	9.5		130		124.0	9.1		138		5
			Probable	37.8	9.5		38		37.8	8.9		23		—
			Total	167.4	9.5		167		161.8	9.1		162		3
			Inferred Resources inside LoMP	5.6					7.6					
Leeuwpan (OC) (commercial market) 100% attributed to Exxaro[2]		7	Proved	36.1	3.1		26.4		40.2	3.1		27.3		(10)
			Probable	3.3	2.6			1.5	3.2	2.6			1.9	2
			Total	39.4	3.1		26.4	1.5	43.5	3.1		27.3	1.9	(9)
			Inferred Resources inside LoMP	0.0						0.0				
Mafube[7] (OC) (commercial market) 50% attributed to Exxaro[2]		21+	Proved	80.6	8.0	44.2	12.7		26.7	5.7	18			202
			Probable	40.8	8.0	25.6	1.2		23.0	5.8	14.8			77
			Total	121.4	8.0	69.8	13.9		49.7	5.7	32.8			144
			Inferred Resources inside LoMP	1.6					1.7					
Belfast[8] (OC) (commercial market) 100% attributed to Exxaro[2]		11	Proved	35.8	3.4	31.6			37.5	3.4	33.3			(4)
			Probable	1.4	2.9	1.1			2.4	2.6	1.8			(42)
			Total	37.2	3.4	32.7			39.9	3.3	35.1			(7)
			Inferred Resources inside LoMP	1.0					0.5					
Waterberg complex														
Grootegeluk mine[9] (OC) (commercial market) 100% attributed to Exxaro[2]		19+	Proved	2 034	3.0	126	776	58	1 682	3.0	109	689	39	21
			Probable	550	3.0	37	191	6	898	3.0	58	368	21	(39)
			Total	2 584	3.0	163	967	64	2 580	3.0	168	1 057	59	—
			Inferred Resources inside LoMP	73					137					
Thabametsi project (OC) (IPP market) 100% attributed to Exxaro[2]		24	Proved	0.0						0.0				
			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 2022 only.*
[3] *Locality maps are for illustrative purposes only. Detailed maps are provided in the ancillary section.*
[4] *The + symbol is used in instances where the scheduled LoMP extends beyond the expiry of the mining right. In each instance, Exxaro has a reasonable expectation that the mining right will be renewed.*
[5] *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.*
[6] *The percentage difference between 2022 reported RoM and 2021 reported RoM. Brackets signify a decrease.*
[7] *The increase is the result of a change in the Resource base and an updated LoMP (45Mt) including the Rooipan area as a Probable Reserve (~31Mt).*
[8] *Movement in categories reflects the change in the Resources base.*
[9] *Movement in categories reflects the change in the Resources base.*

Table 11: Coal Reserve qualities

Operation	Seam/ layer	THERMAL saleable (Proved and Probable) Tonnes (Mt)[1]	CV MJ/ kg	% VM	% Ash	% S	Yield %	METALLURGICAL saleable (Proved and Probable) Tonnes (Mt)[1]	CV MJ/ kg	% VM	% Ash	% S	Yield %	COKING saleable (Proved and Probable) Tonnes (Mt)[1]	CV MJ/ kg	% VM	% Ash	% S	Yield %
Matla mine	Seam 2	64	23.1	23.7	23.3	0.9	100												
	Seam 4	104	18.6	22.5	31.1	1.0	100												
Leeuwpan mine	TC[2]	10.7	21.2	18.6	30.2	1.1	66												
	BC[2]	15.7	23.8	24.2	21.9	0.9	68	1.5	28.5	8.1	13.7	1.0	44						
	Middlings	31.2	21.4	21.7	26.1	0.5	29												
Mafube mine	Export	38.6	26.3	26.4	13.9	0.4	36												
Crush and stack		13.9	18.6	20.3	30.0	0.9	100												
Belfast mine	Export	32.7	25.5	23.6	16.7	0.6	88												
Grootegeluk mine	All seams	967	21.6	25.1	33.2	1.3	40	64	28.7	23.9	14.0	0.6	60	163	28.6	34.8	13.1	1.1	12
Thabametsi project[3]	T1	64	12.7	20.0	53.9	1.1	98												
	T2	63	11.3	19.0	55.7	1.0	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.*

Base Metal Resources

The table below details Base Metal Resources as at 31 March 2022.

Table 12: Base Metal Resources (additional to Reserves)

		2022					2021					
		Tonnes and grade					Tonnes and grade					
Operation[1]	Category	Tonnes (Mt)	% Zn	% Pb	% Cu	Ag g/t	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	4.2	2.4	2.4	0.3	29	4.4	2.9	3.2	0.3	34	(4)
	Indicated	8.3	2.2	1.6	0.5	25	5.9	3	2.2	0.5	31	40
	Inferred	0.0					0.0					
	Total	**12.5**	**2.3**	**1.8**	**0.5**	**26**	**10.3**	**3**	**2.6**	**0.4**	**32**	21
Swartberg mine[5] Northern Cape (OC/UG) (zinc, lead, copper and silver) 26% attributed to Exxaro[2]	Measured	0.0					0.0					
	Indicated	76.8	0.9	2.0	0.3	38	72.6	0.9	2.4	0.3	43	6
	Inferred	36.1	0.9	2.2	0.3	40	19	1.4	2.6	0.2	46	90
	Total	**113.0**	**0.9**	**2.1**	**0.3**	**39**	**91.6**	**1**	**2.4**	**0.3**	**43**	23
Big Syncline project[6] Northern Cape (OC) (zinc) 26% attributed to Exxaro[2]	Measured	0.0					0.0					
	Indicated	6.1	3.0	1.1		16	6.1	3	1.1		16	0
	Inferred	185.6	2.4	1.0		12	185.6	2.4	1		12	0
	Total	**191.7**	**2.5**	**1.0**		**12**	**191.7**	**2.5**	**1**		**12**	0
Gamsberg North mine[7] Northern Cape (OC/UG) (zinc) 26% attributed to Exxaro[2]	Measured	7.5	7.7	0.5			1.5	6.7	0.5			391
	Indicated	35.5	6.3	0.5			34.8	6.0	0.5			2
	Inferred	22.7	6.1	0.5			5.0	8.3	0.5			351
	Total	**65.6**	**6.4**	**0.5**			**41.3**	**6.3**	**0.5**			59
Gamsberg East[8] Northern Cape (project) (zinc) 26% attributed to Exxaro[2]	Measured	0.0					0.0					
	Indicated	0.0					0.0					
	Inferred	65.1	7.9	0.5		5	49.8	8.5	0.5			31
	Total	**65.1**	**7.9**	**0.5**		**5**	**49.8**	**8.5**	**0.5**			31
Gamsberg South[9] Northern Cape (project) (zinc) 26% attributed to Exxaro[2]	Measured	0.0					0.0					
	Indicated	0.0					0.0					
	Inferred	36.0	6.1	0.5		7	23.2	7.1	0.6			55
	Total	**36.0**	**6.1**	**0.5**		**7**	**23.2**	**7.1**	**0.6**			55
Gamsberg Kloof[10] Northern Cape (project) (zinc) 26% attributed to Exxaro[2]	Measured	0.0										
	Indicated	0.0										
	Inferred	18.8	8.6	0.6		7						
	Total	**18.8**	**8.6**	**0.6**		**7**						

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 2022 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 2022 reported MTIS and 2021 reported MTIS. Brackets signify a decrease.*
[4] *The increase is mainly the result of depletion, changes to the models and increased commodity prices applied in the cut-off grade calculations used for reporting.*
[5] *The increase is mainly the result of increased commodity prices applied in the cut-off grade calculations used for reporting.*
[6] *Big Syncline is a brownfields exploration project. This is a high-volume, low-grade Zn deposit. The Resource was not updated in 2022 and remains the same as reported in 2021.*
[7] *The increase is the result of previously reported Reserves being transferred back to Resources and increased commodity prices applied in the cut-off grade calculations used for reporting.*
[8] *The increase is mainly the result of a revised and updated Resource estimate and increased commodity prices applied in the cut-off grade calculations used for reporting.*
[9] *The increase is mainly the result of increased commodity prices applied in the cut-off grade calculations used for reporting.*
[10] *Gamsberg Kloof lies to the east of the Gamsberg open pit and was estimated and declared for the first time in 2022.*

Base Metal Reserves

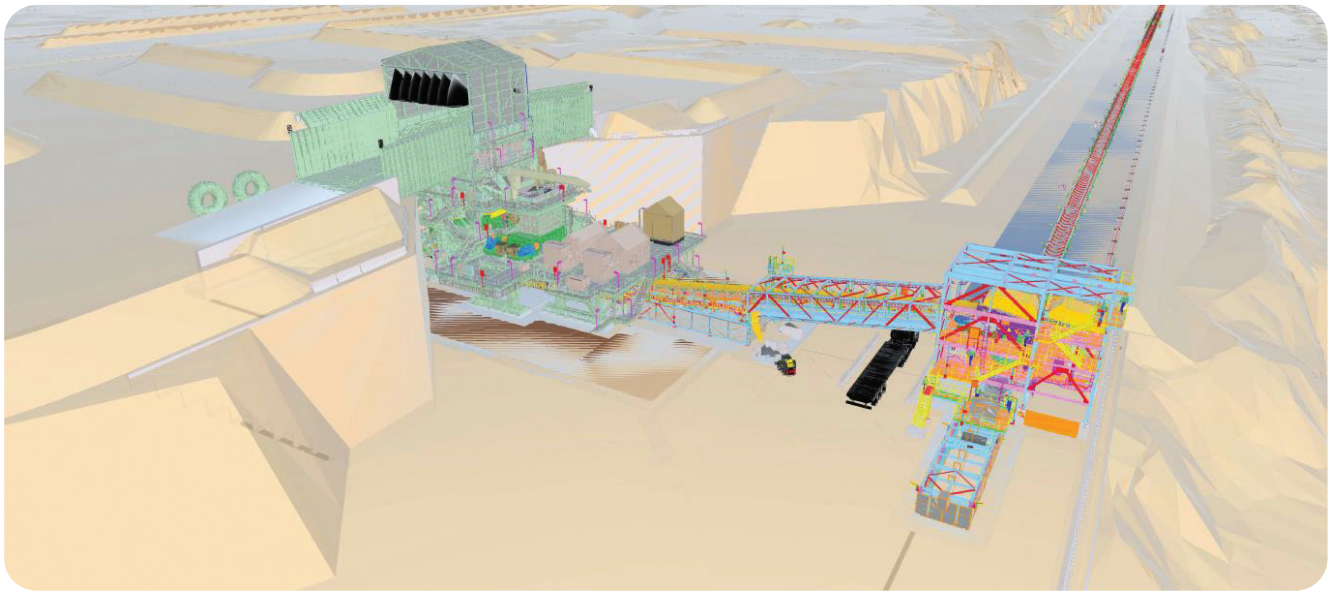
Table 13: Base Metal Reserves

Operation[1]	LoM (years)	Category	2022 Grade and contained metals RoM (Mt)	% Zn	% Pb	% Cu	Ag g/t	2021 Grade and contained metals RoM (Mt)	% 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]	3	Proved	0.5	2.2	2.5	0.3	31	1.3	2.7	3.5	0.3	35	(59)
		Probable	2.4	2.5	1.2	0.5	20	2.9	2.9	1.4	0.7	20	(16)
		Total	3.0	2.5	1.5	0.5	22	4.2	2.8	2	0.5	24	(29)
	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]	30	Proved	0.0					0.0					
		Probable	48.0	0.6	2.0	0.4	33	24.4	0.5	1.8	0.5	22	97
		Total	48.0	0.6	2.0	0.4	33	24.4	0.5	1.8	0.5	22	97
	Inferred Resources inside LoMP		0.0					0.0					
Gamsberg North mine[6] Northern Cape (OC) (zinc) 26% attributed to Exxaro[2]	12	Proved	69.7	6.4	0.5			79.4	6.5	0.5			(12)
		Probable	27.1	4.9	0.5			30.9	5.2	0.5			(12)
		Total	96.8	6.0	0.5			110.4	6.1	0.5			(12)
	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 2022 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 2022 only.*
[3] *The percentage difference between 2022 reported RoM and 2021 reported RoM. Brackets signify a decrease.*
[4] *The decrease is due to mining depletion.*
[5] *The increase is the result of the completion of multidisciplinary feasibility studies completed during 2021.*
[6] *The decrease is due to mining and changes to modifying factors.*



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	2022 Tonnage (Mt)	2022 Average % Fe	2022 % Fe cut-off**	2021 Tonnage (Mt)	2021 Average % Fe	2021 % Fe cut-off**
Mining operations									
Kolomela[1]									
In situ Mineral Resources (in addition to Ore Reserves)	Haematite	20.37	Measured (outside LoAP)	**52.1**	**65.1**	50	30.5	64.8	50
			Indicated (outside LoAP)	**62.1**	**63.1**		59.8	63.1	
			Measured and Indicated (outside LoAP)	**114.2**	**64.0**		90.4	63.7	
			Inferred (considered in LoAP)	**1.2**	**64.7**		6.6	64.8	
			Inferred (outside LoAP)	**17.4**	**62.5**		23.8	63.1	
			Total Inferred	**18.6**	**62.6**		30.4	63.5	
			Sub-total	**132.8**	**63.8**		120.7	63.6	
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**		8.7	55.2	
			Measured and Indicated (outside LoAP)	**0.0**	**0.0**		8.7	55.2	
			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**		8.7	55.2	
Total Mineral Resources (in addition to Ore Reserves)			**Measured (outside LoAP)**	**52.1**	**65.1**		30.5	64.8	
			Indicated (outside LoAP)	**62.1**	**63.1**		68.5	62.1	
			Measured and Indicated (outside LoAP)	**114.2**	**64.0**		99.1	62.9	
			Inferred (considered in LoAP)	**1.2**	**64.7**		6.6	64.8	
			Inferred (outside LoAP)	**17.4**	**62.5**		23.8	63.1	
			Total Inferred	**18.6**	**62.6**		30.4	63.5	
			Sub-total	**132.8**	**63.0**		129.4	63.0	
Sishen[2]									
In situ Mineral Resources (in addition to Ore Reserves)	Haematite	20.37	Measured (outside LoAP)	**175.3**	**59.4**	40	176.7	59.4	40
			Indicated (outside LoAP)	**222.2**	**55.4**		222.4	55.4	
			Measured and Indicated (outside LoAP)	**397.4**	**57.2**		399.2	57.2	
			Inferred (considered in LoAP)	**11.7**	**50.6**		12.6	50.8	
			Inferred (outside LoAP)	**24.4**	**56.7**		24.6	56.7	
			Total Inferred	**36.1**	**54.7**		37.2	54.7	
			Sub-total	**433.5**	**57.0**		436.3	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)	**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)**	**175.3**	**59.4**		176.7	59.4	
			Indicated (outside LoAP)	**222.2**	**55.4**		222.4	55.4	
			Measured and Indicated (outside LoAP)	**397.4**	**57.2**		399.2	57.2	
			Inferred (considered in LoAP)	**11.7**	**50.6**		12.6	50.8	
			Inferred (outside LoAP)	**24.4**	**56.7**		24.6	56.7	
			Total Inferred	**36.1**	**54.7**		37.2	54.7	
			Sub-total	**433.5**	**57.0**		436.3	57.0	
Company									
Kumba Iron Ore	Haematite	20.37	**Measured (outside LoAP)**	**227.4**	**60.7**		207.3	60.2	
			Indicated (outside LoAP)	**284.2**	**57.1**		291.0	57.0	
			Measured and Indicated (outside LoAP)	**511.6**	**58.7**		498.2	58.3	
Grand total Mineral Resources (in addition to Ore Reserves)			**Inferred (considered in LoAP)**	**12.9**	**51.9**		19.2	55.6	
			Inferred (outside LoAP)	**41.8**	**59.1**		48.3	59.8	
			Total Inferred	**54.7**	**57.4**		67.5	58.6	
			Sub-total	**566.3**	**58.6**		565.8	58.3	

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 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% Fe in situ. The increase is primarily due to reallocation of Ore Reserves at the Kapstevel South pit. This was partially offset by the conversion of long-term stockpiled medium-grade Mineral Resources to Ore Reserves.*
[2] ***Sishen mine**: Mineral Resources are reported above a cut-off of 40.0% Fe in situ.*

Table 15: Kumba Iron Ore, Ore Reserves

Operation/project	Operation status	Mining method	Ore type	% attributable to Exxaro	Reserve category	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	2021 Tonnage (Mt)	2021 Average Grade (% Fe)	2021 Grade cut-off * (%Fe)	2021 Reserve life** (years)	2021 Metal-lurgical yield (%)	2021 Saleable Product tonnage (Mt)	2021 Saleable Product Grade (%Fe) Average
Mining operations																			
Kolomela[1]																			
Ore Reserves *from pit*	Steady-state	Open pit	Haematite	20.37	Proved	97.9	63.8	50	12	94.3	92.3	64.8	102.0	63.8	50	13	96.0	97.9	64.8
					Probable	21.8	63.5				20.5	64.3	33.0	63.3				31.7	64.5
					Sub-total	119.6	63.7				112.9	64.7	135.0	63.7				129.6	64.7
Ore Reserves *from RoM buffer stockpiles*					Proved	0.0	0.0				0.0	0.0	0.0	0.0				0	0
					Probable	21.4	61.1				20.2	62.1	11.5	63.3				11.1	64.2
					Sub-total	21.4	61.1				20.2	62.1	11.5	63.3				11.1	64.2
					Proved	**97.9**	**63.8**				**92.3**	**64.8**	**102.0**	**63.8**				**97.9**	**64.8**
Total Ore Reserves					**Probable**	**43.2**	**62.3**				**40.7**	**63.2**	**44.6**	**63.3**				**42.8**	**64.4**
					Sub-total	**141.1**	**63.3**				**133.1**	**64.3**	**146.5**	**63.6**				**140.7**	**64.7**
Sishen[2]																			
Ore Reserves *from pit*	Steady-state	Open pit	Haematite	20.37	Proved	364.9	57.6	40	17	64.5	255.5	64.7	384.9	57.6	40	18	65.0	269.4	64.7
					Probable	192.8	47.7				107.2	59.8	211.3	48.9				120.4	61.1
					Sub-total	557.7	54.2				362.8	63.3	596.2	54.5				389.8	63.6
Ore Reserves *from RoM buffer stockpiles*					Proved								0.0	0.0				0	0
					Probable	60.7	52.3				36.3	63.0	57.2	48.3				35.1	59
					Sub-total	60.7	52.3				36.3	63.0	57.2	48.3				35.1	59
					Proved	**364.9**	**57.6**				**255.5**	**64.7**	**384.9**	**57.6**				**269.4**	**64.7**
Total Ore Reserves					**Probable**	**253.5**	**48.8**				**143.6**	**60.6**	**268.5**	**48.8**				**155.5**	**60.6**
					Sub-total	**618.4**	**54.0**				**399.1**	**63.2**	**653.4**	**54.0**				**424.9**	**63.2**
Company																			
Kumba Iron Ore																			
					Proved	**462.8**	58.9			**70.1**	**347.9**	**64.7**	**486.9**	**58.9**			**70.7**	**367.4**	**64.7**
Grand total Ore Reserves				20.37	**Probable**	**296.7**	50.8				**184.3**	**61.2**	**313.0**	**50.9**				**198.2**	**61.4**
					Sub-total	**759.4**	**55.7**				**532.2**	**63.5**	**799.9**	**55.8**				**565.6**	**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 ownership to Exxaro.*
- *Saleable product figures are reported at 100% irrespective of percentage attributable ownership to Exxaro.*
- *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.*

[1] ***Kolomela mine**: Ore Reserves are reported above a processing plant feed derived cut-off of 50.0 % Fe inclusive of dilution. Plant recoveries for the Saleable Product range from 92.9%-95.8%. Ore Reserves decreased primarily due to production and revised pit layout for Kapstevel South, which resulted in reallocation to Mineral Resources. This was partially offset by the conversion of medium-grade Mineral Resources to Ore Reserves and geological model updates.*

[2] ***Sishen mine**: Ore Reserves are reported above a processing plant feed derived cut-off of 40.0 % Fe inclusive of dilution. Plant recoveries for the Saleable Product range from 30.4%-74.0%. Ore Reserves decreased due to production.*

Ancillary Resource and Reserve information by operation

Belfast

In 2022 Belfast demonstrated its implementation of the early value coal strategy by opening its milestone fifth opencast pit. Belfast was on track in the first part of the year to reach an all-time high record production. However, challenges relating to the mining business partner in the second part of the year negatively impacted production. The challenges are currently being addressed. The technical team is focused to optimise the full area within the mining right as outlined in the early value coal strategy and applicable studies are progressing well with the conclusion of the exploration campaign and exploitation plan.

Belfast overview

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
1969	Trans-Natal Steenkoolkorporasie Beperk	Coal Resource delineation drilling
1975 to 1983	Gold Fields Mining and Development	Coal Resource delineation drilling
2001 to 2003	Eyesizwe	Coal Resource delineation drilling
2008 to present	Exxaro	Drilling to delineate Coal Resources, 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 also 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. Except for pit 4, the other opencast pits are in steady state.
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 IWUL specification. Potable water is sourced from authorised water drill holes, and process water for dust suppression and running of 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 the towns of Springs and Belfast, and about 60km in a north-south direction between the towns of 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 very minor areas where the full sequence is developed.	
Main seams	S2, S3 and S4 are exploited where economical.	
Seam development	Locally, mainly three seams are 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 takes place 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.	

Table 16: Belfast overview continued

Topic	Information
Beneficiation	Thermal coal is beneficiated in a two-stage dense medium separation plant.
Product	CV 4 800kcal/kg, 5 300kcal/kg, 5 750kcal/kg air dried and filter cake.
Market	Export market
Mining right	Belfast has an approved mining right that covers 5 818ha.
Environmental approvals	All environmental appeals have been favourably addressed for the declared Reserves.
Projects/feasibility studies	Several studies relating to the optimisation of the mining right area were concluded and closed out in 2022. Reasonable alternatives were evaluated, and multiple scenarios identified with opencast as the current preferred mining option. We are currently applying for licences to operate. The following items will be addressed in future studies: • Design and optimise discard facility to cater for life optimisation (BXP) discard material • Continue with the licence to operate application process for the Belfast mining right area • Update study documentation to reflect final designs and licence to operate applications outcomes

Figure 8: Belfast mine

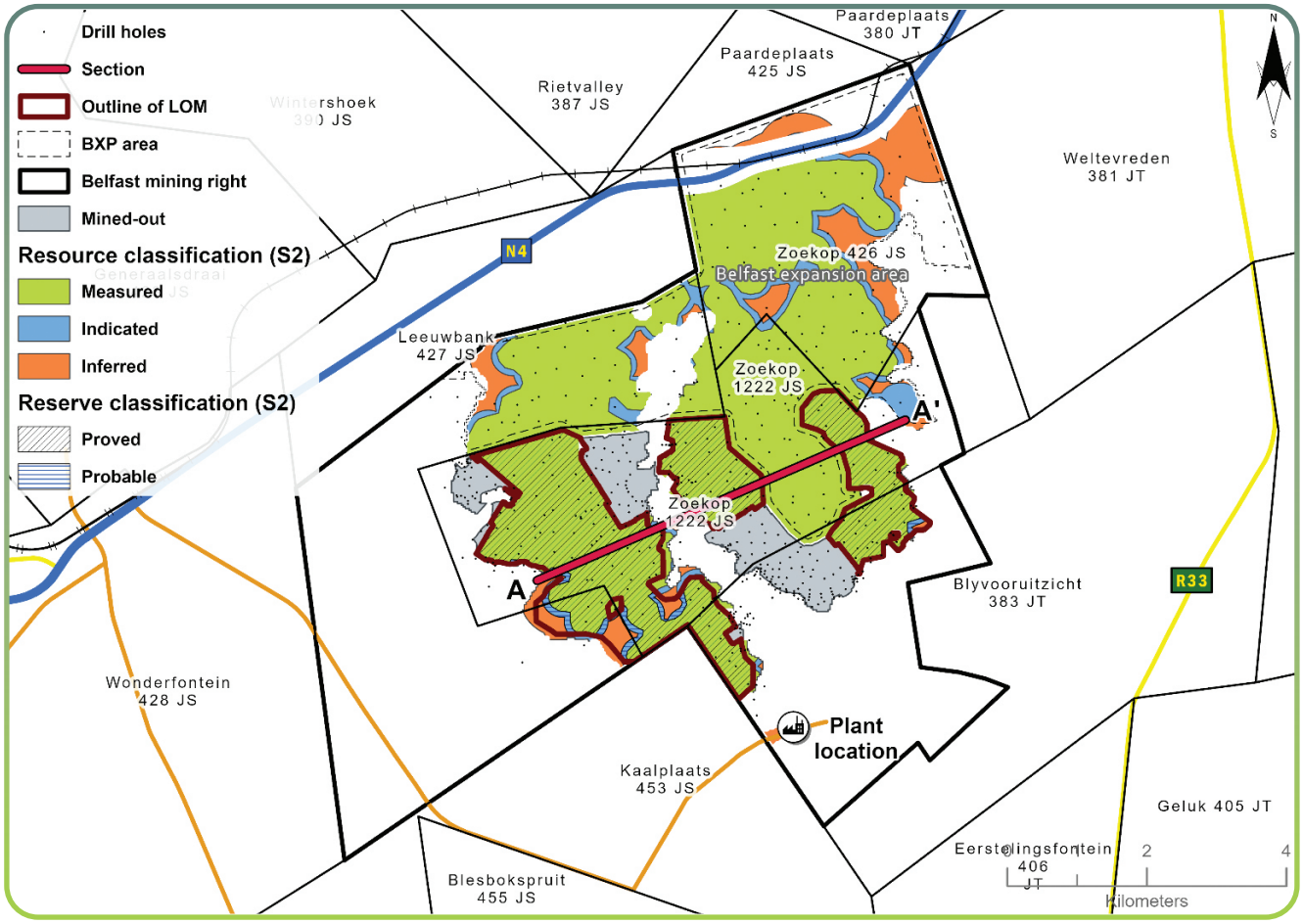
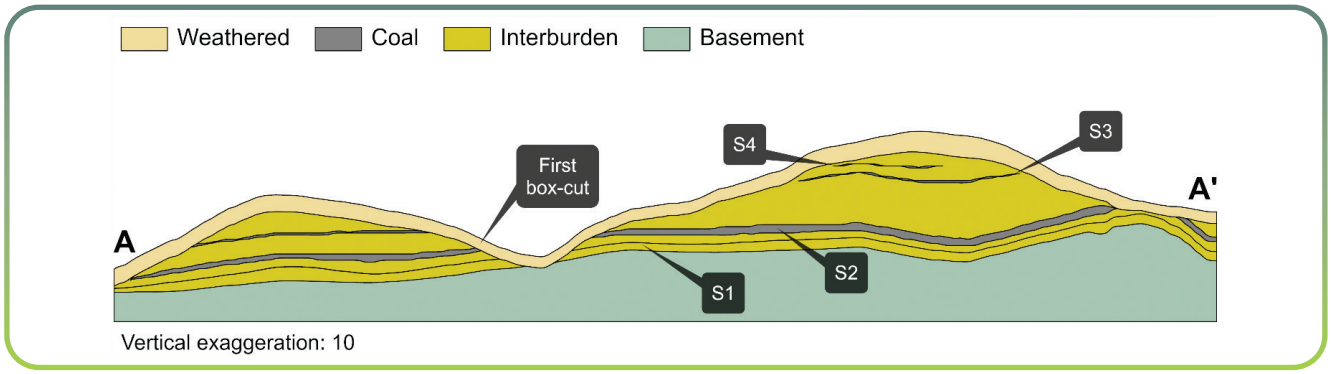


Figure 9: Belfast west-east cross-section



Belfast continued

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 as per Exxaro's procedure. Drilling mainly focuses on delineating the split between soft and hard OVB to support geotechnical characterisation, as well as 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 analyses 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 dispatch sheet is signed by the receiving laboratory personnel 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 emphasise ensuring data integrity through rigorous procedures and supervision while processing. As part of the assurance and control process, audits are performed internally and externally. 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 the relative density and length of each individual sample. 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	
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 exploitation strategy updated in 2022.
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 reasonably 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 BXP surface access is secured and surface acquisitions are in process.
Infrastructure	Assumptions used should be reasonable and within known/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	OCCS
Reserving process	Scheduling of Reserves is determined using a mining 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 is used to validate the geological information received by checking the integrity of the geological structure, that the quality and wash table values are consistent, and to convert 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	0.95Mt of Inferred Resources are included in the LoMP, representing 2.6% 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%
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	All graveyards have been identified and most were relocated, with the exception of two additional graveyards identified in 2020, but these are not on the Reserves areas and have been secured and managed accordingly. Most households have been relocated, with the exception of one household that is still within the Reserves area.
Geohydrological	Applicable surface and groundwater models considered.

Belfast continued

Table 21: Belfast Coal Resource and Coal Reserve statement

Category	2022 (Mt)	2021 (Mt)	Difference(Mt)	Difference (%)	Reason for change
Measured	**101.6**	68.3	33.3	49	The decrease, due to mining (2.9Mt) and disposals (3.1Mt) is offset by increases from a model update (~32.7Mt), reconciliation with the previous year (0.1Mt), change in reporting methodology (cut-off) from UG to OC and the inclusion of S3 and S4 (6.5Mt).
Indicated	**8.0**	19.9	(11.9)	(60)	The decrease is the result of mining (0.1Mt), new information (11Mt) and disposals (~1.5Mt) is partially offset by new information in pit 4 and pit 4B, reconciliation (0.1Mt), and a change in reporting methodology (0.6Mt).
Inferred	**13.2**	33.8	(20.5)	(61)	The decrease due to new information (17.5Mt) and disposals (3.7Mt) is partially offset by a change in reporting methodology (0.7Mt).
Total Coal Resources	**122.8**	122.2	0.6	1	
Proved	**35.8**	37.5	(1.7)	(4)	The decrease is primarily due to mining (3.1Mt), slightly offset by new information (1.3Mt) and reconciliation (0.1Mt).
Probable	**1.4**	2.4	(1)	(42)	The decrease is the result of new information (1Mt).
Total Coal Reserves	**37.2**	39.9	(2.7)	(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 2022	Twenty (20) 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.
Encumberments on the Reserve	Relocation of last residents on the Reserve.	Process of relocation 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.
Challenges with mining business partner impacting production	Challenge investigated and solutions proposed.	Alternative service providers investigated.

Operational excellence

The market-to-resource strategy that was introduced in 2020 is still ongoing with RB2 as the preferred product. Through value chain optimisation and rigorous operational excellence initiatives there have been yield improvements experienced through the production of RB2. Five operating pits provide greater flexibility in executing the requirements of the market-to-resource strategy. Operational excellence initiatives implemented in 2022 include tracking drilling accuracy to eliminate coal losses associated with poor drilling practices; optimising blast designs to improve the powder factor and reduce costs; improving the dense media separation plant reliability to support production targets; and optimising the dense media separation plant throughput to support production targets.

Leeuwpan

Leeuwpan has two operational opencast pits and continually participates in optimisation initiatives. Overburden removal was below budget due to contractor termination and challenges associated with a new mining business partner's onboarding. This also impacted subsequent pit liberation, which negatively influenced RoM and overall production.

Leeuwpan overview

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.
2006 to present	Exxaro	Infill exploration drilling; the mine has been in operation for approximately 32 years – OL has been operational since 2013, OI since 2018 and the western OI extension since 2020.
Adjacent properties	Stuart Colliery, Delta Mining Company and HCI Khusela Coal 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 that includes a rapid load-out station inside Leeuwpan's rail loop. Eskom supplies electricity to the mine directly by means of a substation at Witklip, which is linked to a nearby Eskom power line. Potable water is supplied from drill holes and pumped to 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 water. 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 seam and bottom coal seam. The bottom coal seam correlates with the S2 of the Witbank and Highveld coalfields and the top coal seam correlates with S4 and S5. The bottom coal seam qualities are generally higher than the top coal 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 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 dense medium separation plants that beneficiate coal primarily for the thermal export market and two crushing plants, crush-and-stack and bypass plants that handle selectively mined thermal coal either for the local market or the export market depending on the quality. The second dense medium separation 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, 4 800kCal or 5 300kCal product depending on the inherent coal qualities. The beneficiation plants are used to produce a 5 300kCal product.	
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 to consolidate the two mining rights being granted.	
Environmental approvals	Environmental authorisations are in place for the declared Reserves.	
Projects/feasibility studies	None	

Leeuwpan continued

Figure 10: Leeuwpan mine

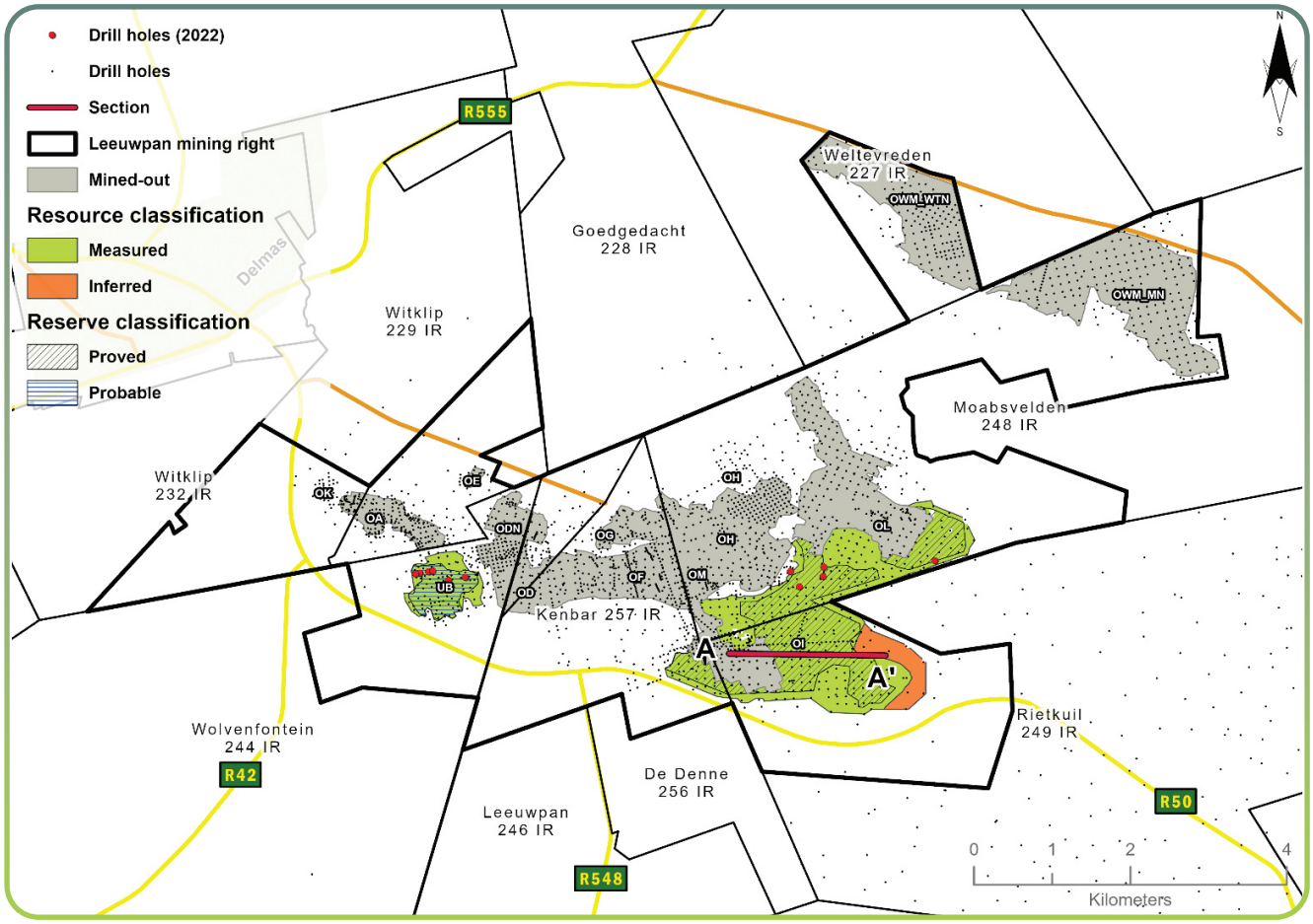
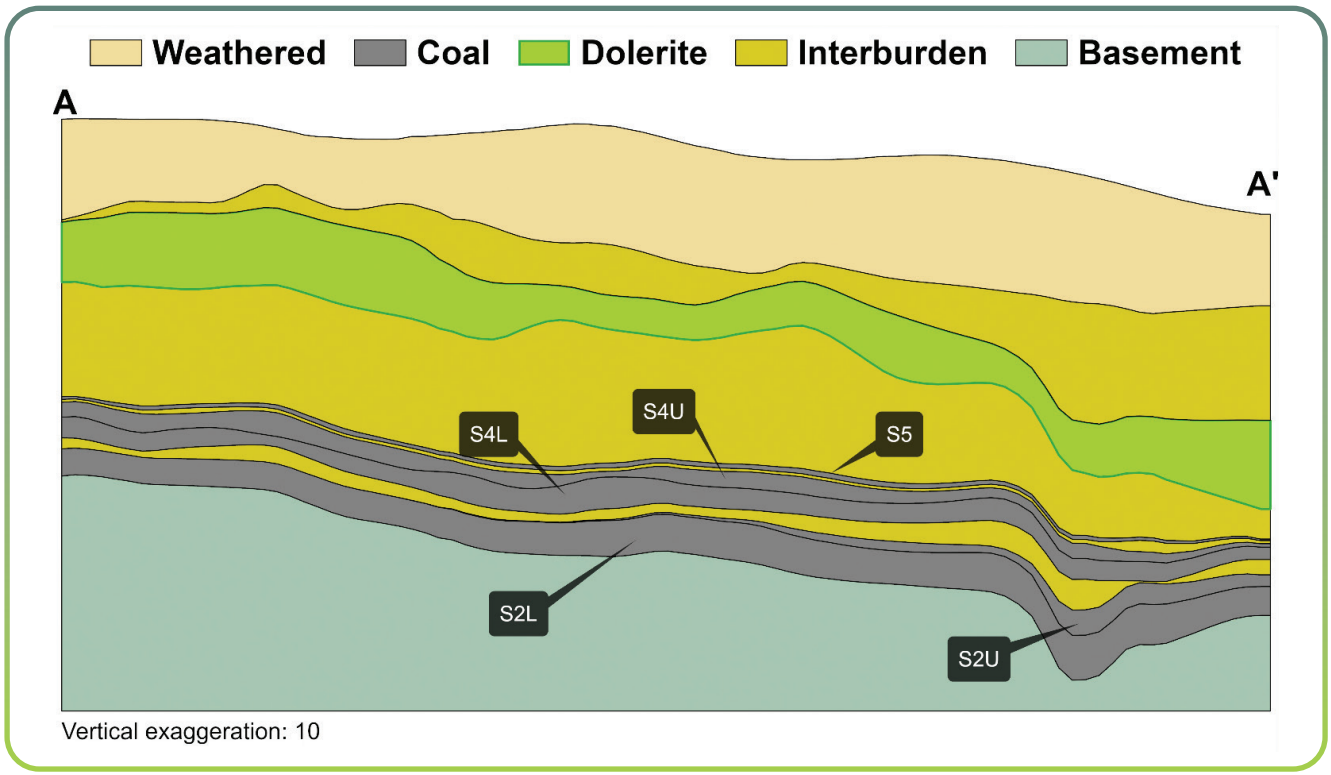


Figure 11: Leeuwpan cross-section through pit OI



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 the core. 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 material represented in that interval, ensuring no contamination occurs between materials to be sampled. Two sample tags are marked using a permanent marker. One sample tag is placed inside the bag and the second on the outside of the bag 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 dispatch sheet is signed by the receiving laboratory personnel after ensuring that the number and sample ID on the dispatch sheet matches that of the actual 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	4 128
Number of drill holes used for Resource estimation	705
Number of drill holes used for classification	605
Data compositing and weighting	Data compositing is conducted per seam using a weighted value from individual samples that make up the seam, along with the relative density and length of each individual sample. 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	2019
Last model update	2021
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	2021 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	0.18

Leeuwpan continued

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	The Geological model was considered and signed off	Yes	2021
Structural model	Structural model was considered and signed off	Yes	2021
Mining	Mining assumptions were considered and defined	Yes	Opencast
Assurance	Exxaro internal audits and external audit conducted	Yes	External audit by EY in 2021.
Economic evaluation	Exploitation study with economic and mining assumptions, including geotechnical and geohydrological assumptions	Yes	LoM exploitation study (2022).
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 be demonstrated with reasonable demonstration that a mining right approval can be obtained within the context of local, regional and national governmental legislation	Yes	Mining right valid to 2039 with no impediments noted.
Infrastructure	Assumptions used should be reasonable and within known/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.

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 three-dimensional (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 that quality and wash table values are consistent, and to convert 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 rest of modifying factors.
Mining recovery efficiency	Included in rest of 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.
Practical plant yield	90% dense media separation and 90% Fraser Alexander dense medium separation with slimes loss on dense media separation of 9% and 15% on Fraser Alexander dense media separation.
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 taken into consideration to minimise water handling in the pit face.

Table 29: Leeuwpan Coal Resources and Coal Reserves statement

Category	2022 (Mt)	2021 (Mt)	Difference in tonnes (Mt)	Difference (%)	Reason for change
Measured	65.8	77.9	(12.1)	(16.0)	The decrease is the result of mining (4.3Mt), model update (~1.5Mt), disposals (~3.4Mt), mining losses (~0.7Mt) and reconciliation (~2.2Mt).
Indicated	0.0	0.0			
Inferred	3.6	3.6			
Total Coal Resources	**69.4**	**81.5**	**(12.1)**	**(15.0)**	
Proved	36.1	40.2	(4.2)	(10)	The decrease is the result of mining (4.1Mt), mining layout changes (0.1Mt) and reconciliation (0.01Mt).
Probable	3.3	3.2	0.1	2	An increase of 0.1Mt is due to mining model refinement resulting in better plant simulation and less rejection of coal.
Total Coal Reserves	**39.4**	**43.4**	**(4.1)**	**(9)**	

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 the Resource confidence levels in the UB pit	Six (6) drill holes were drilled in the UB pit, increasing the Resource confidence level and de-risking the new box-cut area.	Five (5) drill holes planned in OI East to increase Resource confidence. Six (6) drill holes planned in UB to increase Resource confidence and structure delineation.
Delineate the sandstone washout encountered in the OL extension pit	One (1) drill hole was drilled in OL extension to delineate a sandstone washout zone.	
Gain higher confidence in the OIOL bridge area	Four (4) drill holes were drilled, delineating the geological structure and increasing confidence in the quality of coal in the area.	

Risks

Table 31: Leeuwpan risks

Risk	Description	Mitigation
Dolerite sill impact 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 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 proximity of the sill to the seams.
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 (i.e. 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.
Reserve losses	In OI West, along the R50, the rock engineering design requires that a safe stand-off distance is established to prevent potential slope failure and infrastructure damage (Eskom power line and national road).	Geotechnical design has been done to establish safe benching practice. Application in progress to allow mining within 100m of a power line and national road.

Operational excellence

Leeuwpan conducted five operational excellence initiatives in 2022 to improve its value add to the core value chain. These included aligning ROM production to the market to resource strategy and optimising contractor overburden removal, mining equipment and plant equipment effectiveness and cost management initiatives. These initiatives enabled Leeuwpan to mine remnants from pit OJ which were previously inaccessible due to proximity to existing infrastructure.

Matla

Matla is a captive underground coal mine that extracts thermal coal. All coal is crushed, screened and sized before being delivered to the Eskom-owned Matla power station via a network of conveyor belts. Matla has three major LoM projects which will provide mining access to ~83% of the remaining Coal Reserves when completed. The projects are at different levels of implementation, with delays due to funding and project execution. The projects include a boxcut and associated declines to access mineable areas at Mine 1 from the surface and an incline and decline project to create underground interseam access at Mine 2 and Mine 3.

We conduct continuous optimisation and innovation initiatives to unlock value by accessing additional mining ground.

Matla overview

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.
1990 to 2006	Eyesizwe	Mining rights ceded to Exxaro in 2006.
2006 to present	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.
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, 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 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 burnt 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 thus 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 and created 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 are aligned 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. Mine 2 and Mine 3 use bord-and-pillar methods to mine S2 and S4. Shortwall mining is also utilised to conduct mining of S2 in Mine 2.	
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.	
Environmental approvals	With the exception of the expired WUL, which is being renewed, discussions with the DWS are ongoing.	

Figure 12: Matla mine

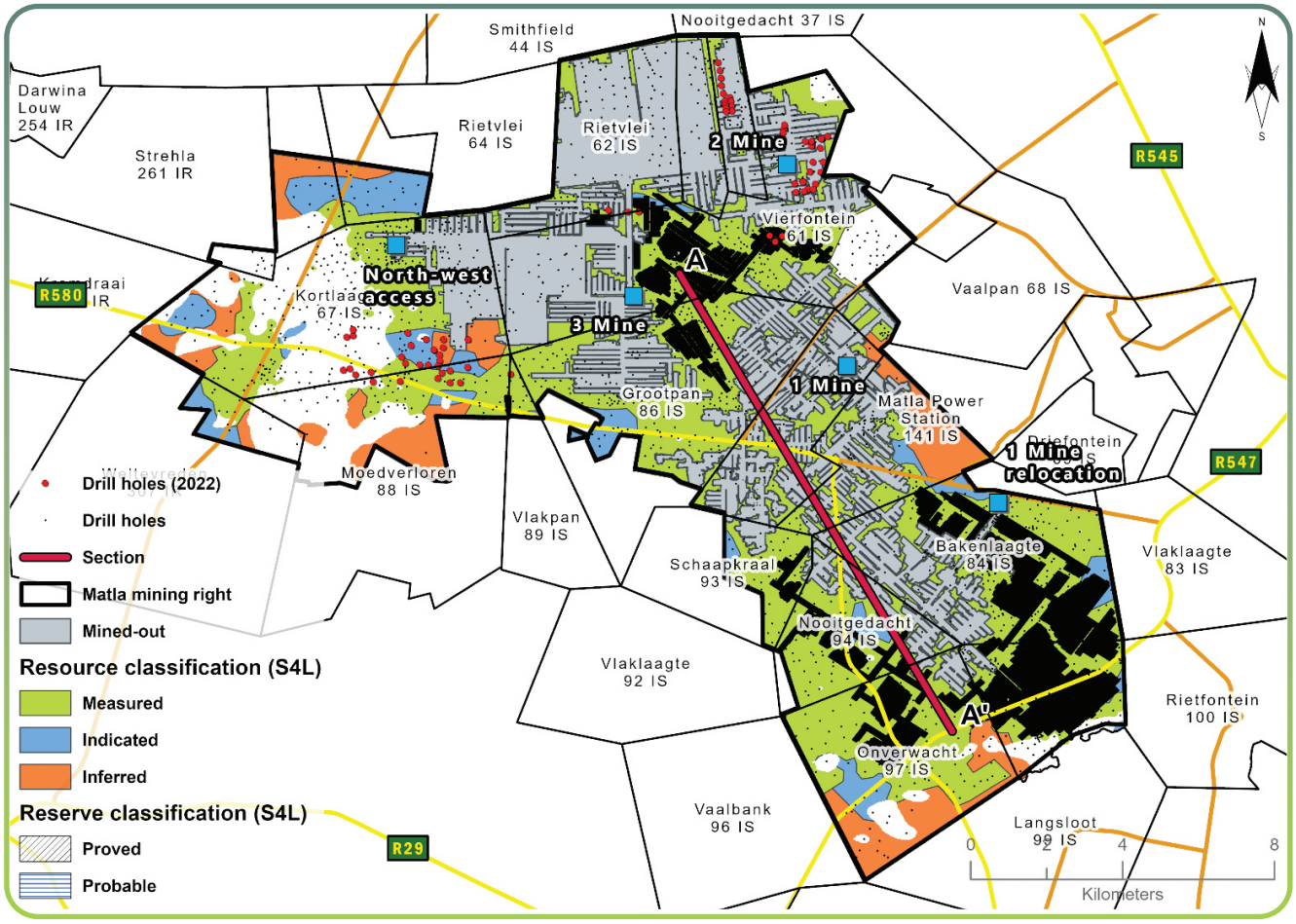
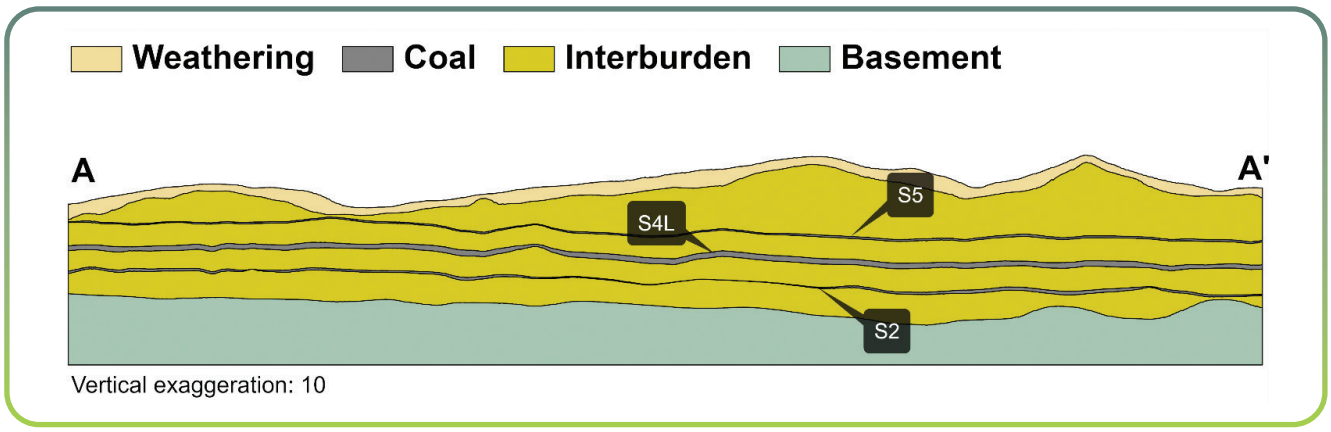


Figure 13: Matla cross-section



Matla continued

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. Of these, 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	Siza Coal laboratory, SANAS T0447
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 and bagged and are 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 correctly and safely to the laboratory. The dispatch sheet is signed by the receiving laboratory personnel after ensuring that the number and sample ID on the dispatch sheet matches that of the actual samples that should 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	Matla conducted QAQC on Siza laboratory processes and equipment in 2022. Siza laboratory also does internal validations and checks as part of their QA/QC programme. Siza partakes in round robins.
Data datum	Cape datum – LO29
Drill hole database	acQuire
Number of drill holes in mining right	2 618
Number of drill holes used for Resource estimation	S2 – 1 845 S4 – 2 403
Number of drill holes used for classification	S2 – 1 845 S4 – 2 403
Data compositing and weighting	Data compositing is conducted per seam using a weighted value from individual samples that make up the seam, along with the relative density and length of each individual sample. 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	2020
Last model update	2022
Grid mesh size	25m x 25m
Scan distance	2 000m

Table 33: Resource estimation methodology and reporting continued

Process	Information
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 creates uncertainty around continuity.	0.13
Indicated	Cored drill holes with applicable coal qualities	350m to 500m	Infill drilling is conducted where basement highs and/or seam structure creates uncertainty around continuity.	0.04
Inferred	Cored drill holes with applicable coal qualities	500m to 1 000m	Infill drilling is conducted where basement highs and/or seam structure creates uncertainty around continuity.	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	2022
Structural model	Structural model was considered and signed	Yes	2022
Mining	Mining assumptions considered and defined	Yes	Underground
Assurance	Exxaro internal audits and external audit	Yes	2019 (model and chain of custody).
Economic evaluation	Exploitation study with economic and mining assumptions, including geotechnical and geohydrological assumptions	Yes	LoM exploitation study (2022).
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 be demonstrated with reasonable demonstration 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 process and there is reasonable expectation that it will be renewed with no impediments noted.
Infrastructure	Assumptions used should be reasonable and within known/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 2023. Extension period and terms under negotiation. All considerations remain. Exxaro has reasonable expectation that the CSA will be renewed.

Matla continued

Reserve estimation

Table 36: Reserve estimation

Topic	Information
Software	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 5.6Mt of Inferred Resources are included in the LoMP, representing 3.4% of the LoMP, and are not considered material.
Modifying factors	
Average thickness cut-off	≤1.8m, low seam ≤2.1m, high seam ≤3.6 and ≥4.8m
Quality cut-offs	DAFV ≤26% and CV ≤18.5MJ/kg
Mining loss	Already included in 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	7m
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 ≤3.6 and ≥4.8m
Extraction factor	Low seam 58%, S2 48% and S4 50%
Dilution	Already included in model
Contamination	Moved from % to cm (new UGCS software). Low seam 2.1m plus 10cm roof cut. Other seams 10cm 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	2022 (Mt)	2021 (Mt)	Difference in tonnes (Mt)	Difference (%)	Reason for change
Measured	**657**	639	18	3	Mining (9Mt) was offset by new information (27Mt).
Indicated	**91**	114	(23)	(21)	Decrease (23Mt) is the result of new information.
Inferred	**87**	93	(6)	(6)	Decrease is due to new information indicating thinning seams against basement outcrop areas as well as burnt coal zones (2Mt). Additional drilling upgraded 4Mt to the Measured category.
Total Coal Resources	**835**	847	(11)	(1)	
Proved	**130**	124	6	5	Mining (6Mt) and the removal of stooping areas (4Mt) was offset by new information (16Mt).
Probable	**38**	38	—	—	
Total Coal Reserves	**167**	162	6	3	

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
Increase geological confidence in S2L Mine 3 medium-term mine plan	Drilling within the five-year mine plan at Mine 3 S2 low seam has better defined areas of thicker coal development. These areas have been confirmed and subsequently targeted for fast tracking during 2023 to improve seam heights and resultant mining conditions at the low seam.	Drilling at the low seam will continue in 2023 to better define key access areas within the mine plan.
Identify additional mineable ground on the eastern extent of Mine 2	Additional drilling was conducted to identify additional ground required to supplement current production requirements as a result of LoM project delays.	
Increased confidence in floor undulation positions at the Mine 2 shortwall	Extensive drilling and surface seismic surveys were conducted to understand small-scale variability and undulations ahead of shortwall mining. This information has been used for risk domaining and detailed for the shortwall.	

Risks

Table 39: Matla risks

Risk	Description	Mitigation
Limited pit room due to project execution delays	Approximately 78% 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.

Operational excellence

A focus on creating additional ground availability and production improvement following life of mine project delays has resulted in multiple initiatives to unlock additional value at Matla.

These initiatives include additional drilling, geophysical surveys, short-term modelling and consolidated technical studies for the evaluation of new mining areas. These initiatives include:

- Successful mining of previously challenging areas at Mine 3 S4 using additional drilling information and geological and rock engineering studies. This resulted in successful mining of the previously inaccessible S4 since 2020.
- Exploration targets focused on thicker coal seam development at the Mine 3 S2 low seam have identified areas that can be accessed in the near term to reduce contamination and improve the overall product quality from the mine.
- A ground seismic survey at the Mine 2 shortwall area has been conducted to create a high-resolution data set of the small-scale variability and seam floor behaviour ahead of shortwall mining. This information is critical to understand prevailing conditions and assist in the detailed planning at the shortwall.
- Successful mining of the eastern Reserves following additional drilling to delineate mineable coal in the previously excluded area. This Reserve has been exploited since 2021, and continues to add additional value to the mine.

Grootegeluk

Grootegeluk is a large multi-seam, multi-product surface coal mining operation that has been operating since 1980. Grootegeluk has a long-term CSA with Eskom. The RoM is hauled to five tipping areas, which feeds six different beneficiation plants. The largest portion of the beneficiated product is power station coal, which is continuously dispatched to the Matimba and Medupi power stations via a conveyor belt system. Several sized metallurgical coal products, semi-soft coking coal and steam coal are railed to various customers and shipped internationally. A small portion of the total product is sold on site to smaller customers and dispatched by road.

Grootegeluk overview

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
1980 to present	Kumba – Kumba coal – Exxaro Resources	Mine commissioned in 1980. Mine in operation approximately 42 years. Continuous exploration drilling to increase Resource confidence as well as aid structural delineation and overburden classification.
Adjacent properties	Thabametsi to the west	
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 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 which are 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 for the Vryheid Formation.	
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. The first fresh coal in the shallow south-western portion is on average 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 mine 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. There is a small area of the Thabametsi mining right included in the Grootegeluk LoM (Figure 14) due to practical considerations. Both rights are owned by Exxaro.	
Mining method	Grootegeluk comprises one open-pit mine, which includes three overburden benches, 10 RoM benches and four interburden benches. A series of parallel benches are advanced progressively across the deposit via a process of 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 makes use of six processing plants to beneficiate coal. This includes four dense medium separation 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, as well as steam coal at 12.5% 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	Local 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	The Grootegeluk Alternative Mining Solution (GGAMS) BFS project was aimed at reviewing various technology alternatives for the transportation of OVB material from Grootegeluk's mining pit to its In-Pit Discard Backfill system. To achieve this, the overburden was modelled in various material types with associated levels of confidence (Measured/Indicated/Inferred). The results indicated that the confidence levels of the OVB material types, OVB volumes and tonnages, top of coal and geological structures vary throughout the LoMP areas. For the areas of low confidence, proactive exploration drilling campaigns are required to ensure that increased levels of OVB confidence are available for accurate mine design and planning. The GG AMS study concluded that the base case trucking solution was still the most economical mining solution as opposed to an OVB impact crush and convey system.	

Figure 14: Grootegeluk mine

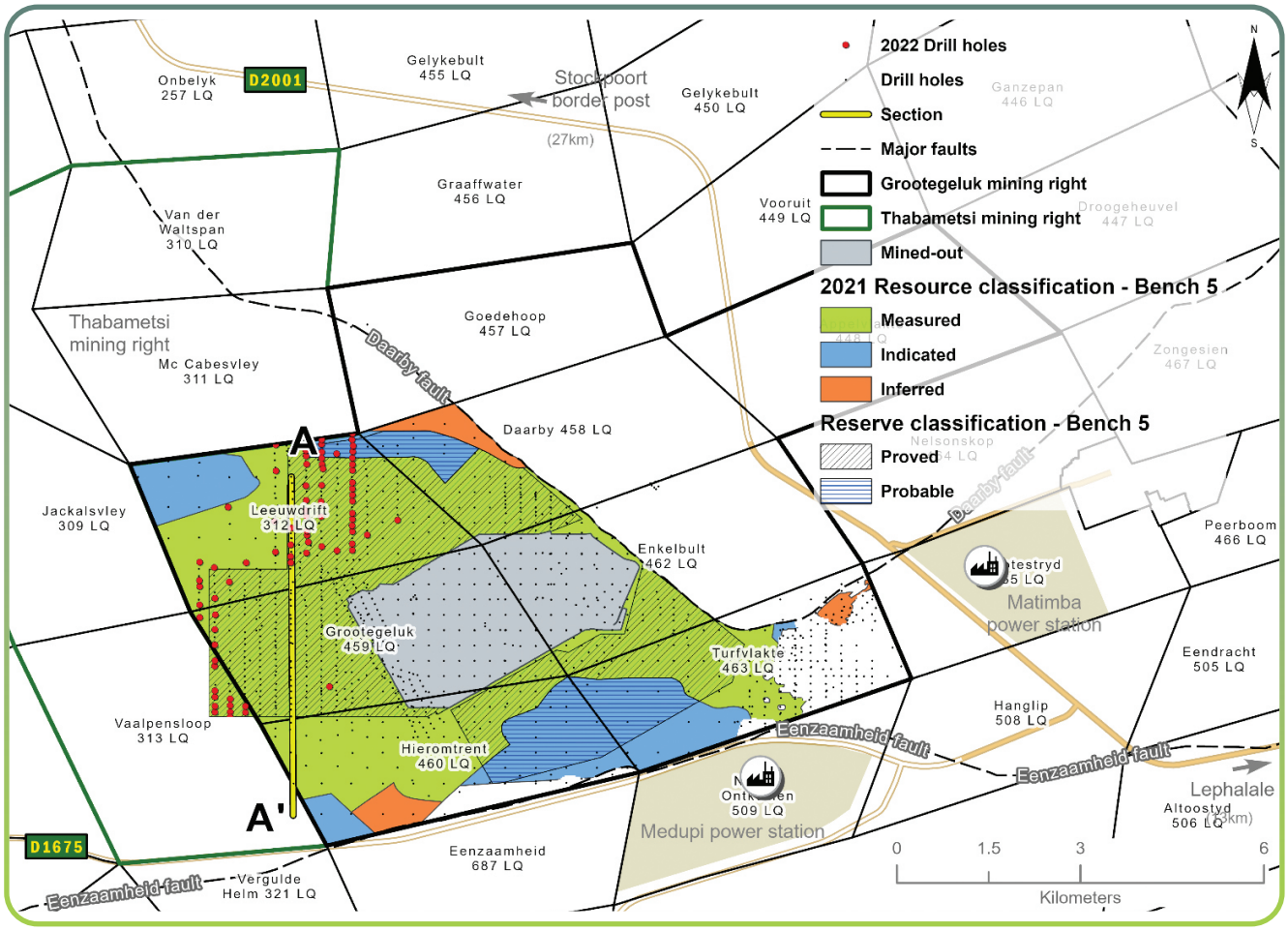
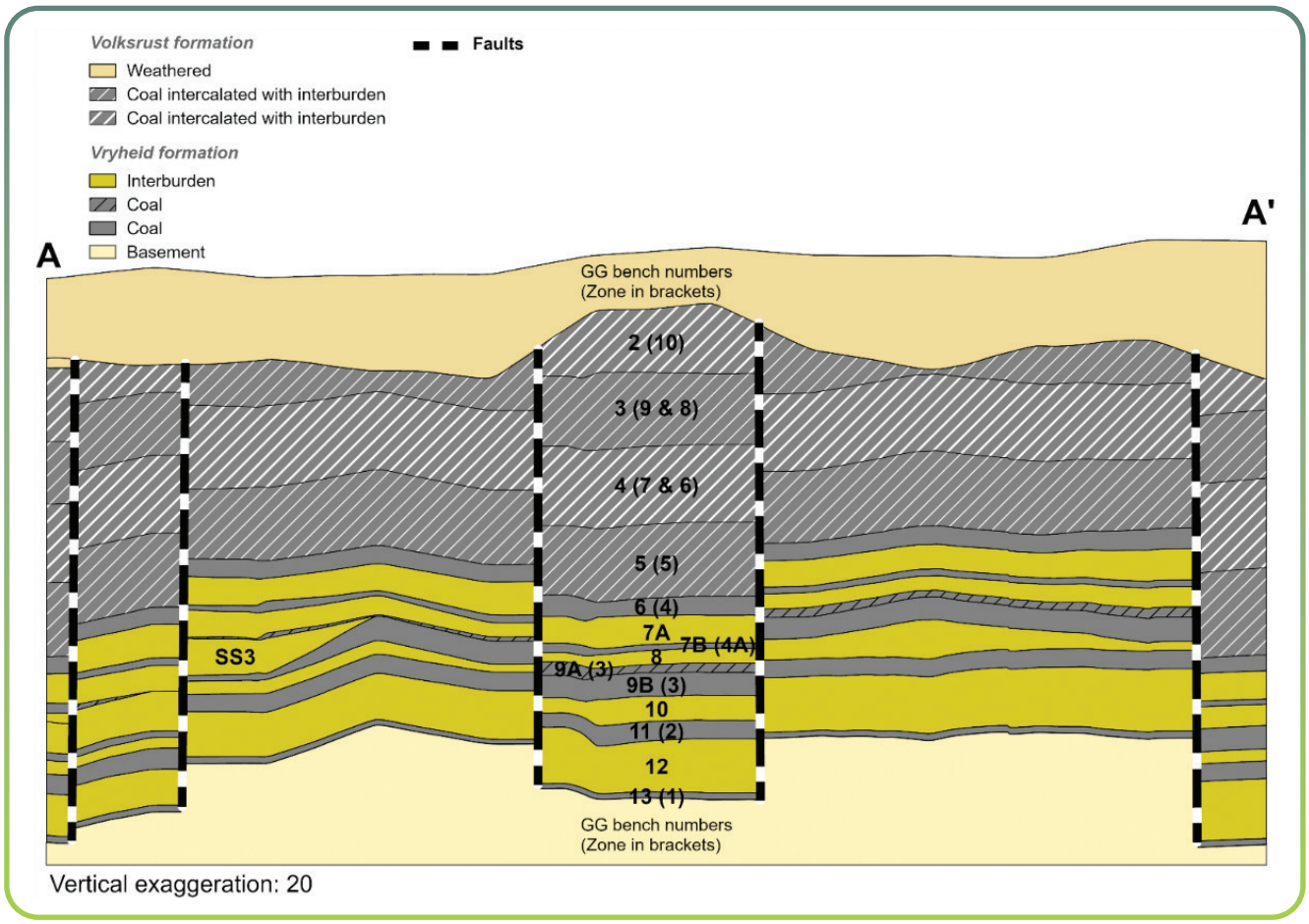


Figure 15: Grootegeluk cross-section



Grootegeluk continued

Resource estimation

Table 41: Resource estimation methodology and reporting

Process	Information
Drilling, logging and sampling	In order 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. The reason for this placement of large diameter drill holes was that 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	As part of the QAQC, audits are performed internally and externally. 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 MR	1 496
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 the relative density and length of each individual sample. 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.

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	Yes	2022
Mining	Mining assumptions were considered and defined	Yes	Opencast
Assurance	Exxaro internal audits and external audit were conducted	Yes	Internal review on Resource processes and LoM in 2022.
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 be demonstrated with reasonable demonstration 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/assumed tolerances or have examples of precedence	Yes	Existing infrastructure 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 local 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, as well as 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 LoM plan, representing 2.8% of the LoM plan, and are not considered material. The impact of the Inferred Resources is known with the majority thereof 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	No dilution is planned
Contamination	No contamination factor is applied
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
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	There are no known socially sensitive areas in the pit layout (for example, graveyards and dwellings).
Geohydrological	Areas identified are flagged and excluded or reclassified in the reserving process.

Grootegeluk continued

Table 45: Grootegeluk Coal Resources and Coal Reserves statement

Category	2022 (Mt)	2021 (Mt)	Difference in tonnes (Mt)	Difference (%)	Reason for change
Measured	3 039	2 481	558	22	The decrease is the result of mining (~59Mt) and the removal of a portion of bench 7B due to high ash content (~4Mt), which was offset by new information (621Mt).
Indicated	967	1 421	(455)	(32)	The decrease is the result of the removal of bench 7B to waste (4Mt) and new information (451Mt).
Inferred	178	338	(160)	(47)	The decrease is due to new information (160Mt).
Total Coal Resources	4 184	4 240	(56)	(1)	
Proved	2 034	1 682	352	21	The overall increase due to mining (58Mt) and the removal of bench 7B (28Mt) was offset by reconciliation (1Mt) and the change in Resource base (437Mt).
Probable	550	898	(348)	(39)	The decrease is the result of the removal of bench 7B (11Mt) and new information (337Mt).
Total Coal Reserves	2 584	2 580	4	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 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 overburden material characterisation, delineation of structures and resource classification	Seventy six (76) percussion holes drilled for OVB material classification and to aide in the delineation of faults in structurally complex areas Four (4) shallow rotary core drill holes drilled for geotechnical characterisation of the OVB. Ten (10) deep rotary core drill holes drilled to obtain samples for quality analysis and to aide in Resource classification	Ten (10) rotary core drill holes for Resource estimation and classification. Two (2) rotary core drill holes for geometallurgical studies. Three (3) deep rotary core drill holes for geotechnical characterisation. Thirty (30) percussion drill holes for OVB classification and structural delineation. Three (3) percussion drill holes for water monitoring.

Risks

Table 47: Grootegeluk risks

Risk	Description	Mitigation
Unweathered OVB availability	Material in the west is more weathered with less shale material available	Borrow pit in the north to be constructed to source non-weathered material for backfill construction (included in the updated LoMP).
Management of excessive rainwater in the pit	Risk of flooding pit floor if rainfall is above mean annual rainfall; impact on B11 mining	Sump strategy and diversion of water from plant (included in updated LoMP).
GDIP phase 3 timelines	The plant waste is stacked using two progressing vertical levels known as the upper system and the lower system. These systems are approximately 860m and 900m above sea level respectively (860m-level and 900m-level). The 860 plant waste system is reaching the turn and the mine is at risk of having only one waste system running	Prolong utilisation of 860 plant waste area.
Delayed arrival of additional truck capacity	Mining capacity shortage in H1 2023	Mining contractor appointed to start mining sumps, alleviating some of the constraints on the fleet.
Full product stockpiles	TFR offtake challenges	Reviewing options to address the shortcomings in the TFR offtake as well as considering alternatives to optimise the transport to our various customers.

Operational excellence

Strategic backfill is crucial to the effective execution of Grootegeluk. New information distinguishing between the various OVB material types contributed to the mine integrating backfill and mining activities into a consolidated plan that enables detailed material destination scheduling. The plan provisions for a sump strategy for effective in-pit water management, which addresses a historical operational challenge in the large open pit. In addition, the plan includes consolidating and redefining certain waste mining benches based on economical and practical considerations and improving mining activity sequencing to ensure the continuous supply of suitable material to all specified destinations. The conclusion of the plan is an exceptional achievement for Exxaro.

Thabametsi

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.

Thabametsi overview

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 will use 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 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 geology, 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. The first fresh coal in the shallow south-western portion is on average 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 mine 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	Local	
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 during the last number of years. The project development agreement with our IPP project partner, however, 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.	

Thabametsi continued

Figure 16: Thabametsi project

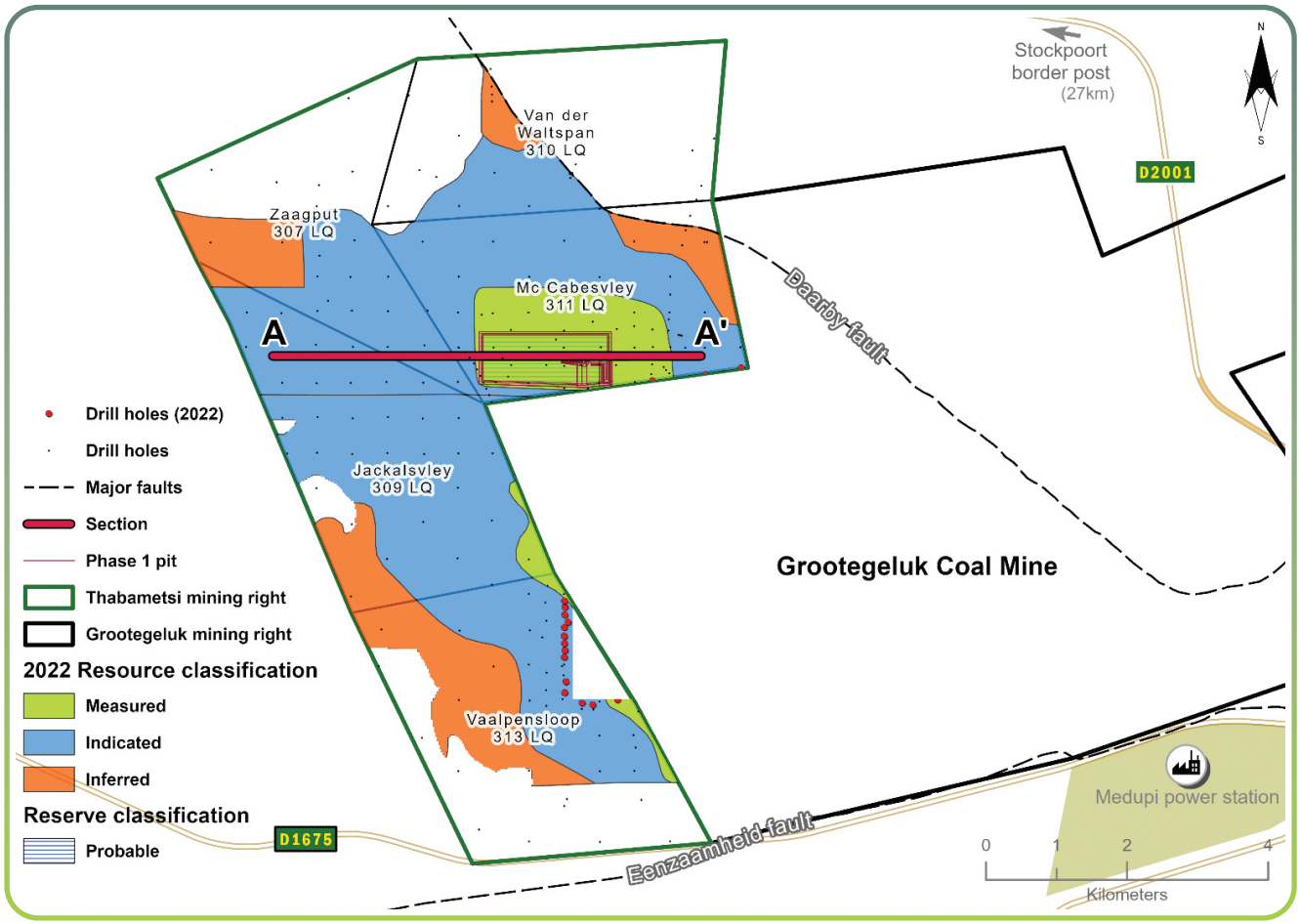
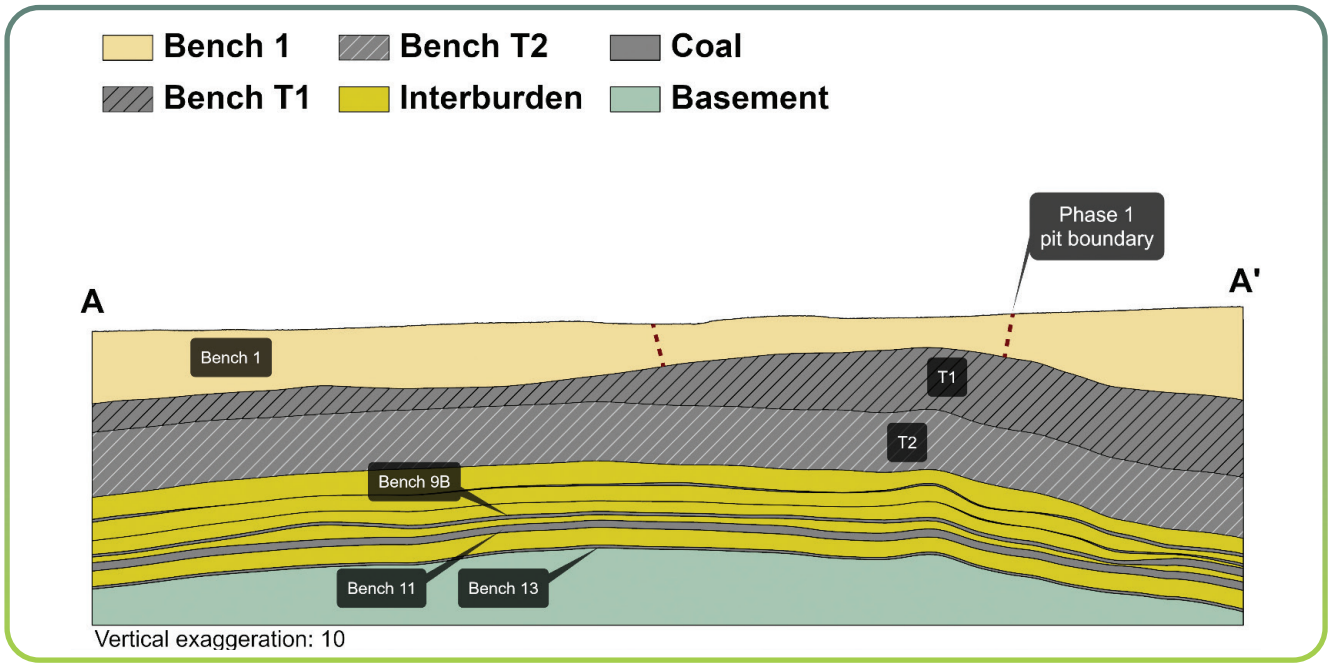


Figure 17: Thabametsi cross-section



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, as well as 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 though rigorous procedures and supervision while processing. As part of the assurance and control process, audits are performed internally and externally. 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 MR	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 (CAB) module in Sable Data Works Proprietary
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

Thabametsi continued

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 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 be demonstrated with reasonable demonstration 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/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 as well as the quality data for each bench is 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 overburden *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

Table 52: Reserve estimation continued

Topic	Information
Practical plant yield	Crushing and screening process 98%
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	There are no known socially sensitive areas in the pit layout (for example, graveyards and dwellings)
Geohydrological	No areas identified in the mining area

** T1 and T2 mining benches (Figure 16)*

Table 53: Thabametsi Coal Resources and Coal Reserves statement

Category	2022 (Mt)	2021 (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
Percussion holes for OVB material classification and to aid in the delineation of faults in structurally complex areas.	16 percussion holes were completed.	Desktop studies to further optimise extraction alternatives.
Deep rotary core drill holes to obtain samples for quality analysis and to aid in Resource classification.	Two deep rotary core drill holes were completed.	
Reviewing of future exploitation options for full mining right area	Evaluation of options for the best exploitation strategy. Options selected and concluded.	

Risks

Table 55: Thabametsi risks

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

Operational excellence

Thabametsi is not currently an operating mine.

Mafube

Mafube's Nooitgedacht operation produced its first coal in June 2018, ramping up the current production from four operating pits. The ramp-up is supported by an entrenched implementation of the theory of constraints approach to debottleneck projects combined with the early value strategy.

Mafube overview

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
2017 to 2021	Mafube Coal	Coal Resource delineation drilling and five-year mine plan infill drilling
2022	Thungela	Rooipan Coal Resource delineation and infill drilling
Adjacent properties	The majority of the properties adjacent to Mafube are owned by 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. Direct bulk power is supplied by Eskom at two points: main consumer substation adjacent to the CHPP and at the Overland Conveyor No 3 substation. Potable water is sourced on site as per the integrated water use licence 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 the towns of Springs and Belfast, and about 60km in a north-south direction between the towns of 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, S5 has been eroded.	
Main seams	S4, S2 and S1.	
Seam development	S4 is confined to the deeper parts (north-west) of the mining area, S3 is thin and of no current economic significance. An upper sub-seam, designated S2 upper (S2U), is sometimes present. The S2U and S2L are separated by a thin but distinctive parting (designated S2 parting (P2) with an average thickness of 0.55 m). The S2U is fairly thin (averaging 0.73 m in thickness) and consists of poorer quality coal and is therefore not economic. S2 lower (S2L) is the main economic seam with an average thickness of 4.2m. 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 1.3 m) 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. There is minor influence from geological faulting, thrusting and intrusions within the Mafube area, despite aeromagnetic tentatively identifying some north-south trending lineaments. 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 Reserve are limited by the mining economics aligned with the existing LoMP strategy.	
Mining method	The extraction of coal is based on 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 dense medium separation 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 covers 10 933ha in total. We are addressing competing applications.	
Environmental approvals	All environmental appeals have been favourably addressed for the declared Reserves with the exception of the Rooipan Reserves which are reported as Probable pending the approval of the IWUL.	
Projects/feasibility studies	The de-bottlenecking project; which aims to enable an RoM production ramp up to 7Mt per annum; is currently on hold pending Rooipan IWUL approval.	

Figure 18: Mafube mine

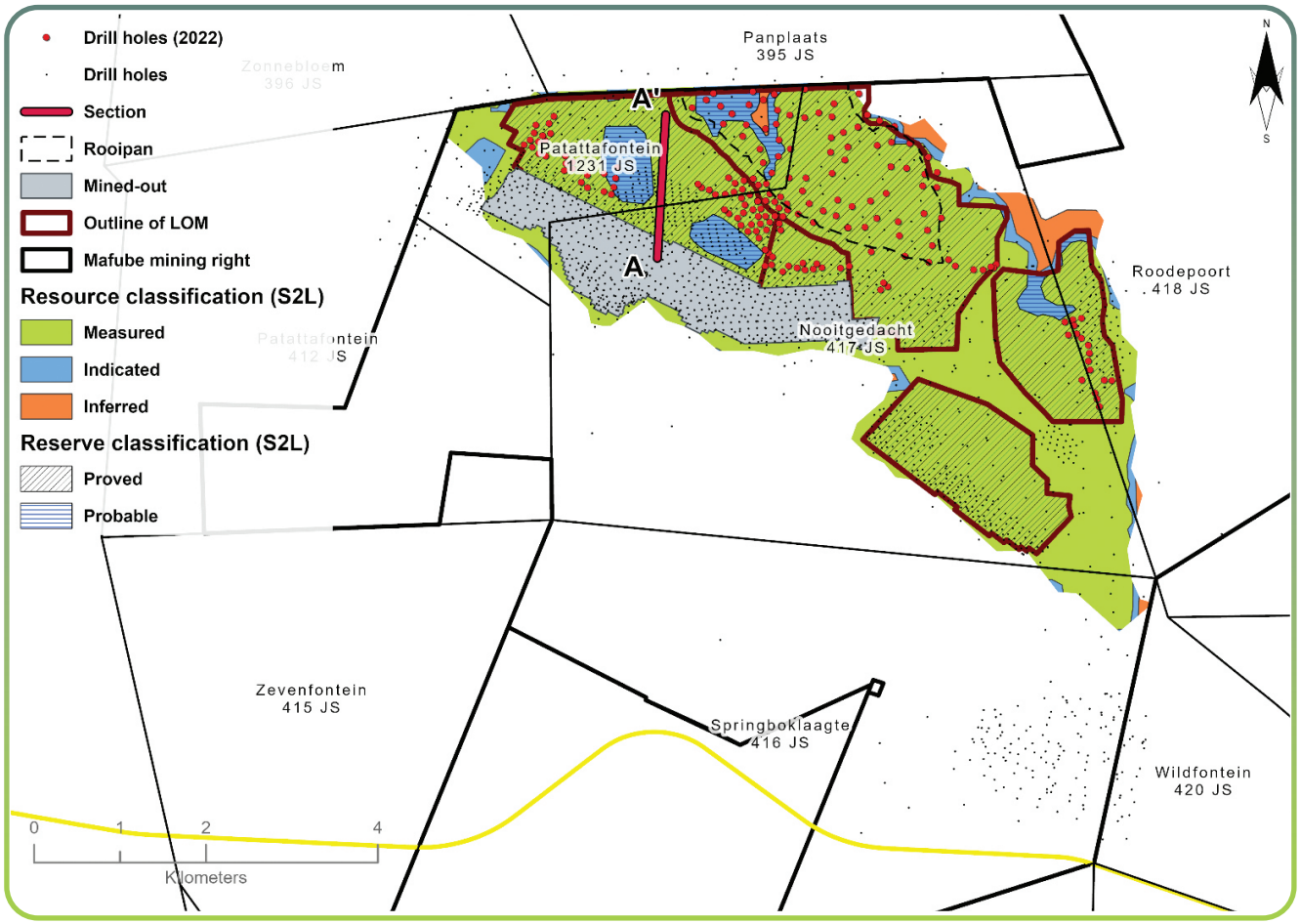
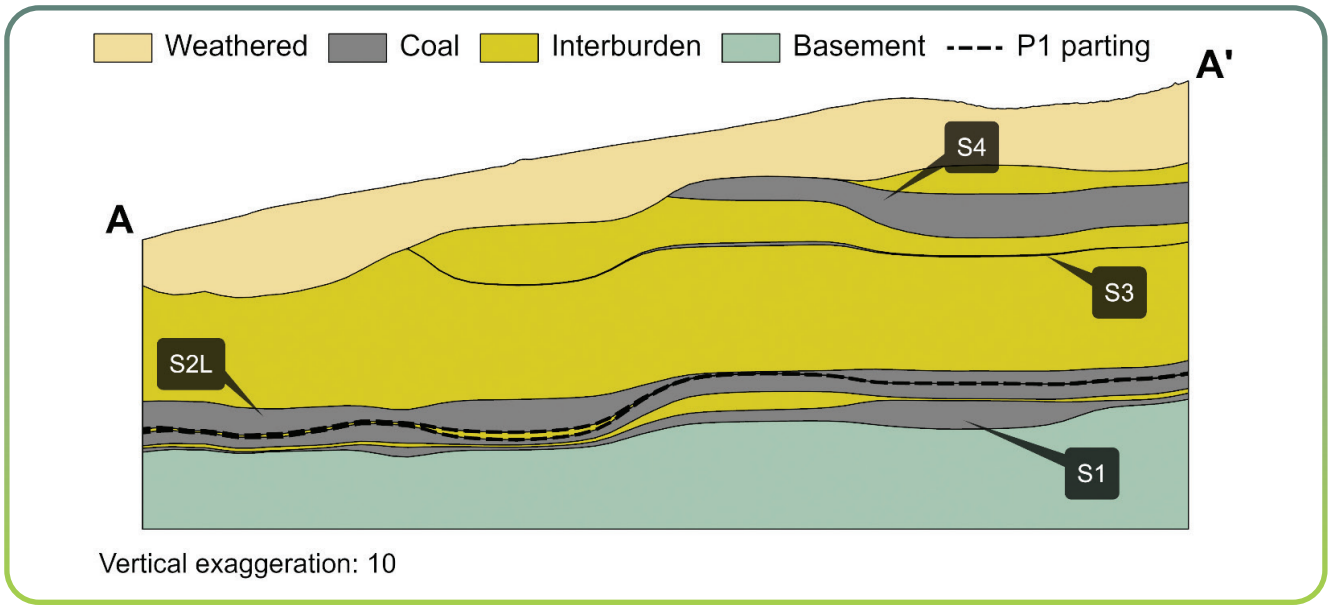


Figure 19: Mafube west-east cross-section



Mafube continued

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 overburden 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 are 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 (SCS) and the sample advice sheet. Once the samples are entered onto SCS, sample request forms are generated which keeps record of samples requested and sent to the laboratory. On receiving the samples, the laboratory personnel ensures that the number and sample identity on the Sample Request Forms matches that of the actual samples to be analysed. The laboratory personnel then signs 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. As part of the assurance and control process, audits are performed internally and externally. 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	1 351
Number of drill holes used for Resource estimation	1 342
Number of drill holes used for classification	S1 – 522 S2L – 962 S4 – 36
Data compositing and weighting	Data compositing is conducted per seam using a weighted value from individual samples that make up the seam, along with the relative density and length of each individual sample. 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	2018
Last model update	2020
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)	None
Geological loss applied	Resources not in LoM Measured – 10% Indicated – 15% Inferred – 20% Resources in LoM Sub-outcrop – 30% Measured – 10% Indicated – 12%

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%	8
Indicated	Cored drill holes with applicable coal qualities	350m to 500m	Geoloss domains of 15%	4
Inferred	Cored drill holes with applicable coal qualities	500m to 1 000m	Geoloss domains of 20%	1

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	Yes	2021
Mining	Mining assumptions considered and defined	Yes	Opencast
Assurance	Exxaro internal audits and 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 studies, draft scope submitted to DMRE and the completion of the water balance and treatment plant requirement assessment. Phase 1 has been completed and we are awaiting DWS to review, approve and link Mafube to Phase 2 (Ref. No. CT23656).
Tenure	Formal tenure must be demonstrated with 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 right ownership is secured for current LoM.
Infrastructure	Assumptions used should be reasonable and within known/assumed tolerances or have examples of precedence	Yes	Existing infrastructure 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 JV partners for their individual export markets.

Mafube continued

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 is used to validate the geological information received by checking the integrity of the geological structure, that quality and wash table values are consistent, and to convert 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.
Inferred Resources inside LoM	Some 1.59Mt of Inferred Resources are included in the LoMP, representing 1.3% of the LoMP, and only accounts for 0.1% in the next five years 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 run of mine
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	2022 (Mt)	2021 (Mt)	Difference in tonnes (Mt)	Difference (%)	Reason for change
Measured	**125.0**	104.3	20.7	19.8	Mining (5.3Mt) was offset by the inclusion of Rooipan (26Mt).
Indicated	**16.3**	9.9	6.4	64.6	Mining (0.9Mt) was offset by the inclusion of Rooipan (5.8Mt) and new information (1.5Mt).
Inferred	**2.5**	2.6	(0.1)	(3.8)	The inclusion of Rooipan (1.5Mt) was offset by new information (~1.5Mt).
Total Coal Resources	**143.8**	**116.8**	27.0	23.2	
Proved	**80.6**	26.7	53.9	202	Depletion (5.5Mt) is offset by the update of the LoMP including new Reserve areas (39.7Mt), as well as pits MGA and MGF (Probable to Proved) (19.6Mt).
Probable	**40.8**	23.0	17.8	77	The increase is a result of new information (6.7Mt) and the inclusion of Rooipan (30.6Mt) in the updated LoMP, slightly offset by the movement of the MGA and MGF Reserves to the Proved category (19.6Mt).
Total Coal Reserves	**121.4**	**49.7**	71.7	144	

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 2022 exploration programme was primarily directed in acquiring Resource confidence, enhance geological modelling and estimation as well as infill drilling for the five-year LoM plan. An additional seventy six (76) drill holes were planned for the Rooipan area to increase the level of geological confidence once the general authorisation was received from the DWS.	A hundred and ninety one (191) holes of the planned two hundred and fifty seven (257) were completed in the reporting year. Drilling was significantly affected by challenging weather conditions as well as poor drill performance and personnel turnover from the drilling contractor at the start of the drilling season but improved during the latter part of the campaign. Exploration results overall confirmed the continuity of the coal seams.	A hundred and seventy (170) drill holes are planned as in-fill 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, draft scope submitted to DMRE and the completion of the water balance and treatment plant requirement assessment (Ref. No. CT23656). The EIA/EMPr and EA for mining Rooipan was submitted to the DMRE and are awaiting approval. 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.

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 the environment it operates in. Its operational excellence strategy applies the theory of constraints as the operating philosophy to optimise our business performance and ensure profitability for shareholders.

Exploration expenditure

Table 64: Exploration expenditure

	2021 actual		2022 actual				2023 planning[1]	
Project or mining operation	**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	36	2.9	72	6.0	6.6	12.6	48	26.8
Matla[3]	53	20.0	76	19.9	0.5	20.4	30	5.5
Belfast	53	3.4	None				20	0.5
Leeuwpan	12	0.6	11	0.5	0.2	0.6	11	0.7
Thabametsi project[4]		1.2	18	1.4	1.6	3.0		0.2
Other (projects not reported on)								
Total	154	28.0	177	27.8	8.9	36.6	109	33.7
Moranbah South project (not under operational control)[5]	5	A$1.49	4	A$6.63m	A$3.22m	A$9.85m	14	A$10.3m
Mafube (not under operational control)	295	301.3	191	6.8	4.5	11.2	170	14.4

[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] *2022 cost includes horizontal drilling.*
[4] *Includes Resource studies.*
[5] *Includes two surface to in-seam drill holes drilled with four branches as well as 33km² of 3D geophysical seismic survey.*

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.

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 GSSA and registered (400038/11) with the South African Council for Natural Scientific Professions. He has a BSc (Geology) (Hons) and 27 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)
Pr Sci Nat (400038/11)
Group manager: geoscience
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Centurion 0163
South Africa

South African Council for Natural Scientific Professions

Private Bag X540
Silverton
0127
Gauteng
South Africa

The Exxaro lead Coal Reserve Competent Person is Chris Ballot, a mining engineer registered (20060040) with ECSA. He has 26 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
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0163
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Engineering Council of South Africa

Private Bag X691
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2026
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Both parties are in the full-time employment of Exxaro, Henk Lingenfelder as the group manager: geosciences and Chris Ballot as the group manager: mining. Both parties consented to the inclusion of the Resource and Reserve estimates in the 2022 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 and that they consent to the publication of the report.

Abbreviations

adb	Air-dried basis
Ag	Silver
AMS	Alternative mining solution
BC	Bottom coal
BMM	Black Mountain Mining
CSA	Coal supply agreement
CV	Calorific value
DAF	Dry ash free volatiles
DMRE	Department of Minerals Resources and Energy
ECSA	Engineering Council of South Africa
ESG	Environmental, social and governance
GIS	Geographic information system
GSSA	Geological Society of South Africa
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 edition
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
MRMR	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
QAQC	Quality assurance and quality control
RB 2, 3, 4	Refer to product qualities at Richards Bay Coal Terminal
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 edition
SANS	South African National Standard
TC	Top coal
TFR	Transnet Freight Rail
UG	Underground mining method
UGCS	Underground Coal Solution (mine scheduling software)
VM	Volatile matter

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	
Strathrae**	Strathrae (OC)	Strathrae (328MR)	Mining right	Granted	22 November 2019	
			Renewal	New application		
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.*
*** No Resources declared.*

Table 66: Coal production figures (Mt)

Operation	Product	2021	2022	2023 forecast	2024 forecast
Grootegeluk	Thermal coal	25.3	**27.9**	27.2	26.7
Grootegeluk	Metallurgical coal	1.9	**2.0**	3.2	3.4
Matla	Thermal coal	5.9	**6.2**	5.8	4.4
Leeuwpan	Thermal coal	2.4	**2.6**	3.9	4.1
Belfast	Thermal coal	2.5	**2.4**	3.3	3.3
Mafube (buy-ins from joint venture)	Thermal coal	1.4	**2.1**	1.9	1.9

Administration

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2000/011076/06
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ISIN code: ZAE000084992 ADR code: EXXAY
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Disclaimer

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