EXXARO RESOURCES LIMITED

2016

CONSOLIDATED MINERAL RESOURCES AND ORE RESERVES REPORT

exxaro

POWERING POSSIBILITY

FOREWORD

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

The information in this report is aligned with the JSE Listings Requirements (section 12) 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 ore reserves were estimated by competent persons on an operational or project basis and in accordance with the South African Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves, 2007 edition, amended July 2009 (the SAMREC Code) for African properties, except for Vedanta's property, and the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 edition (the JORC Code) for Australian and Vedanta's properties.

For coal resources and reserves under Exxaro's management control, estimation is in line with the South African National Standard: South African guide to the systematic evaluation of coal resources and coal reserves (SANS 10320:2004). Resource and reserve estimates are quoted in full, irrespective of Exxaro shareholding.

Exxaro reports mineral estimates that are directly under its management control and includes estimates for entities in which we hold a 25% interest or more. Supplementary descriptions are provided for projects and operations directly under Exxaro's management control. For projects and operations included in the Exxaro mineral resource and ore reserve statement but in which Exxaro does not have management control, the reader is referred to that company's website, shown below, for supplemental information. This approach ensures maximum compliance to the principles of materiality and transparency. Exxaro does not report on Kumba Iron Ore (20,62% Exxaro ownership), in line with the directive above.

Anglo American Coal operations and projects:
http://www.angloamerican.com

Kumba Iron Ore: http://www.angloamericankumba.com

Tronox: http://tronox.com

Vedanta Resources plc base metal operations and projects:
http://www.vedantaresources.com/

CERTIFICATE BY GROUP COMPANY SECRETARY

In terms of section 88(2)(e) of the Companies Act 71 of 2008, as amended (Companies Act), I, Carina Wessels, in my capacity as group company secretary and legal, confirm that, to the best of my knowledge, for the year ended 31 December 2016, 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.

Carina Wessels
Group company secretary
Pretoria

7 April 2017

ENDORSEMENT

The Exxaro lead competent persons are appointed by the Exxaro executive management team.

The Exxaro lead mineral resource competent person is Henk Lingenfelder, a member of the Geological Society of South Africa and registered (400038/11) with the South African Council for Natural Scientific Professions. He has a BSc (hons) in geology and 21 years of experience as an exploration and mining geologist in coal, iron ore and industrial minerals, of which six are specific to coal and iron ore estimation.

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

JH Lingenfelder
BSc geology (hons)
Pr Sci Nat (400038/11)
Group manager geoscience
Roger Dyason Road
Pretoria West
0183

The address for South African Council for Natural Scientific Professions:
Private bag x540
Silverton
0127
Gauteng
South Africa

The Exxaro lead ore reserve competent person is Chris Ballot, a mining engineer registered (20060040) with the Engineering Council of South Africa. He has 20 years of experience in iron ore, mineral sands and coal in various technical and management roles.

The person in Exxaro designated to take corporate responsibility for ore reserves, C Ballot, the undersigned, has reviewed and endorsed the reported estimates.

CC Ballot
BEng mining
ECSA 20060040
Manager mining processes
Roger Dyason Road
Pretoria West
0183

The address for Engineering Council of South Africa:
Private bag x691
Bruma
2026
Gauteng
South Africa

CONTENTS

2 1 INTRODUCTION
6 2 TENURE
8 3 GOVERNANCE
9 4 COMPETENT PERSONS
10 5 RISK, LIABILITY AND ASSURANCE
11 6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES
24 7 ESTIMATION METHODOLOGY SUMMARY
24 7.1 Mineral resources
25 7.2 Ore reserves
26 8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION
26 8.1 Arnot coal mine
27 8.2 Belfast project
29 8.3 Grootegeluk coal mine
31 8.4 Thabametsi project
33 8.5 Dorstfontein Complex
35 8.6 Forzando
38 8.7 Matla coal mine
40 8.8 Leeuwpan coal mine
43 8.9 North Block Complex
44 8.10 Eloff project
46 8.11 Tumelo
47 8.12 Zonderwater project
50 9 EXPLORATION

Table of figures

3 Figure 1: Exxaro attributable coal resources and reserves
3 Figure 2: Exxaro attributable Waterberg coal resources
4 Figure 3: Exxaro mining and prospecting rights in the Waterberg
5 Figure 4: Locality map for Exxaro resources and reserves
7 Figure 5: Locality map for ECC mining and prospecting rights
26 Figure 6: Arnot mine
27 Figure 7: Typical north-south (B-BĐ) section through Arnot geological model
27 Figure 8: Belfast project
28 Figure 9: West-east cross section through the 2012 geological model (10x vertical exaggeration)
29 Figure 10: Grootegeluk mine
30 Figure 11: Typical west-east section through Grootegeluk geological model
31 Figure 12: Thabametsi project
32 Figure 13: Cross-section through 2015 Thabametsi geological model (10 x vertical exaggeration)
33 Figure 14: Dorstfontein Complex
34 Figure 15: Typical SW-NE section through Dorstfontein geological model
36 Figure 16: Forzando mines
37 Figure 17: Typical W-E section through Forzando geological model
38 Figure 18: Matla mine
39 Figure 19: Matla grade-tonnage curve
39 Figure 20: Typical north-south section through Matla geological model
41 Figure 21: Leeuwpan coal mine
42 Figure 22: Typical cross-section through Leeuwpan geological model (Moabsvelden)
43 Figure 23: NBC locality map with mine and project areas
45 Figure 24: Eloff project
45 Figure 25: Seam sequence and splitting at Eloff
46 Figure 26: Typical west-east cross section through Eloff
47 Figure 27: Tumelo locality map
48 Figure 28: Zonderwater project
49 Figure 29: Typical north-south section through Zonderwater project

List of tables

8 Table 1: Exxaro reporting structure
11 Table 2: Attributable resource and reserve tonnages
12 Table 3: Coal resources and qualities for 2016
16 Table 4: Coal reserves reported for 2016
18 Table 5: Coal reserve qualities 2016
19 Table 6: Mineral sands resources reported for 2016
21 Table 7: Mineral sands reserves reported for 2016
22 Table 8: Base metals resources (exclusive) reported for 2016
23 Table 9: Base metals reserves (exclusive) reported for 2016
41 Table 10: Drillhole density at Leeuwpan
50 Table 11: Summary of exploration expenditure for coal
51 Table 12: Shareholding and tenure of reported coal resources and reserves
52 Table 13: Shareholding and tenure of reported mineral sands and base metals resources and reserves
53 Table 14: 2016 competent persons' register
54 Table 15: Coal production figures

FEEDBACK

Ongoing feedback from stakeholders helps us contextualise certain issues better for more informed understanding by readers.

We welcome your suggestions, which should be directed to:

Henk Lingenfelder
Group manager: geoscience
Tel: +27 12 307 3359
Fax: +27 12 307 5327
Mobile: +27 83 609 1400
Email: henk.lingenfelder@exxaro.com

Chris Ballot
Group manager: mining processes
Mobile: +27 83 279 7111
Email: chris.ballot@exxaro.com

Web: www.exxaro.com

1 INTRODUCTION

The mineral resources and ore reserves underpinning Exxaro's current operations and growth projects are summarised in the tables on pages 12 to 23. Mineral resources and ore reserves are reported as those remaining on 31 December 2016 and compared with the corresponding estimates as reported on 31 December 2015. Significant changes in the resource or reserve figures are explained by footnotes to each table. Annual coal production, including a two-year forecast and comparison with the previous financial year, is included in appendix A, table 15.

The content of this report, including the integrated Exxaro mineral resource and reserve statement, is compiled from detailed independent reports and statements, aligned with the JSE Listings Requirements (section 12), received from responsible competent persons at the various operations and projects. The individual reports are available on request from the group company secretary. In addition, each operation or project maintains an individual competent person's report that encapsulates the systematic and detailed estimation process conducted or supervised by that person. These reports are aligned with the checklist and guideline of the reporting and assessment criteria table of the SAMREC Code and are scrutinised and updated when required.

Mineral resources are reported including resources that have been converted to ore reserves and at 100% Exxaro ownership, irrespective of the individual operation or project's attributable shareholding (detailed where appropriate in this report). An exception is our reporting for Gamsberg and Black Mountain, as figures from Vedanta Resources plc represent resources excluding those mineral resources converted to reserves. The reported estimates are not an inventory of all mineral occurrences identified, but a reasonable estimate of those, which under assumed and justifiable technical, environmental, legal and economic conditions, may be economically extractable at present (ore reserves) and eventually in future (mineral resources).

Resource estimations are based on the latest available geological models, which incorporate all new validated geological information and, if applicable, revised seam, resource definitions and resource classifications. For Exxaro operations and projects, Exxaro uses a systematic review process that measures the level of maturity of the exploration work done, the extent of the geological potential, the mineability, security of tenure and associated geological risks/opportunities to establish an eventual extraction outline (EEO). The outline reflects the boundary within which occurrences are considered to have reasonable and realistic prospects for eventual economic extraction (RRPEEE). Exxaro continuously examines various aspects of the mineral resource estimation process; in 2016, we have conferred specifically on concepts put forward by the SAMREC (2016) and SANS (2015) revisions and will apply these concepts during the 2017 estimation period and end-2017 mineral resource reporting.

The location, quantity, quality and continuity of grade/quality and geology within the EEO are known to varying degrees of confidence and continuously tested through exploration activities such as geophysical surveys, drilling and bulk sampling. Mineral resources are classified into inferred, indicated or measured categories based on the degree of geological confidence. Distribution of points of observation (drilling positions, trenches, etc), quality assurance and quality control in sample collection, evaluation of structural complexities and, in the case of operations, reconciliation results, are considered in classifying resources. A formal, annually compiled and signed-off exploration strategy outlines activities planned to investigate areas of low confidence and/or geological or structural complexities to ensure resources of a high level of geological confidence are considered for mine planning.

Ore reserves have the same meaning as mineral reserves, as defined in the applicable reporting codes. Ore reserves are estimated using relevant modifying factors at the time of reporting (mining, metallurgical, economic, marketing, legal, environmental, social and regulatory requirements). Modifying factors are reviewed before and after reserve estimation by the persons responsible for ensuring all factors are timeously and appropriately considered. Signed-off reserve fact packs that record losses, recoveries/yields, cost, commodity prices, exchange rates and other required factors applied are documented in each life-of-mine plan and independent competent persons' reports. Reported ore reserves are derived from indicated and measured mineral resources only, ie those modified or converted into proved or probable ore reserves, such as run-of-mine, which in turn have been scheduled for processing.

Exxaro is keenly aware of the importance of its mineral assets, both for the short-term profitability of its operations and its sustainability in future. 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 therefore continuously assesses the various life-of-mine strategic plans to consider the best way of addressing these challenges.

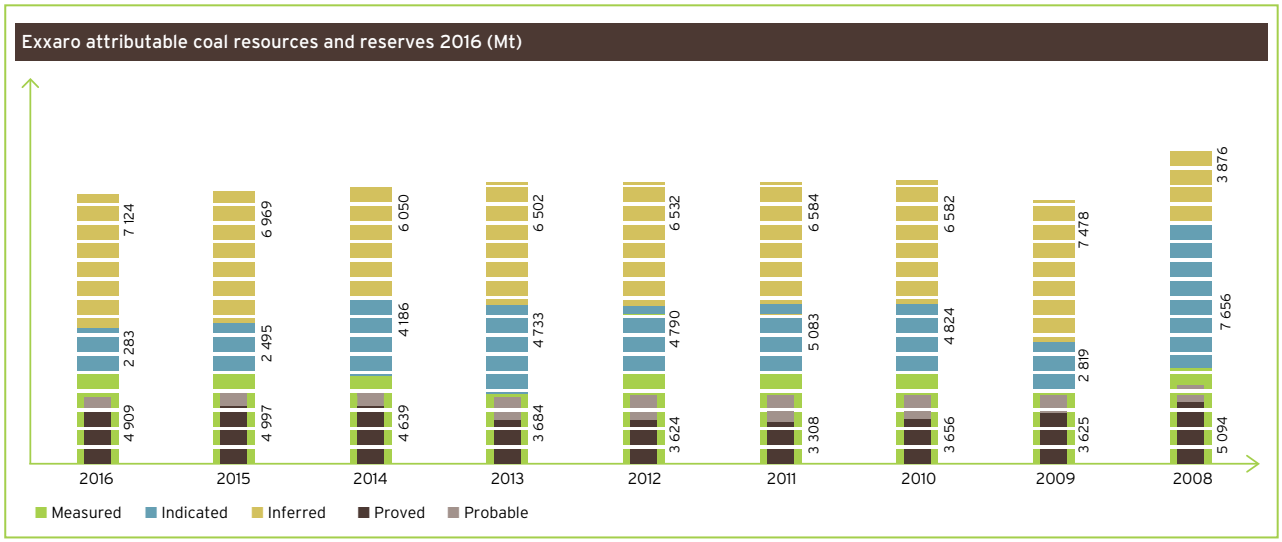
Mineral resources and ore reserves quoted fall within existing Exxaro mine or prospecting rights. Rights are of sufficient duration (or convey a legal right to convert or renew for sufficient duration) to enable all reserves to be mined in accordance with current production schedules. The only exceptions are the Grootegeluk (executed March 2011 for 30 years), Matla (executed March 2015 for 10 years) and Forzando (executed June 2013 for 16 years) operations where adequate ore reserves exist for life-of-mine plans extending well beyond the period for which they were granted. The processes and calculations associated with reserve estimation have been reviewed by internal competent persons and are audited by external consultants when deemed essential for transparency.

In the case of mines or projects in which Exxaro does not hold the controlling interest, figures have been compiled by competent persons from those companies and have not been audited by Exxaro.

Exxaro has a world-class coal resource portfolio, comprising fully owned operations and projects and a number of jointly owned operations and projects in South Africa and Australia (figure 4). The fully owned coal operations and projects in South Africa lie in both the large and highly prospective Waterberg coalfield in Limpopo and the more mature Highveld and Witbank coalfields in Mpumalanga.

1 INTRODUCTION (CONTINUED)

Figure 1: Exxaro attributable coal resources and reserves



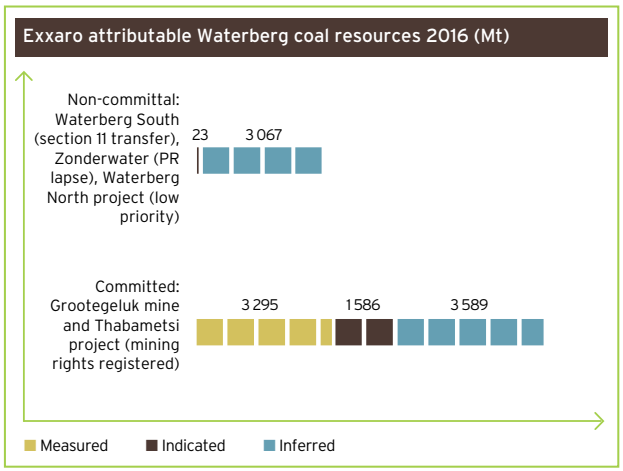
The Exxaro total attributable coal resource has decreased (~2,8%) mainly as a result of mining depletion and, to a lesser extent, updated geological models. Changes in total resources and movements in individual categories are more prominent at operations than projects, reflecting the current Exxaro strategy to focus primarily on optimising core operations. A significant amount of brownfields exploration has been conducted in recent years. Exploration drilling focused on the medium term, targeting areas of current or emerging geological complexity (eg Matla and Grootegeluk coal mines) as well as long term to extend our life-of-mine plans (eg Dorstfontein, Forzando and Matla).

The Grootegeluk geological model was updated in the reporting year with a significant amount of new information. The development of this large open-pit operation poses a number of challenges, including an increase in total sulphur content, thinning of the upper benches used for the production of semi-soft coking coal (SSCC) as well as the increase in the magnitude of fault displacement. In response to these challenges, we have created a short-term grade-control model and introduced a new geometallurgy simulation approach. In addition, movements within resource classification categories signify the conservative, although assertive, approach taken to thoroughly address short, medium and long-term challenges through well-focused exploration drilling. The Grootegeluk life-of-mine plan is currently under review and a number of projects to enhance existing performance are in an advanced stage, with the construction of the GG6 (upgrading the GG2 plant) beneficiation plant being the most exciting. The expansion will add a second stage of beneficiation to the existing GG2 plant and upgrade the two tip-bins to a higher capacity. The project aims to triple the capacity of the current GG6 plant, producing an SSCC suitable for the export market as well as power station coal.

Four projects are located near Grootegeluk mine (figure 3). The Thabametsi project, to the west of Grootegeluk mine, will supply coal to the Thabametsi power plant that was selected as a successful bidder under the Department of Energy's coal baseload IPP procurement programme. The first phase of mine development is an open-pit operation that would utilise coal from the Volksrust formation, and will provide power station coal (some 3Mt per year) to the adjacent Thabametsi power plant. This project signifies an exciting new phase for Exxaro in the Waterberg.

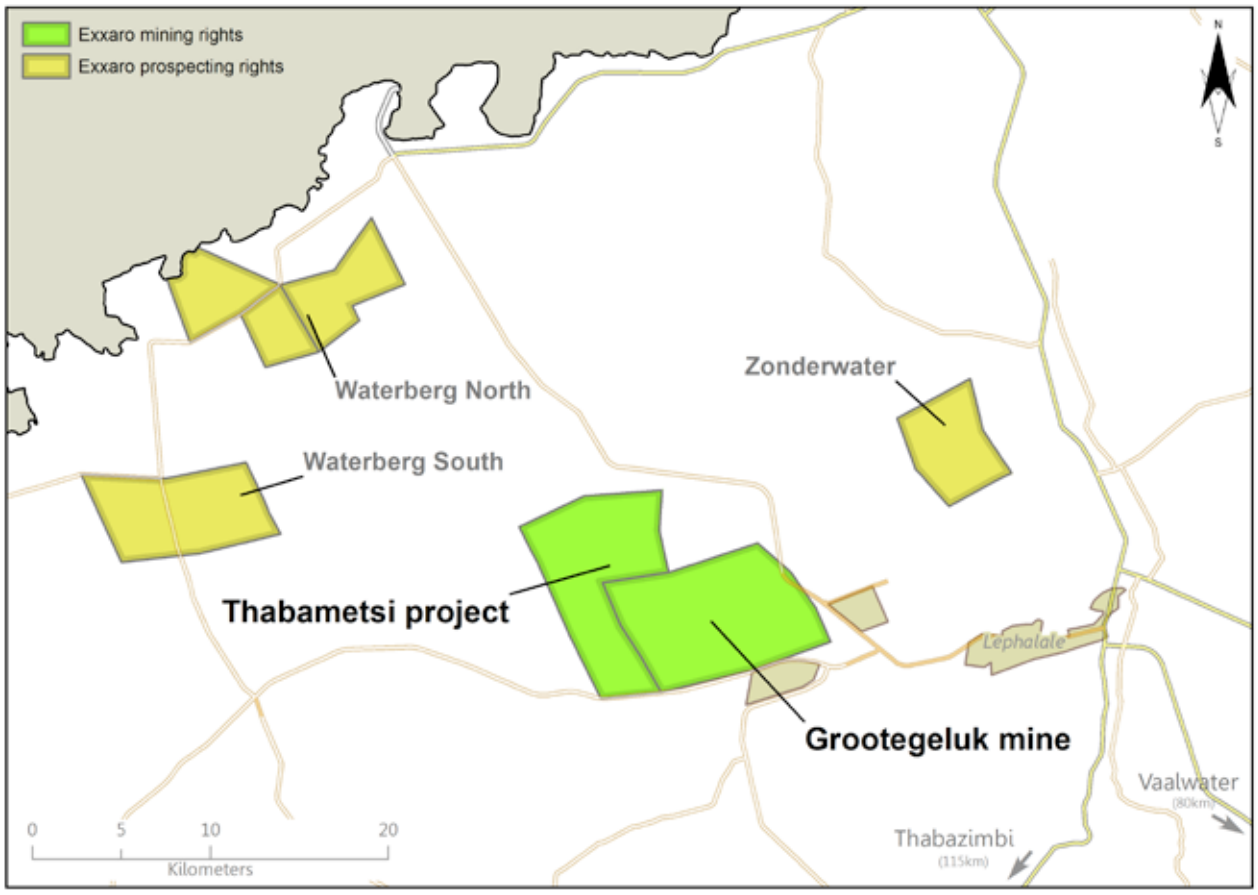
The Zonderwater underground coal gasification project has been discontinued after concluding a due-diligence study. An ensuing review on the current potential for conventional underground coal mining proved unsatisfactory and Exxaro will therefore relinquish the prospecting right when it lapses in early 2017. The approval of a section 11 for the Waterberg South project is pending and there is a reasonable expectation that this application will be granted in 2017, transferring ownership to a new holder.

Figure 2: Exxaro attributable Waterberg coal resources



1 INTRODUCTION (CONTINUED)

Figure 3: Exxaro mining and prospecting rights in the Waterberg



A number of Exxaro-owned open-pit and underground operations and projects are in Mpumalanga. The Matla operation is a captive coal supplier to Eskom and North Block Complex (NBC) produces power station coal for Eskom but also serves the export market and a number of local consumers with a range of coal products. Arnot, an Eskom captive mine, is in closure after termination of the coal-supply agreement with Eskom.

An extensive revision of Matla mine in the reporting year positions the operation ideally to overcome operational challenges should the necessary capital be timeously approved. Mine 1 was stopped in 2015 due to pillar instability but the potential impact was mitigated by moving mining sections and increasing production. A significant amount of new drilling information, update of the geological model and revision of the life-of-mine plan established a perfect platform for future operational expansion and excellence. Two feasibility studies were concluded to enhance future reserves (seams 2 and 4) by establishing an incline and decline above and below current workings and introducing additional continuous mining (CM) sections for when the shortwall ground is depleted. Both projects form part of the life-of-mine plan (LoMP) and, as stated, are awaiting final capital approval by Eskom.

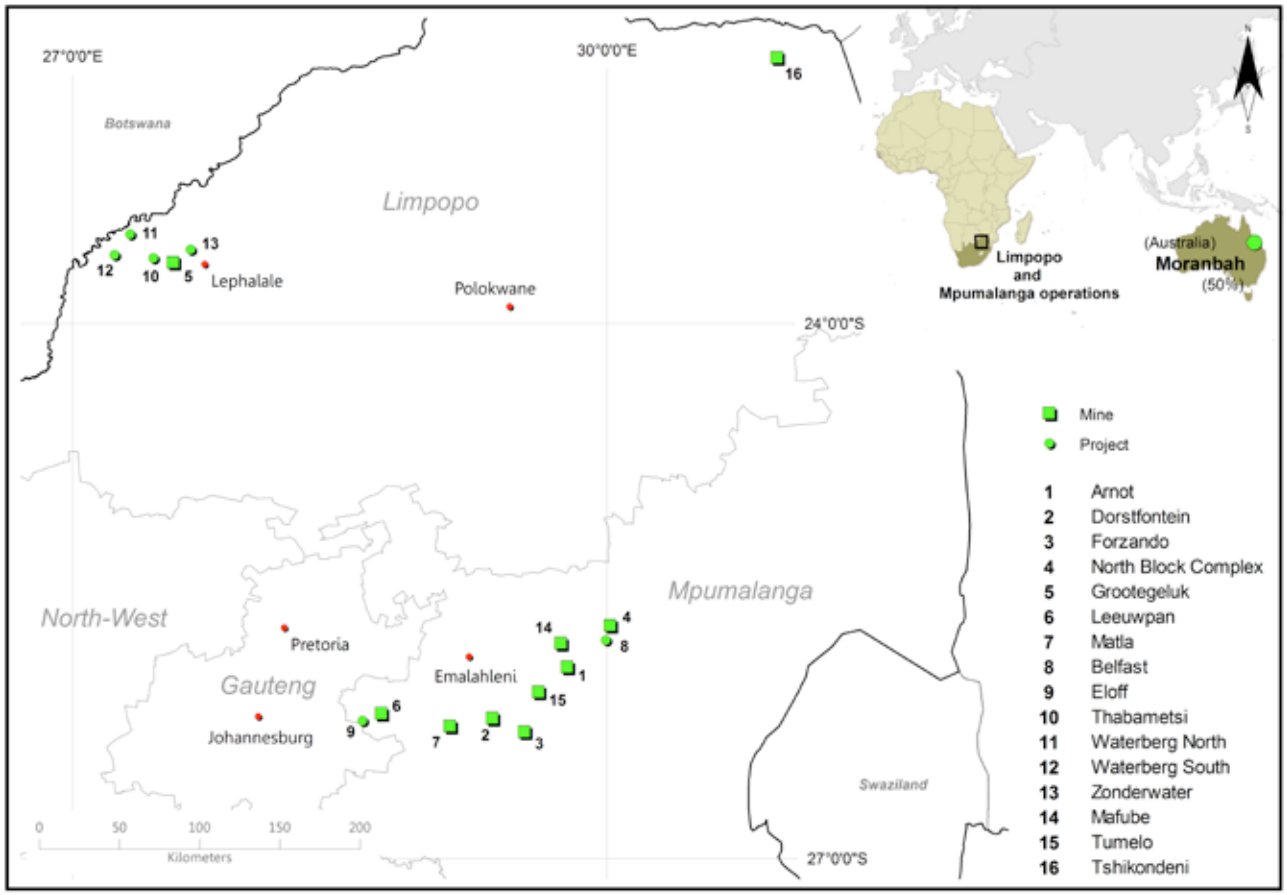
At Leeuwpan mine, the extension (OI) feasibility study, a critical element of Leeuwpan's life-of-mine optimisation project, was concluded and approved by Exxaro management. The OI reserve contributes to some 50% of the operation's ore reserves and is a material part of its LoMP.

A full review of the Dorstfontein and Forzando operations at Exxaro Coal Central (ECC) has been concluded. The market strategy and LoMP were meticulously revised, extending the number of years in the LoMP at Dorstfontein from five to 15 years and at Forzando from five to 20 years. Focused exploration drilling supported the advancement of the Dorstfontein East open-pit (pit 1, North West extension) and underground (pit 3) reserve areas, with LoMP development of the underground Dorstfontein West and Forzando operations. Several exploration projects are adjacent to the Dorstfontein and Forzando operations. The strategy to conclude investigations of these assets and move them into the operational arena is progressing well. This is illustrated by the approval of a section 102 (ministerial consent) embracing the Forzando West prospecting right into the Forzando South mining right and a pending section 102 approval to include the Rietkuil Vhakoni resources into the Dorstfontein West mining right. ECC also holds a 51% interest in the Eloff prospecting right, near the town of Delmas and close to Exxaro's Leeuwpan operation. A mining right application, compiled in the reporting year, was submitted in the first quarter of 2017, underlining the growth potential of the larger ECC Complex.

The disinvestment from the Mayoko mineral asset and Inyanda coal mine were concluded in 2016, and are therefore excluded from the 2016 reporting.

1 INTRODUCTION (CONTINUED)

Figure 4: Locality map for Exxaro coal resources and reserves



2 TENURE

Mineral resources and reserves quoted for Exxaro-managed assets fall within existing Exxaro mine or prospecting rights. Rights are of sufficient duration (or convey a legal right to convert or renew for sufficient duration) to enable all reserves to be mined in accordance with current production schedules. The only exceptions are the Grootegeluk (executed March 2011 for 30 years), Matla (executed March 2015 for 10 years) and Forzando (executed June 2013 for 16 years) operations where adequate reserves exist for LoMPs extending well beyond the period for which they were granted. Significant developments within the mineral right authorisations are discussed.

The status of prospecting and mining rights indicating the right type, name, reference number, status, expiry date and ownership (% attributable to Exxaro) is presented in appendix A, table 12 and table 13.

The converted mining right for Arnot mine is executed but registration is pending. The right was timeously submitted for registration but referred back to correct historical property naming conventions. The corrections were made and the right was resubmitted for registration. The converted mining right of Matla mine was executed in March 2015 and timeously submitted for registration, which is pending.

The converted mining right and adjacent new mining right at Leeuwpan mine have both been executed and submitted for registration. Approval of a section 102 (ministerial consent) submitted to amalgamate the two rights is pending. All environmental approvals for the strategic Leeuwpan OI reserve were submitted timeously and Exxaro has a reasonable expectation that approvals will not be withheld.

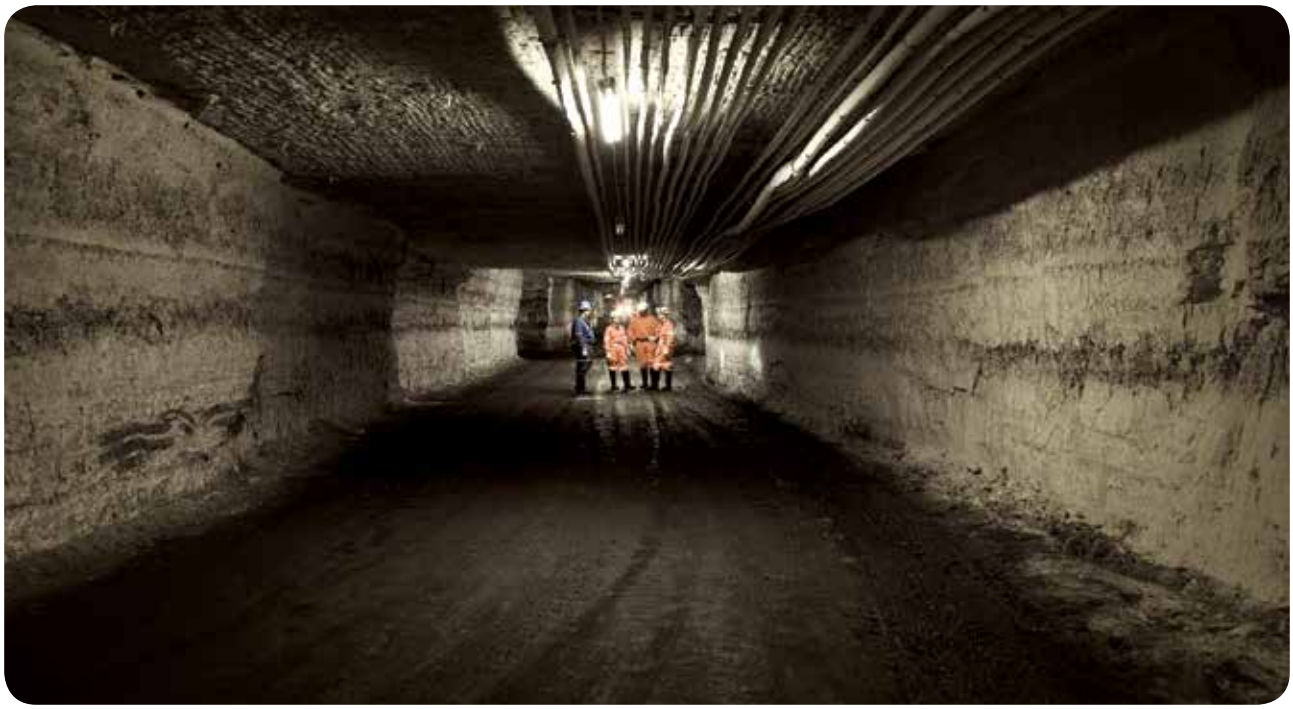
North Block Complex (NBC) includes the mining areas of Glisa (converted mining right), Strathrae (converted mining right) and Eerstelingsfontein, an executed new mining right. Environmental approvals for Eerstelingsfontein have been granted and approval for renewal of the mining right, timeously submitted in March 2013, is pending. In addition, a renewal for a prospecting right and an application for a new mining right for the Glisa South project area, adjacent to Glisa mine, was submitted in November 2013. An appeal, currently being addressed through the regional mining development and environment committee, is in progress.

A section 11 of the Inyanda coal mine, ceding approval to a new owner, has been approved. The coal reserves were depleted in 2015 and mine rehabilitation has been concluded.

A new mining right for Thabametsi, a project adjacent to Grootegeluk, was granted in June and registered in July 2016. A section 11 was submitted for the Waterberg South project, aligned with a specific commercial agreement. Approvals for both the prospecting right renewal and the section 11 are pending. Exxaro has a reasonable expectation that the right will be granted in the first part of 2017 based on full compliance and adjacent Exxaro project right approvals received.

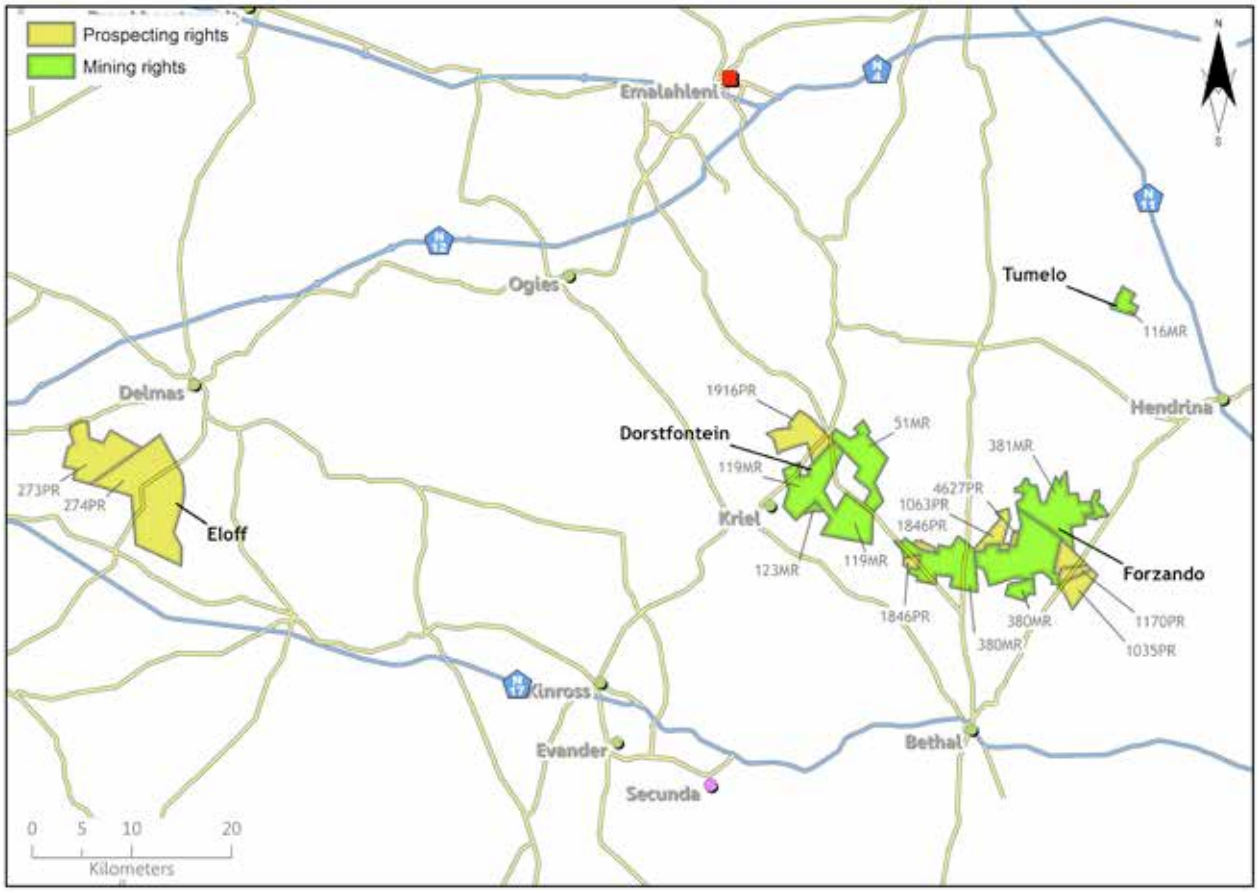
The Moranbah South project area in Australia includes two mineral development licences (MDLs 277 and 377) and two exploration permits for coal (EPCs 548 and 602). The current terms of both mineral development licences will expire in 2018; MDL 277 on 31 July 2018 and MDL 377 on 30 September 2018. The current term of EPC 548 expires on 22 February 2017 (renewal application lodged 11 November 2016). The current term of EPC 602 expires on 31 December 2018. Exxaro has a reasonable expectation that approval of the renewal of EPC 548 will not be withheld. Exploration activities comply with all licence requirements.

The Dorstfontein Complex comprises three mining rights. The mining rights of Dorstfontein West (123MR – executed June 2012), Dorstfontein West and Vlakfontein (119MR – executed June 2012) and Dorstfontein East (51MR – executed June 2006) were granted for 30 years. A section 102 application for inclusion of the Rietkuil Vhakoni (1916PR) prospecting right into the Dorstfontein West mining right was timeously submitted in July 2015 and the approval is currently pending.



2 TENURE (CONTINUED)

Figure 5: Locality map for ECC mining and prospecting rights



The Forzando Complex consists of two mining rights, Forzando South (380MR) and Forzando North (381MR), both executed in June 2013 for 16 years. A section 102 application for inclusion of the Forzando West (1066PR) prospecting right into the Forzando South mining right was granted in the reporting year, and execution of the right is pending. The application for renewal of the prospecting right of Legdaar (1846PR) was submitted in early 2015 and approval is pending.

ECC holds a 51% interest in the Eloff prospecting right, near the town of Delmas and close to Exxaro's Leeuwpan operation. A mining right application, compiled in the reporting year, was submitted in the first quarter of 2017.

ECC also holds a 49% interest in the prospecting right of Schurvekop (1063PR) of which Mmakau Coal is the majority owner. A mining right was submitted by Mmakau Coal in the third quarter of the reporting year. The legislative process following the mining right submission is on schedule.

3 GOVERNANCE

The Exxaro annual estimation and reporting process is managed through the Exxaro geosciences policy and associated mineral resource and reserve reporting, and mineral resource and reserve estimation procedures. Both policy and procedures are aligned with the guidelines of JSE section 12, SAMREC Code and, for South African coal reporting, SANS 10320:2004.

The policy 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, tenure management, hydro-geological and mine-planning disciplines that prescribe methodologies and minimum standards for compliance.

Table 1: Exxaro reporting structure

Exxaro reporting governance framework			
Regulatory	**Governance**	**Deliverables**	**Assurance**
JSE Listings Requirements (section 12)	Geosciences policy	Annual resource and reserve estimation schedule	Annual review and update of policy and procedures
SAMREC Code (2009) table 1	Geosciences, mineral asset management and exploration strategy	Mineral resource and reserve fact packs	Competent person's critical skills register update and review
SANS (SANS 10320:2004)	Exxaro mineral resource and reserve reporting procedure	Annual operation/project mineral resource and reserve report	Annual individual mineral resource and reserve report review and lead competent person sign-off
JORC Code (2012)	Exxaro mineral resource estimation procedure	Consolidated mineral resource and reserve report	Applicable competent person and technical team sign-off
	Exxaro mineral reserve estimation procedure		Internal review and external audit process

4 COMPETENT PERSONS

Exxaro applies three levels of competency to estimating mineral resources and ore reserves, namely:

- Competent person (as defined in the SAMREC and JORC codes) at each operation who officially takes responsibility for estimating and reporting mineral resources and/or ore reserves at operational level
- Technical specialists who contribute in any way to estimating mineral resources and/or ore reserves and are named and signed off on each operation's mineral resource and ore reserve statement. Technical specialists could include geologists, mining engineers, geohydrologists, geotechnical engineers, financial experts, economists, etc
- Person/s designated to take corporate responsibility for the mineral resource and ore reserve estimates presented in the consolidated report. This definition clearly differentiates the competent person on an operational level from the person(s) who takes overall corporate responsibility for the mineral resource and ore reserve estimates presented in this report.

Exxaro's mineral resources and ore reserves have been estimated or supervised by the competent persons listed in appendix A, table 14 on an operational basis in accordance with the SAMREC Code (2009) for South African properties and the JORC Code (2012) for Australian and Velentia 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 they have taken responsibility for, 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 the original mineral resource and reserve statements 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 resource and reserve report. Technical specialists who contributed to estimating the operation's mineral resources and ore reserves are included in the original documentation, where their contributions are specified and their signatures appear.

Exxaro lead competent persons are appointed by the Exxaro management team. The Exxaro lead mineral resource competent person is Henk Lingenfelder, a member of the Geological Society of South Africa (GSSA) and registered (400038/11) with the South African Council for Natural Scientific Professions. He holds a BSc (hons) in geology and 21 years of experience as an exploration and mining geologist in coal, iron ore and industrial minerals.

The Exxaro lead mineral reserve competent person is Chris Ballot, a mining engineer registered (20060040) with the Engineering Council of South Africa. He has 20 years of experience in iron ore, mineral sands and coal in various technical and management roles.

5 RISK, LIABILITY AND ASSURANCE

Assurance is implemented on a three-tier system, aligned with the guidelines of the Exxaro mineral resource and reserve reporting procedure and summarised as follows:

TIER 1	Resource and 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 lead resource and reserve competent persons, competent persons, domain experts and technical specialists. Technical assurance is managed against dedicated standards.
TIER 2	Internal reviews scheduled on a three-year cycle. The intent is to verify compliance with Exxaro's governance framework while ensuring accountability and consequence management.
TIER 3	External audits scheduled on a three-year cycle and entailing a full review of the resource and reserve estimation process, from drillhole logging to reserve evaluation.

In 2016, tier 1 assurance was undertaken for Matla, Leeuwpan and Glisa coal mines. The resource fact packs for these operations/projects indicated that an update or review of the resource estimate was required, either due to additional information being available or on recommendations from audits.

On tier 2, resource and reserve reviews of Grootegeluk (geological and structural model), Dorstfontein, Forzando and Mafube (expansion) were concluded. In addition, reviews of large LoMP projects were conducted for GG6 expansion project (Grootegeluk mine), TIPP 2 (Thabametsi project), Leeuwpan (OI) optimisation (Leeuwpan mine), Dorstfontein West expansion and North-West (NW) access (Matla mine). Recommendations are documented and corrective measures are scheduled and tracked.

Planning for tier 1, 2 and 3 has been scheduled for 2017. Tier 3 audits are scheduled for Grootegeluk and Forzando mines as per Exxaro guidelines.

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES

This document indicates Exxaro's mineral resources and ore reserves remaining as at 31 December 2016. Mineral resource and ore reserve figures are not an inventory of all mineral occurrences drilled or sampled, but a realistic record of those which, under assumed and justifiable technical and economic conditions, may be economically extractable currently and in future.

Mineral resources and ore reserves are reported inclusive of mineral resources that have been converted to ore reserves. An exception is reporting for Gamsberg and Black Mountain Mining, because figures received from Vedanta plc (JORC Code) represent mineral resources excluding ore reserves.

Exxaro includes all estimates directly under its management control and estimates of entities in which Exxaro holds an equal or larger than 25% interest. Mineral resources and ore reserves are reported at 100%, irrespective of the percentage attributable to Exxaro.

The percentage attributable tonnage can be deduced from the attributable ownership stated in the mineral resources and ore reserves tables. The summarised tonnages are shown in table 2. Explanations for material changes are provided as footnotes in the mineral resources and ore reserves tables and detailed explanations for year-on-year movements are provided in chapter 8: Ancillary resource and reserve information by operation.

Table 2: Attributable resource and reserve tonnages

Commodity	Resource category	**2016 MTIS (Mt)**	2015 MTIS (Mt)	% change	Reserve category	**2016 RoM (Mt)**	2015 RoM (Mt)	% change
Coal	Measured	**4 909**	4 997		Proved	**2 961**	2 970	
	Indicated	**2 283**	2 519		Probable	**596**	797	
	Inferred	**7 124**	7 020					
	Total	**14 316**	14 536	(2)	**Total**	**3 557**	3 768	(8)
Mineral sands	Measured	**728**	705		Proved	**371**	351	
	Indicated	**615**	724		Probable	**381**	409	
	Inferred	**665**	528					
	Total	**2 009**	1 937	4	**Total**	**752**	760	(1)
Base metals	Measured	**12,4**	11,9		Proved	**12,0**	11,0	
	Indicated	**22,7**	27,5		Probable	**4,0**	4,8	
	Inferred	**17,6**	19,5					
	Total	**52,7**	59,0	(11)	**Total**	**16,0**	15,7	2

Footnotes for table 2

› *MTIS refers to mineable tonnes in-situ and RoM to run-of-mine reserves*
› *Tonnages are quoted in metric tonnes on an air-dried basis, and million tonnes is abbreviated as Mt*

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES (CONTINUED)

Table 3: Coal resources and qualities for 2016

		2016 – tonnes and grade[3]					2015 – tonnes and grade[3]					
Operation[1]	Category	Tonnes (Mt)	CV MJ/kg	% Ash	% IM	% S	Tonnes (Mt)	CV MJ/kg	% Ash	% IM	% S	Change in tonnes[4] %
Arnot mine[5] Mpumalanga (OC/UG) (in closure) 100% attributable to Exxaro[2]	Measured	**138,5**	**23,6**	**21,9**	**4,0**	**1,0**	138,5	23,6	21,9	4,0	1,0	
	Indicated	**64,3**	**23,7**	**21,6**	**4,2**	**0,9**	64,3	23,7	21,6	4,2	0,9	
	Inferred	**21,3**	**23,9**	**21,0**	**4,3**	**0,9**	21,3	23,9	21,0	4,3	0,9	
	Total	**224,1**	**23,7**	**21,7**	**4,1**	**1,0**	224,1	23,1	21,7	4,1	1,0	
	Resources inside LoMP						26,2	24,8	19,9	3,7	1,2	
Matla mine[6] Mpumalanga (UG) (captive market) 100% attributable to Exxaro[2]	Measured	**752**	**20,1**	**30,8**	**4,4**	**1,0**	516	20,1	30,4	4,4	1,0	
	Indicated	**211**	**19,7**	**30,7**	**4,4**	**0,9**	255	19,8	30,0	4,5	0,9	
	Inferred	**88**	**21,1**	**27,0**	**4,7**	**1,0**	241	20,0	29,3	4,7	1,1	
	Total	**1 051**	**20,1**	**30,4**	**4,4**	**1,0**	1 013	20,0	30,0	4,5	1,0	4
	Resources inside LoMP	**398**	**21,0**	**28,1**	**4,6**	**1,0**	495	21,8	25,4	4,7	1,0	
Leeuwpan mine[7] Mpumalanga (OC) (commercial market) 100% attributable to Exxaro[2]	Measured	**128,0**	**20,3**	**31,0**	**3,5**	**0,9**	146,7	18,5	28,2	3,5	0,9	
	Indicated											
	Inferred	**3,7**	**21,0**	**31,6**	**2,3**	**1,1**	3,7	21,0	31,7	2,3	1,1	
	Total	**131,7**	**20,4**	**31,0**	**3,5**	**0,9**	150,3	18,6	28,3	3,5	0,9	(12)
	Resources inside LoMP	**104,3**	**20,3**	**31,0**	**3,2**	**1,0**	120,3	18,8	33,0	3,1	1,0	
Mafube mine[8] Mpumalanga (OC) (commercial market) 50% attributable to Exxaro[2]	Measured	**133,6**	**21,6**	**26,7**	**3,8**	**1,0**	163,7	22,2	24,8	3,8	1,0	
	Indicated	**10,1**	**22,0**	**25,7**	**3,9**	**0,9**	13,0	20,7	28,6	4,1	0,9	
	Inferred						2,1	20,0	30,7	3,8	0,7	
	Total	**143,7**	**21,6**	**26,6**	**3,8**	**0,9**	178,8	22,0	25,2	3,8	1,0	(20)
	Resources inside LoMP	**68,7**	**22,0**	**25,4**	**3,7**	**1,0**	127,6	22,1	24,8	3,9	1,0	
NBC mine[9] Mpumalanga (OC) (commercial market) 100% attributable to Exxaro[2]	Measured	**19,7**	**21,1**	**27,3**	**3,9**	**0,9**	23,4	20,9	27,6	3,9	0,9	
	Indicated											
	Inferred											
	Total	**19,7**	**21,1**	**27,3**	**3,9**	**0,9**	23,4	20,9	27,6	3,9	0,9	(16)
	Resources inside LoMP	**4,1**	**19,7**	**29,1**	**3,8**	**1,2**	9,8	20,3	29,0	3,8	0,8	
Glisa South project[10] Mpumalanga (prospecting) 100% attributable to Exxaro[2]	Measured	**20,0**	**19,0**	**32,0**	**3,5**	**0,9**	20,0	19,0	32,0	3,5	0,9	
	Indicated	**47,1**	**19,0**	**31,8**	**3,6**	**1,0**	47,1	19,0	31,8	3,6	1,0	
	Inferred	**9,4**	**21,0**	**27,6**	**3,6**	**1,0**	9,4	21,0	27,6	3,6	1,0	
	Total	**76,5**	**19,3**	**32,0**	**3,5**	**0,9**	76,5	19,3	32,0	3,5	0,9	
Belfast project[11] Mpumalanga (OC) (mining) 100% attributable to Exxaro[2]	Measured	**81,1**	**24,8**	**18,7**	**3,6**	**1,1**	81,1	24,8	18,7	3,6	1,1	
	Indicated	**22,4**	**21,6**	**26,9**	**3,7**	**1,1**	22,4	21,6	26,9	3,7	1,1	
	Inferred	**34,4**	**20,0**	**31,2**	**3,4**	**1,0**	34,4	20,0	31,2	3,4	1,0	
	Total	**137,8**	**23,1**	**23,2**	**3,6**	**1,1**	137,8	23,1	23,2	3,6	1,1	
	Resources inside LoMP	**47,1**	**25,2**	**17,6**	**3,6**	**1,2**	60,1	24,4	19,7	3,6	1,1	
Dorstfontein Complex[12] Mpumalanga (OC/UG) (commercial market) 74% attributable to Exxaro[2]	Measured	**85,7**	**20,7**	**31,2**	**3,0**	**1,2**	93,9	20,8	31,2	3,0	1,2	
	Indicated	**41,5**	**20,4**	**31,6**	**3,0**	**1,1**	47,0	20,7	31,5	3,0	1,1	
	Inferred	**171,2**	**19,6**	**33,7**	**2,9**	**1,1**	192,0	20,3	33,3	2,9	1,1	
	Total	**298,4**	**20,0**	**32,7**	**3,0**	**1,1**	332,9	20,5	32,4	2,9	1,2	(10)
	Resources inside LoMP	**75,6**	**21,2**	**29,2**	**3,0**	**1,0**						

See footnotes on page 15.

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES (CONTINUED)

Table 3: Coal resources and qualities for 2016 (continued)

		2016 – tonnes and grade[3]					2015 – tonnes and grade[3]					
Operation[1]	Category	Tonnes (Mt)	CV MJ/kg	% Ash	% IM	% S	Tonnes (Mt)	CV MJ/kg	% Ash	% IM	% S	Change in tonnes[4] %
Rietkuil Vhakoni project[13] Mpumalanga (prospecting) 74% attributable to Exxaro[2]	Measured	**28,3**	**19,3**	**35,6**	**2,5**	**1,2**	36,0	19,6	34,9	2,4	1,2	
	Indicated	**20,6**	**19,4**	**35,7**	**2,4**	**1,2**	24,4	19,4	35,9	2,4	1,2	
	Inferred	**52,6**	**18,1**	**38,9**	**2,6**	**1,1**	61,0	18,2	38,4	2,6	1,1	
	Total	**101,5**	**18,7**	**37,3**	**2,5**	**1,1**	121,3	18,9	36,9	2,5	1,2	(16)
Forzando mines[14] Mpumalanga (UG) (commercial market) 74% attributable to Exxaro[2]	Measured	**75,7**	**22,2**	**27,2**	**2,9**	**1,2**	57,4	22,6	25,8	3,0	1,2	
	Indicated	**53,4**	**21,9**	**28,3**	**2,9**	**1,2**	38,0	22,1	27,7	3,0	1,3	
	Inferred	**31,7**	**21,2**	**30,4**	**2,8**	**1,2**	25,5	21,1	30,6	2,8	1,2	
	Total	**160,8**	**21,9**	**28,2**	**2,9**	**1,2**	120,9	22,2	27,4	3,0	1,2	33
	Resources inside LoMP	**73,6**	**21,5**	**29,2**	**2,8**	**1,1**						
Forzando projects[15] Mpumalanga (prospecting) 74% attributable to Exxaro[2]	Measured	**0,3**	**21,7**	**29,4**	**2,6**	**0,6**	21,5	21,5	29,7	2,6	1,1	
	Indicated	**15,8**	**20,9**	**30,9**	**3,2**	**1,5**	32,3	21,2	30,1	2,9	1,2	
	Inferred	**6,8**	**20,7**	**32,7**	**2,5**	**1,2**	15,4	21,3	30,6	2,6	1,1	
	Total	**22,9**	**20,8**	**31,4**	**3,0**	**1,4**	69,3	21,3	30,1	2,7	1,1	(67)
Schurvekop 1063[16] Mpumalanga (prospecting) 49% attributable to Exxaro[2]	Measured	**31,2**	**20,0**	**32,0**	**3,4**	**1,2**	31,2	20,0	32,0	3,4	1,2	
	Indicated	**8,7**	**20,4**	**30,8**	**3,4**	**1,4**	8,7	20,4	30,8	3,4	1,4	
	Inferred	**0,5**	**19,0**	**34,5**	**3,6**	**0,8**	0,5	19,0	34,5	3,6	0,8	
	Total	**40,4**	**20,1**	**31,8**	**3,4**	**1,2**	40,4	20,1	31,8	3,4	1,2	
Tumelo mine Mpumalanga (UG) (care and maintenance) 49% attributable to Exxaro[2]	Measured	**6,0**	**23,4**	**24,9**	**2,6**	**1,3**	6,0	23,4	24,9	2,6	1,3	
	Indicated											
	Inferred											
	Total	**6,0**	**23,4**	**24,9**	**2,6**	**1,3**	6,0	23,4	24,9	2,6	1,3	
Eloff project[17] Mpumalanga (prospecting) 51% attributable to Exxaro[2]	Measured	**9,4**	**19,6**	**31,3**	**3,7**	**1,2**	9,7	19,6	31,2	3,7	1,2	
	Indicated	**213,5**	**19,3**	**30,5**	**3,9**	**0,9**	239,3	19,3	30,5	3,9	0,9	
	Inferred	**201,1**	**19,1**	**31,2**	**3,9**	**0,9**	226,5	19,1	31,2	3,9	0,9	
	Total	**424,0**	**19,2**	**30,9**	**3,9**	**0,9**	475,5	19,2	30,9	3,9	0,9	(11)
Grootegeluk mine[18] Limpopo (OC) (commercial market) 100% attributable to Exxaro[2]	Measured	**3 025**	**16,7**	**47,7**	**1,8**	**1,4**	3 298	15,5	47,2	1,7	1,2	
	Indicated	**837**	**17,0**	**47,2**	**1,6**	**1,5**	983	15,6	48,1	1,8	1,3	
	Inferred	**673**	**16,4**	**48,4**	**1,9**	**1,4**	247	16,8	45,3	1,9	1,3	
	Total	**4 535**	**16,7**	**47,7**	**1,8**	**1,4**	4 528	15,6	47,3	1,7	1,2	
	Resources inside LoMP	**3 420**	**16,3**	**48,8**	**1,8**	**1,5**	3 367	15,1	48,5	1,7	1,3	

See footnotes on page 15.

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES (CONTINUED)

Table 3: Coal resources and qualities for 2016 (continued)

		2016 – tonnes and grade[3]					2015 – tonnes and grade[3]					
Operation[1]	Category	Tonnes (Mt)	CV MJ/kg	% Ash	% IM	% S	Tonnes (Mt)	CV MJ/kg	% Ash	% IM	% S	Change in tonnes[4] %
Thabametsi project[19] Limpopo (OC/UG) (mining) 100% attributable to Exxaro[2]	Measured	**270**	**13,0**	**52,3**	**1,9**	**1,2**	270	13,0	52,3	1,9	1,2	
	Indicated	**749**	**12,6**	**53,1**	**1,8**	**1,1**	749	12,6	53,1	1,8	1,1	
	Inferred	**2 916**	**12,7**	**52,7**	**1,9**	**1,3**	2 916	12,7	52,7	1,9	1,3	
	Total	**3 935**	**12,7**	**52,7**	**1,9**	**1,3**	3 935	12,7	52,7	1,9	1,3	
	Resources inside LoMP	**133**	**12,0**	**54,7**	**1,9**	**1,0**	133	12,0	54,7	1,9	1,0	
Tshikondeni mine[20] Limpopo (OC/UG) 100% attributable to Exxaro[2]	Measured	**3,7**	**30,8**	**24,0**	**0,7**	**0,7**	3,7	30,8	24,0	0,7	0,7	
	Indicated	**25,1**	**30,8**	**24,0**	**0,7**	**0,7**	25,1	30,8	24,0	0,7	0,7	
	Inferred											
	Total	**28,8**	**30,8**	**24,0**	**0,7**	**0,7**	28,8	30,8	24,0	0,7	0,7	
Waterberg North project Limpopo (prospecting) 100% attributable to Exxaro[2]	Measured											
	Indicated											
	Inferred	**2 147**	**13,3**	**49,7**	**2,5**	**1,2**	2 253	13,3	49,7	2,5	1,2	
	Total	**2 147**	**13,3**	**49,7**	**2,5**	**1,2**	2 253	13,3	49,7	2,5	1,2	(5)
Waterberg South project Limpopo (prospecting) 100% attributable to Exxaro[2]	Measured											
	Indicated											
	Inferred	**869**	**15,9**	**39,6**	**2,9**	**1,7**	895	15,9	39,6	2,9	1,7	
	Total	**869**	**15,9**	**39,6**	**2,9**	**1,7**	895	15,9	39,6	2,9	1,7	(3)
Zonderwater project Limpopo (prospecting) 100% attributable to Exxaro[2]	Measured	**23**	**24,3**	**20,8**	**2,3**	**2,2**	23	24,3	20,8	2,3	2,2	
	Indicated	**51**	**24,0**	**21,6**	**2,2**	**2,3**	51	24,0	21,6	2,2	2,3	
	Inferred											
	Total	**74**	**24,0**	**21,4**	**2,3**	**2,3**	74	24,0	21,4	2,3	2,3	
Moranbah South project[21] Australia (UG) 50% attributable to Exxaro[2]	Measured	**481,9**	**26,7**	**23,7**	**2,6**	**0,6**	481,9	26,7	23,7	2,6	0,6	
	Indicated	**222,5**	**27,3**	**21,7**	**2,6**	**0,6**	222,5	27,3	21,7	2,6	0,6	
	Inferred	**28,0**	**28,5**	**18,9**	**2,7**	**0,5**	28,0	28,5	18,9	2,7	0,5	
	Total	**732,4**	**27,0**	**22,9**	**2,6**	**0,6**	732,4	27,0	22,9	2,6	0,6	

See footnotes on page 15.

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES (CONTINUED)

Table 3: Coal resources and qualities for 2016 (continued)

Footnotes for table 3

- *Rounding may cause computational discrepancies*
- *All changes over 10% are explained*
- *Tonnages are quoted in metric tonnes and million tonnes abbreviated as Mt*
- *Coal resources and qualities (raw coal) are quoted on a mineable tonnage in-situ (MTIS) and air-dried basis*
- *Coal resources are quoted inclusive of coal resources that have been modified to coal reserves unless otherwise stated*
- *Resources inside life-of-mine plan (LoMP) refer to total mineable tonnes in-situ (MTIS) resources in LoMP layout*

1 *Operation refers to operating mine or significant project. Mining method: OC – open-cut, UG – underground*
2 *Figures are reported at 100% irrespective of percentage attributable to Exxaro and refer to 2016 only*
3 *Raw coal qualities. CV – gross calorific value, IM – inherent moisture, S – total sulphur*
4 *The percentage difference between 2016 reported MTIS and 2015 reported MTIS. Brackets signify a negative*
5 *The mine is in closure. The remaining resources have reasonable prospects for eventual economic extraction*
6 *Changes within resource categories are due to new drillhole information (192Mt) and subsequent update of the geological model*
7 *The decrease is due to mining depletion (-8,2Mt), model refinement (-2Mt) and disposal of resources (-8,5Mt) as a result of geotechnical considerations*
8 *The decrease is primarily due to limitations of the approved water use licence (-38Mt), offset by the addition of new drillhole information and subsequent update of the geological model (~3Mt). Estimates are received from Anglo American Thermal Coal and not audited by Exxaro*
9 *The decrease in resources is primarily the result of mining depletion (-4,3Mt)*
10 *The project is adjacent to the current Glisa (NBC) resource area and is considered an extension of the current operation, pending feasibility studies. A new mining right was timeously submitted in November 2013*
11 *The change in resources inside LoMP reflects limitations of the approved water use licence and the economic viability related to acquisition of surface rights*
12 *The Dorstfontein Complex consists of East (open-cast/underground) and West (underground) operations. The change in resources is the result of depletion (-3,7Mt) and a change in economic assumptions, differentiating between OC and UG resources (-31Mt)*
13 *The approval of a section 102 (ministerial consent) application to include this right into Dorstfontein 119MR is pending. The change is the result of revised application of geological losses (domain approach)*
14 *Includes the mining operations of Forzando South and Forzando North (care and maintenance). The change reflects depletion (-2,4Mt), inclusion of Forzando West 1066PR into Forzando South 380MR after approval of a section 102 (+45Mt) and change in economic assumptions (-2,6Mt)*
15 *Consists of a number of prospecting rights (1916PR, 1846PR, 1035PR, 1170PR and 1063PR) adjacent to the two Forzando operations. The change is primarily the result of the transfer (-45Mt) of Forzando West 1066PR into the Forzando South 380MR following the approval of a section 102 application*
16 *Estimates are received from Mmakau Mining, the majority (51%) owner of the project*
17 *The change reflects the revised application of geological losses (domain approach)*
18 *Changes within resource categories are the result of new information and update of the geological model and resource classification*
19 *The Thabametsi project is adjacent to the operating Grootegeluk mine. The eventual economic viability of the resources is inferred from independent power producer (IPP) technical studies conducted on phase 1 of the resource*
20 *Tshikondeni is in the process of mine closure and was a dedicated metallurgical coal supplier for ArcelorMittal. The remaining coal resource reported is located within Makanja (~25Mt) as well as the Mutale West and Perdeskoen areas (3,7Mt). These resources have reasonable prospects for eventual economic extraction*
21 *Estimates are received from Anglo American Metallurgical Coal Proprietary Limited and not audited by Exxaro*

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES (CONTINUED)

Table 4: Coal reserves reported for 2016

Operation[1]	LoM (years)[3]	Category	2016 – RoM and saleable tonnes[4] RoM (Mt)	Export (Mt)	Thermal (Mt)	Metallurgical (Mt)	2015 – RoM and saleable tonnes[4] RoM (Mt)	Export (Mt)	Thermal (Mt)	Metallurgical (Mt)	Change in RoM[5] %
Arnot mine[6] Mpumalanga (OC/UG) (in closure) 100% attributable to Exxaro[2]		Proved									
		Probable					17,9		17,0		
		Total	**0,0**				17,9		17,0		(100)
Matla mine[7] Mpumalanga (UG) (captive market) 100% attributable to Exxaro[2]	8+	Proved	**220,5**		**219,4**		188,3		187,4		
		Probable	**33,6**		**33,4**		68,1		68,3		
		Total	**254,1**		**252,8**		257,0		255,7		(1)
		Inferred resources inside LoMP	**5,3**				46,9				
Leeuwpan[8] Mpumalanga (OC) (commercial market) 100% attributable to Exxaro[2]	13	Proved	**13,7**		**6,3**	**2,4**	18,7	0,6	7,2	4,1	
		Probable	**52,9**		**10,1**	**16,5**	80,5	1,6	10,1	27,8	
		Total	**66,6**		**16,4**	**18,9**	99,2	2,2	17,3	31,9	(33)
		Inferred resources inside LoMP	**0,0**				0,0				
Mafube[9] Mpumalanga (OC) (commercial market) 50% attributable to Exxaro[2]	12	Proved	**4,8**	**2,3**	**1,1**		2,5	1,4	0,4		
		Probable	**64,0**	**27,4**	**14,3**		119,4	51,7	22,4		
		Total	**68,8**	**29,7**	**15,4**		121,9	53,1	22,8		(44)
		Inferred resources inside LoMP	**0,0**				0,0				
NBC mine[10] Mpumalanga (OC) (commercial market) 100% attributable to Exxaro[2]	0,5	Proved	**1,9**		**1,6**		9,2		7,3		
		Probable	**1,9**		**1,5**						
		Total	**3,8**		**3,1**		9,2		7,3		(59)
		Inferred resources inside LoMP	**0,0**				0,0				
Belfast project (OC) (commercial market) 100% attributable to Exxaro[2]	17	Proved	**45,7**	**32,6**	**8,1**		45,7	35,3	8,1		
		Probable									
		Total	**45,7**	**32,6**	**8,1**		45,7	35,3	8,1		
		Inferred resources inside LoMP	**0,5**				0,5				
Dorstfontein Complex[11] Mpumalanga (OC UG) (commercial market) 74% attributable to Exxaro[2]	15	Proved	**34,5**	**20,8**			12,2	7,2			
		Probable	**9,0**	**5,7**			8,1	4,3			
		Total	**43,5**	**26,5**			20,3	11,5			114
		Inferred resources inside LoMP	**5,0**				3,6				
Forzando mines[12] Mpumalanga (UG) (commercial market) 74% attributable to Exxaro[2]	12+	Proved	**11,4**	**7,6**			7,0	5,8			
		Probable	**37,1**	**26,1**			4,5	3,7			
		Total	**48,5**	**33,7**			11,5	9,5			321
		Inferred resources inside LoMP	**7,2**				0,3				

Operation[1]	LoM (years)[3]	Category	2016 – RoM and saleable tonnes[4] RoM (Mt)	Coking (Mt)	Thermal (Mt)	Metallurgical (Mt)	2015 – RoM and saleable tonnes[4] RoM (Mt)	Coking (Mt)	Thermal (Mt)	Metallurgical (Mt)	Change in RoM[4] %
Grootegeluk mine[13] Limpopo (OC) (commercial market) 100% attributable to Exxaro[2]	24+	Proved	**2 534**	**96**	**1 187**	**77**	2 679	120	1 138	78	
		Probable	**421**	**15**	**195**	**10**	537	33	218	11	
		Total	**2 954**	**111**	**1 382**	**88**	3 216	153	1 356	89	(8)
		Inferred resources inside LoMP	**324**				67				
Thabametsi project[14] Limpopo (OC) (IPP market) 100% attributable to Exxaro[2]	29+	Proved	**109,0**		**107,0**		109,0		107,0		
		Probable	**21,0**		**20,0**		21,0		20,0		
		Total	**130,0**		**127,0**		130,0		127,0		
		Inferred resources inside LoMP	**0,0**				0,0				

See footnotes on page 17.

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES (CONTINUED)

Table 4: Coal reserves reported for 2016 (continued)

Footnotes for table 4

- *Rounding may cause computational discrepancies*
- *Tonnages are quoted in metric tonnes and million tonnes abbreviated as Mt*
- *Inferred resources inside life-of-mine plan (LoMP) refer to inferred resources considered for the LoMP. These resources have not been converted to reserves*
- *Coal reserves are quoted on a run-of-mine (RoM) reserve tonnage basis which represents tonnages delivered to the plant at applicable moisture and quality*
- *Saleable reserve tonnage represents the product tonnes of coal available for sale on an applicable moisture basis*
- *All changes over 10% (significant) are explained*

1 *Operation refers to operating mine or significant project. Mining method: OC – open-cut, UG – underground*

2 *Figures are reported at 100% irrespective of percentage attributable to Exxaro and refer to 2016 only*

3 *The + symbol is used where the scheduled LoMP extends beyond the expiry of the mining rights. In each instance, Exxaro has a reasonable expectation that the mining right will be renewed*

4 *Export refers to export thermal coal except in the case of Grootegeluk mine where export refers to semi-soft coking coal, suitable for both export and inland markets*

5 *The percentage difference between 2016 reported RoM and 2015 reported RoM*

6 *In 2016, a study was conducted into the commercial viability of Arnot, indicating several areas that can be profitably mined for the thermal coal market. However, due to the absence of an official coal supply agreement (CSA), no reserves have been declared*

7 *Ore reserves exist for LoMP extending well beyond the period for which the mining right was granted. The operation currently plans to be in production until at least 2037, although the mining right lapses in 2025. Exxaro has a reasonable expectation that the mining right renewal, once submitted, will be granted*

8 *The change in reserves is the result of depletion (5,83Mt), economic assumptions (14,27Mt), model refinement (9,65Mt) and 2,79Mt of disposals. The mine's market strategy changed and it has exited the lean coal export market, resulting in no further export saleable product reported*

9 *The LoMP has been revised based on the latest macro-economic assumptions, resulting in a greatly reduced footprint. Estimates are received from Anglo American Thermal Coal and not audited by Exxaro*

10 *The NBC CSA with Eskom expires on 30 June 2017. Exxaro has a reasonable expectation that Eskom will continue offtake until 31 December 2017. Scheduled reserves beyond the CSA are classified in the probable category due to uncertainty on the CSA extension*

11 *The market strategy and LoMP were thoroughly revised, extending the number of years in the LoMP well beyond the conservative five years as reported last year*

12 *The market strategy and LoMP were thoroughly revised, extending the LoMP to 2036 well beyond the conservative five years as reported last year as well as the expiry of both the Forzando North (FZON) and Forzando South (FZOS) mining rights (June 2029)*

13 *The decrease reflects the updated resource classification*

14 *Thabametsi power project, for which Thabametsi project has a 30-year CSA, has been selected as a preferred bidder in the first bid window of South Africa's coal-baseload independent power producer procurement programme (CBIPPPP)*

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES (CONTINUED)

Table 5: Coal reserve qualities 2016

		Thermal saleable (proved + probable)					Metallurgical saleable (proved + probable)					Coking saleable (proved + probable)				
Operation	Seam/layer	Tonnes (Mt)[1]	CV MJ/kg	% VM	% Ash	% S	Tonnes (Mt)[1]	CV MJ/kg	% VM	% Ash	% S	Tonnes (Mt)[1]	CV MJ/kg	% VM	% Ash	% S
Matla mine	Seam 2	89,1	22,5	22,6	20,4	1,0										
	Seam 4	165,0	18,5	20,9	31,4	0,9										
Leeuwpan	TC[2]	13,5	22,5	20,6	25,3	0,7	2,4	26,5	19,3	17,8	1,0					
	BC[2]	2,9	23,2	23,8	23,3	0,8	16,5	26,3	23,0	16,4	0,9					
Mafube	Middlings	15,3	22,0	21,7	24,9	0,6										
	Export	29,8	26,6	26,2	13,5	0,4										
NBC mine	Glisa: total seams	2,4	21,0	22,4	26,1	1,0										
	Eerstelingsfontein: seam 2	0,7	25,6	22,6	17,3	0,9										
Belfast project	Thermal	8,1	21,9	22,4	26,6	1,8										
	Export	32,6	26,9	26,9	13,7	0,5										
Dorstfontein Complex	All seams	26,4	24,6	22,2	20,5	0,6										
Forzando mines	All seams	33,7	24,7	26,7	17,8	1,0										
Grootegeluk mine	All seams	1 381,7	22,3	26,1	30,8	1,4	87,6	28,7	23,7	14,3	0,6	111,3	29,6	35,5	10,3	1,2
Thabametsi project[3]	T1	64,0	12,7	20,0	53,9	1,1										
	T2	63,0	11,3	19,0	55,7	1,0										

Footnotes for table 5

- *VM – volatile matter, S – sulphur, CV – gross calorific value*
- *Rounding may cause computational discrepancies*
- *Saleable 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 abbreviated as Mt*

[2] *TC – top coal, BC – bottom coal*

[3] *Based on Thabametsi bench configuration as defined in phase 1 feasibility study*

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES (CONTINUED)

Table 6: Mineral sands resources reported for 2016

		2016 – tonnes and grade		2015 – tonnes and grade		
Operation[1]	**Category**	**Tonnes (Mt)**	**% Ilmenite**	**Tonnes (Mt)**	**% Ilmenite**	**Change in tonnes %**
Hillendale mine	Measured	**12,2**	**2,9**	12,2	2,9	
KwaZulu-Natal	Indicated					
(OC) (in closure)	Inferred					
58,55% attributable to Exxaro[2]						
	Total	**12,2**	**2,9**	12,2	2,9	
Fairbreeze mine	Measured	**154,6**	**4,23**	156,1	4,29	
KwaZulu-Natal	Indicated	**55,7**	**2,56**	55,7	2,56	
(OC) (mining right)	Inferred	**9,0**	**1,92**	9,0	1,92	
58,55% attributable to Exxaro[2]						
	Total	**219,3**	**3,71**	220,9	3,76	(1)
Block P	Measured					
KwaZulu-Natal	Indicated	**40,6**	**3,1**	40,6	3,1	
(OC) (mining right)	Inferred					
58,55% attributable to Exxaro[2]						
	Total	**40,6**	**3,1**	40,6	3,1	
Port Durnford project	Measured	**143**	**3,0**	143	3,0	
KwaZulu-Natal	Indicated	**340**	**2,8**	340	2,8	
(OC) (prospecting)	Inferred	**466**	**2,5**	466	2,5	
58,55% attributable to Exxaro[2]						
	Total	**949**	**2,7**	949	2,7	

		2016 – tonnes and grade			2015 – tonnes and grade			
Operation[1]	**Category**	**Tonnes (Mt)**	**% Ilmenite**	**% Zircon**	**Tonnes (Mt)**	**% Ilmenite**	**% Zircon**	**Change in tonnes %**
Namakwa Sands mine[3]	Measured	**592**	**2,88**	**0,64**	625	2,88	0,65	
Western Cape	Indicated	**307**	**2,26**	**0,58**	319	2,25	0,58	
(OC) (mining right)	Inferred	**525**	**1,52**	**0,28**	63	2,46	0,64	
58,55% attributable to Exxaro[2]								
	Total	**1 424**	**2,24**	**0,49**	1 007	2,66	0,63	42

See footnotes on page 19.

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES (CONTINUED)

Table 6: Mineral sands resources reported for 2016 (continued)

		2016		2015		
		Tonnes (Mt)	% total heavy minerals (THM)	Tonnes (Mt)	% THM	Change in tonnes %
Cooljarloo mine	Measured	**313**	**1,8**	252	1,8	
Western Australia	Indicated	**210**	**1,7**	233	1,7	
(OC)	Inferred					
43,98% attributable to Exxaro[2]						
	Total	**523**	**1,8**	485	1,8	8
Cooljarloo West project	Measured					
Western Australia	Indicated	**177**	**1,8**	177	1,8	
(OC) (mining right)	Inferred					
43,98% attributable to Exxaro[2]						
	Total	**177**	**1,8**	177	1,8	
Cooljarloo North West project	Measured					
Western Australia	Indicated					
(OC) (prospecting)	Inferred	**141,6**	**2,1**	141,6	2,1	
43,98% attributable to Exxaro[2]						
	Total	**141,6**	**2,1**	141,6	2,1	
Jurien project[4]	Measured	**36,2**	**5,8**			
Western Australia	Indicated	**5,9**	**3,3**	25,6	6,0	
(OC) (mining right)	Inferred					
43,98% attributable to Exxaro[2]						
	Total	**42,1**	**5,4**	25,6	6,0	65
Dongara project	Measured	**106,5**	**3,9**	105,9	4,0	
Western Australia	Indicated	**17,9**	**4,5**	12,8	4,5	
(OC) (mining right)	Inferred	**39,4**	**2,7**	37,8	2,7	
43,98% attributable to Exxaro[2]						
	Total	**163,9**	**3,7**	156,4	3,7	5

Footnotes for table 6

- *Mineral resources are quoted inclusive of mineral resources that have been modified to mineral reserves unless otherwise stated*
- *Estimates as received from Tronox at 31 December 2016 and not audited by Exxaro*
- *Rounding may cause computational discrepancies*
- *Tonnages are quoted in metric tonnes and million tonnes abbreviated as Mt*
- *All changes over 10% (significant) are explained*

[1] *Operation refers to operating mine or significant project. Mining method: OC – open-cut, UG – underground*
[2] *Figures are reported at 100% irrespective of percentage attributable to Exxaro and refer to 2016 only*
[3] *The increase is due to the addition of environmentally sensitive zones, collectively called the Protectorate*
[4] *The resource increase was due to optimisation of the known resources, new drilling data and inclusion of a new deposit (Jurien East)*

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES (CONTINUED)

Table 7: Mineral sands reserves reported for 2016

			2016 – RoM and grade						2015 – RoM and grade		
					Total heavy mineral (THM) composition						
Operation[1]	LoM (years)[3]	Category	RoM (Mt)	% THM	% Ilmenite	% Rutile	% Zircon	% Leucoxene	RoM (Mt)	% THM	Change in RoM %
Fairbreeze mine KwaZulu-Natal (OC) (mining right) 58,55% attributable to Exxaro[2]	12	Proved	**137,4**	**7,0**	**61,9**	**3,6**	**8,4**	**1,6**	139,0	7,1	
		Probable	**45,3**	**4,6**	**53,2**	**3,2**	**7,3**	**1,8**	45,3	4,6	
		Total	**182,7**	**6,4**	**60,4**	**3,5**	**8,2**	**1,6**	184,3	6,5	(1)
		Inferred resources inside LoMP					**6,8**				
Namakwa Sands mine Western Cape (OC) (mining right) 58,55% attributable to Exxaro[2]	21+	Proved	**214,0**	**8,6**	**35,8**	**2,5**	**9,2**	**5,4**	222,0	8,9	
		Probable	**500,6**	**5,6**	**50,0**	**2,9**	**10,8**	**6,8**	503,0	5,6	
		Total	**714,7**	**6,5**	**44,4**	**2,8**	**10,2**	**6,2**	725,0	6,6	(1)
		Inferred resources inside LoMP									
Cooljarloo mine Western Australia (OC) 43,98% attributable to Exxaro[2]	13+	Proved	**312,9**	**1,8**	**59,9**	**5,0**	**10,0**	**2,5**	252,0	1,8	
		Probable	**33,9**	**2,0**	**61,1**	**4,8**	**9,2**	**2,9**	95,0	1,6	
		Total	**346,8**	**1,8**	**60,0**	**5,0**	**9,9**	**2,5**	347,0	1,8	
		Inferred resources inside LoMP									
Cooljarloo West project Western Australia (OC) (mining right) 43,98% attributable to Exxaro[2]	9	Proved									
		Probable	**104,5**	**2,0**	**60,5**	**5,0**	**12,2**	**2,9**	104,5	2,0	
		Total	**104,5**	**2,0**	**60,5**	**5,0**	**12,2**	**2,9**	104,5	2,0	
		Inferred resources inside LoMP									
Dongara project Western Australia (OC) (mining right) 43,98% attributable to Exxaro[2]	12+	Proved	**61,9**	**5,2**	**48,7**	**6,1**	**10,9**	**2,8**	64,6	5,1	
		Probable									
		Total	**61,9**	**5,2**	**48,7**	**6,1**	**10,9**	**2,8**	64,6	5,1	(4)
		Inferred resources inside LoMP									

Footnotes for table 7

- *% THM – percent total heavy minerals*
- *Rounding figures may cause computational discrepancies*
- *Figures are reported at 100% irrespective of percentage attributable to other shareholders*
- *Tonnages are quoted in metric tonnes and million tonnes abbreviated as Mt*
- *Reserves are quoted on a run-of-mine (RoM) reserve tonnage basis which represents tonnages delivered to the plant at an applicable moisture and quality*
- *Inferred resources in life-of-mine plan (LoMP) refer to inferred resources considered for the LoMP*
- *Estimates as received from Tronox at 31 December 2016 and not audited by Exxaro*
- *All changes more than 10% (significant) are explained*

[1] *Operation refers to operating mine or significant project. Mining method: OC – open-cut, UG – underground*

[2] *Figures are reported at 100% irrespective of percentage attributable to Exxaro and refer to 2016 only*

[3] *The + symbol is used where the scheduled LoMP extends beyond the expiry of the mining rights*

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES (CONTINUED)

Table 8: Base metals resources (exclusive) reported for 2016

		2016 – tonnes and grade					2015 – tonnes and grade					
Operation[1]	Category	Tonnes (Mt)	% Zn	% Pb	% Cu	Ag g/t	Tonnes (Mt)	% Zn	% Pb	% Cu	Ag g/t	Change in tonnes %
Black Mountain	Measured	**4,3**	**3,1**	**3,4**	**0,3**	**34,8**	3,6	3,0	3,0	0,4	34,3	
Mining-Deeps mine[3]	Indicated	**6,9**	**2,5**	**2,8**	**0,5**	**34,9**	9,3	2,4	2,3	0,5	29,8	
Northern Cape	Inferred											
(UG) (zinc, lead, copper and silver)												
26% attributable to Exxaro[2]												
	Total	**11,2**	**2,7**	**3,0**	**0,4**	**34,9**	12,9	2,7	2,6	0,5	31,5	(13)
Black Mountain	Measured											
Mining-Swartberg mine[3]	Indicated	**25,9**	**0,5**	**2,2**	**0,5**	**24,8**	31,5	0,5	2,4	0,5	25,1	
Northern Cape	Inferred	**3,3**	**0,4**	**2,3**	**0,6**	**52,2**	15,5	0,6	3,1	0,5	32,6	
(UG) (zinc, lead, copper and silver)												
26% attributable to Exxaro[2]												
	Total	**29,2**	**0,5**	**2,3**	**0,5**	**27,9**	47,0	0,5	2,5	0,5	25,9	(38)
		Tonnes (Mt)	% Zn	% Pb	% Mn	% S	Tonnes (Mt)	% Zn	% Pb	% Mn	% S	
Gamsberg North mine[3]	Measured	**43,3**	**6,6**	**0,6**	**0,8**	**20,2**	42,3	6,5	0,6	0,7	20,2	
Northern Cape	Indicated	**54,6**	**5,9**	**0,5**	**0,7**	**19,8**	65,0	5,6	0,5	0,6	18,8	
(OC) (zinc)	Inferred	**32,1**	**5,8**	**0,5**	**0,9**	**17,7**	27,4	5,4	0,5	0,6	18,1	
26% attributable to Exxaro[2]												
	Total	**130,0**	**5,8**	**0,5**	**0,6**	**19,1**	134,7	5,8	0,5	0,6	19,1	(3)
Gamsberg East project	Measured											
Northern Cape	Indicated											
(prospecting) (zinc)	Inferred	**32,3**	**9,8**	**–**	**–**	**–**	32,3	9,8	–	–	–	
26% attributable to Exxaro[2]												
	Total	**32,3**	**9,8**	**–**	**–**	**–**	32,3	9,8	–	–	–	

Footnotes for table 8

- *% Zn – percent zinc, % Cu – percent copper, % Pb – percent lead, Ag g/t – grams per tonne silver, % Mn – percent manganese, % S – percent sulphur*
- *Rounding may cause computational discrepancies*
- *Tonnages are quoted in metric tonnes and million tonnes abbreviated as Mt*
- *Estimates as received from Vedanta Resources plc at 31 December 2016 and not audited by Exxaro*
- *Resources quoted on a mineable tonnes in-situ (MTIS) basis and in addition to those converted to ore reserves*
- *All changes over 10% (significant) are explained*

[1] *Operation refers to operating mine or significant project. Mining method: OC – open-cut, UG – underground*

[2] *Figures are reported at 100% irrespective of percentage attributable to Exxaro*

[3] *The change in resources is due to additional drilling and revised pit designs*

6 GROUP SUMMARY OF RESOURCE AND RESERVE ESTIMATES (CONTINUED)

Table 9: Base metals reserves (exclusive) reported for 2016

			2016 – RoM and grade					2015 – RoM	
Operation[1]	LoM (years)	Category	RoM (Mt)	% Zn	% Pb	% Cu	Ag g/t	RoM (Mt)	Change in RoM %
Deeps mine[3]		Proved	**1,8**	**3,4**	**4**	**0,4**	**42,2**	3,0	
Northern Cape (UG) (zinc, lead, copper and silver)	**6**		**4,3**	**2,6**	**2,6**	**0,7**	**32,8**	6,9	
26% attributable to Exxaro[2]		Probable							
		Total	**6,1**	**2,8**	**3,0**	**0,6**	**35,5**	9,9	(39)
		Inferred resources inside LoMP							
Swartberg mine[3]		Proved							
Northern Cape (UG) (zinc, lead, copper and silver)	**6**	Probable	**2,3**	**0,6**	**3,2**	**0,6**	**24,2**	2,0	
26% attributable to Exxaro[2]									
		Total	**2,3**	**0,6**	**3,2**	**0,6**	**24,2**	2,0	12
		Inferred resources inside LoMP							
				% Zn	% Pb	% Mn	% S		
Gamsberg North mine[3]		Proved	**44,5**	**6,8**	**0,5**	**0,9**	**20,6**	39,1	
Northern Cape (OC) (zinc)	**13**		**8,7**	**6,0**	**0,5**	**1,1**	**17,3**	9,5	
26% attributable to Exxaro[2]		Probable							
		Total	**53,2**	**6,6**	**0,5**	**1,0**	**20,0**	48,6	9
		Inferred resources inside LoMP	**0,4**					1,8	

Footnotes for table 9

- *% Zn – percent zinc, % Cu – percent copper, % Pb – percent lead, Ag g/t – grams per tonne silver, % Mn – percent manganese, % S – percent sulphur*
- *Rounding may cause computational discrepancies*
- *Figures are reported at 100% irrespective of percentage attributable to Exxaro*
- *Tonnages are quoted in metric tonnes and million tonnes abbreviated as Mt*
- *Reserves are quoted on a run-of-mine (RoM) reserve tonnage basis which represents tonnages delivered to the plant at an applicable moisture and quality*
- *Inferred resources inside life-of-mine plan (LoMP) refer to inferred resources considered for the LoMP*
- *Estimates as received from Vedanta Resources plc at 31 December 2016 and not audited by Exxaro*
- *All changes over 10% (significant) are explained*

[1] *Operation refers to operating mine or significant project. Mining method: OC – open-cut, UG – underground*
[2] *Figures are reported at 100% irrespective of percentage attributable to Exxaro*
[3] *The change in reserves is due to additional drilling and revised pit designs*

7 ESTIMATION METHODOLOGY SUMMARY

7.1 Mineral resources

The resource estimation process for mineral resources under Exxaro's control is governed by the group's resource estimation procedure and aligned to the SAMREC Code and SANS 10320:2004 standard. 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, relative density determination and wireline logging standards are enforced.

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 a field application of the Archimedes method. A comparative study between the field and laboratory methods was undertaken in 2015, and results indicated there is no significant difference.

Item	Description
Resource fact pack	Lists new information since last estimation, together with a reconciliation between predicted MTIS and actual MTIS. Recommendations from internal/external audits are included.
Technical data validation	Technical validation of data to be used for resource estimation, including collar validation, gaps and overlaps checks, data distribution, etc.
Data analysis	Entails a review and analysis of the geological integrity and continuity of data in a spatial and geostatistical sense. Includes domaining and structural interpretations.
Data modelling	Geovia Minex is used for coal modelling and the Minex growth algorithm is the preferred interpolation technique. ESRI ArcGIS is used for modelling structural features. Sable Data Warehouse (SDWh) 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 is presented by the resource competent person, aided by the relevant technical specialists, to a panel comprising Exxaro lead CP and domain experts for sign-off and approval. Concept-level geological models, where applicable, are compiled for alternative interpretations and evaluated during sign-off. Feasibility-level and/or LoMP-level geological models are based on reviewed and signed-off interpretations.
Resource classification	Resource classification is undertaken as per Exxaro estimation procedure and aligned with SANS 10320:2004. Anomalous drillhole data and structurally complex areas are accounted for and resource classification is used to control the adequacy of drillhole data. Separate confidence zones are determined for structural features based on a matrix approach. The effect of extrapolation is controlled by resource classification in which classification domains are not extrapolated beyond half the average drillhole spacing for the classification category. Only points of observation with applicable quality data are used for classification.
Estimation and reporting	Resource reporting uses approved cut-offs and geological loss domains followed by completing all necessary reports and audit trails. Exxaro currently uses a systematic review process that measures the level of maturity of exploration work done, the extent of geological potential, security of tenure and associated geological risks to establish an eventual extraction outline (EEO).
Review and consolidation	Individual reports are reviewed and corrections effected if necessary. Reports are endorsed by management and used to compile the consolidated mineral resource and ore reserves report.

A formal, annually compiled and signed-off exploration strategy outlines planned activities to investigate areas of low confidence and/or geology 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 person's report (CPR).

The reserve estimation process is summarised below and applies to all coal operations and projects under Exxaro's management control. The resource competent person (CP) is actively involved throughout the process and no resource data is included/excluded without consent from the CP.

7.2 Ore reserves

Ore reserves have the same meaning as mineral reserves as defined in the applicable reporting codes. Ore 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 and after 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 CP's report.

Exxaro is keenly aware of the importance of its mineral assets, both for the short-term profitability of its 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 life-of-mine strategic plans to consider the best way of addressing these challenges.

For reserve estimates to be compliant with the life-of-mine policy, the following supporting inputs are required for all reserve estimates: survey, rock engineering, infrastructure and an environmental as well as reserve estimation scoping report.

7 ESTIMATION METHODOLOGY SUMMARY (CONTINUED)

The following outputs are generated after successfully completing the procedure: validation and verification report, mining block model, exploitation strategy report, mining schedule and equipment strategy report, and reserve estimation report.

At the start of the estimation process, the applicable reserve CP must compile, for every operation, a reserve fact pack report outlining the standards and norms of that operation as well as all relevant planning standards. Also considered are all standards and norms and planning parameters, the geological model, infrastructure and environmental plans together with the structural plan, geotechnical review report, and others. The market strategy, supply contracts and planned volumes drive the schedule. All operations standards must be signed off by the applicable mine management and reserve CP. A similar procedure is followed for projects, with the project steering committee fulfilling the role of mine management.

Reserve estimation may be conducted either as required, eg for a project-stage evaluation, or as part of the annual mineral resource and ore reserve estimation process. The data conversion, validation and verification report are the first outputs of this procedure.

On receipt of the geological model, the validation procedure is run, and the model is converted into a mining model, after which a report is compiled with possible geological model anomalies, and a comparison of volumes in the geological model and mining model to confirm data conversion has been carried out correctly. This information is signed off as acceptable by the resource CP and manager: strategic mine planning and design.

The following components are included in the LoMP and reserve estimation: exploitation strategy, operational methodology and pit shell.

The exploitation strategy needs to broadly demonstrate the pit/mining economics, in terms of resource boundaries, legal scheduling and other, ie servitudes.

Operational methodology takes cognisance of:

- Material flow explains the flow of material over time, ie open-pit – ex-pit, distances horizontal and vertical; underground – geographical expansion versus stoping; and deep pit – push-back strategy, minimum and maximum stripping curves
- Equipment explains the size and type of equipment for the design, including the life of equipment, major interventions and/or major changes (ie open-pit to underground) over the life of the resource
- Waste dumps (size and position), rehabilitation (main issues and interventions) together with legal and other – indicates licences obtained and required
- 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 at that time
- Measured and indicated resources are used as basis for conversion. The first five years of the LoMP must be covered by at least 80% measured.

Resource volumes/tonnages are converted to reserve tonnages by applying the following mining modifying factors:

- Mining efficiency losses – as per average cut thickness. This factor is 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.

The reserve classification methodology for mineral reserves under Exxaro's control is governed by the Exxaro reserve estimation procedure and aligned to the SAMREC Code and SANS 10320:2004 standard. In most instances, measured resources are converted to proved reserves and indicated resources are converted to probable reserves. If an operation or project has additional constraints, however, ie 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.

Where inferred resources were considered for LoMPs, the amount (Mt) and effect is always clearly stated. When inferred resources are included in the LoMP, these tonnages are never scheduled in the first five years of mine life. The rationale for considering inferred resources' inclusion is explained and actions to address this issue are stated. Exxaro generally attempts to limit the inferred resources to less than 15% of total resources to be considered for LoMPs. Any inclusion of inferred resources must be explained and modifying factors and assumptions that were applied to the indicated and measured resources to determine the ore reserves must be equally applied to the inferred resources. However, inferred resources are not converted to mineral 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 reserve statement.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION

Supplementary descriptions are provided for projects and operations directly under Exxaro's management control. For projects and operations included in the Exxaro mineral resource and ore reserve statement but in which Exxaro does not have management control, the reader is referred to that company's website for supplementary information (refer to foreword).

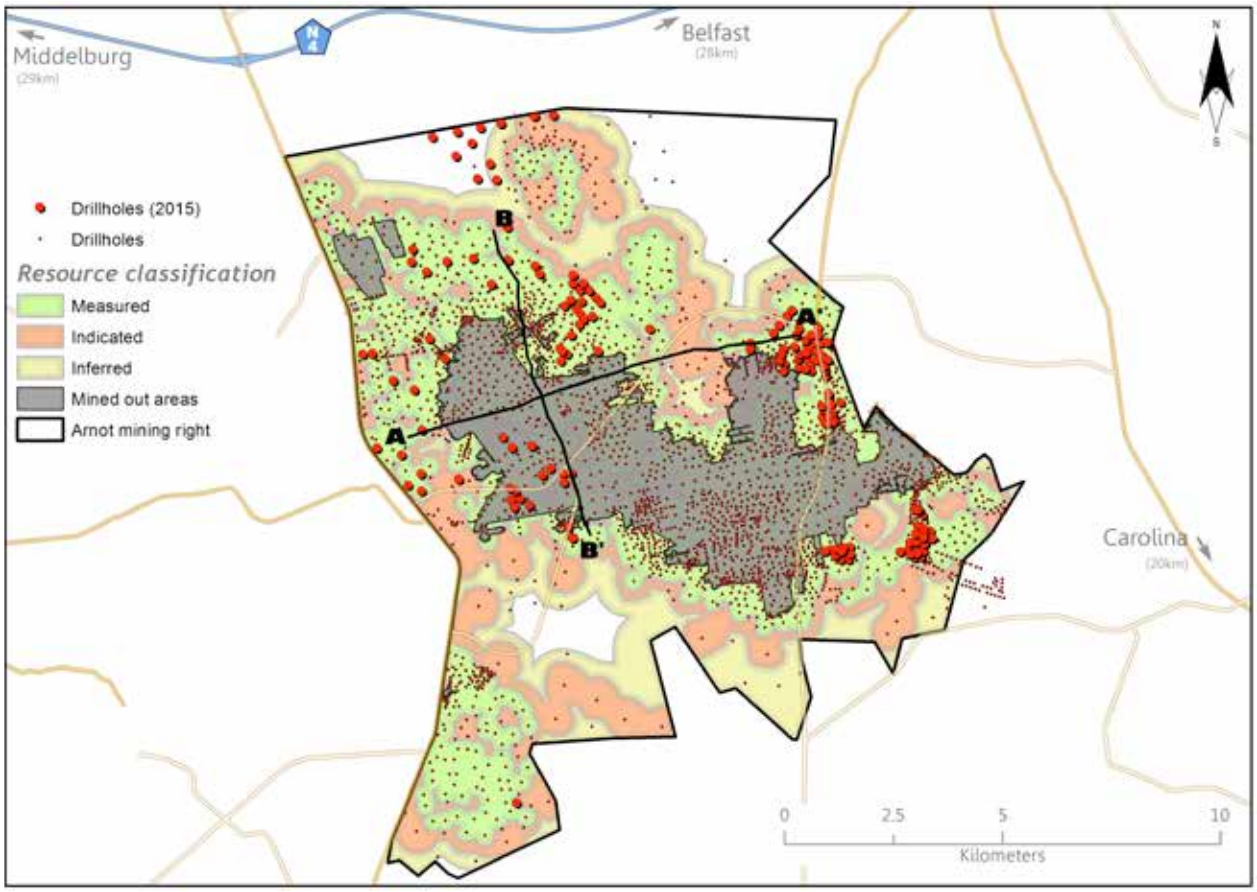
8.1 Arnot coal mine

Overview

Arnot mine is 43km east of Middelburg in Mpumalanga, South Africa, and was contracted to supply coal to the nearby Eskom Arnot power station until 31 December 2015. This was achieved by extracting no 2 seam lower (S2L) from two underground shafts, namely no 8 and no 10 shafts, using mechanised mining equipment (bord-and-pillar extraction) while Mooifontein open-cast used conventional truck-and-shovel, roll-over mining method to extract S2L and no 1 seam (S1).

A prefeasibility study was conducted into the commercial viability of Arnot in 2016. It was found that there are several areas that can be profitably mined for the thermal coal market. However, due to the absence of a confirmed coal supply agreement (CSA), no reserves have been declared.

Figure 6: Arnot mine



History

Arnot mine produced thermal coal for over 40 years, using various mining methods, predominantly bord-and-pillar (currently mechanical), open-casting and shortwalling between 1995 and 2005.

Arnot had a 40-year CSA with Eskom, supplying the adjacent Arnot power station, which ended on 31 December 2015. There are, however, still significant areas that can be exploited as thermal coal, based on reasonable economic assumptions.

Geology

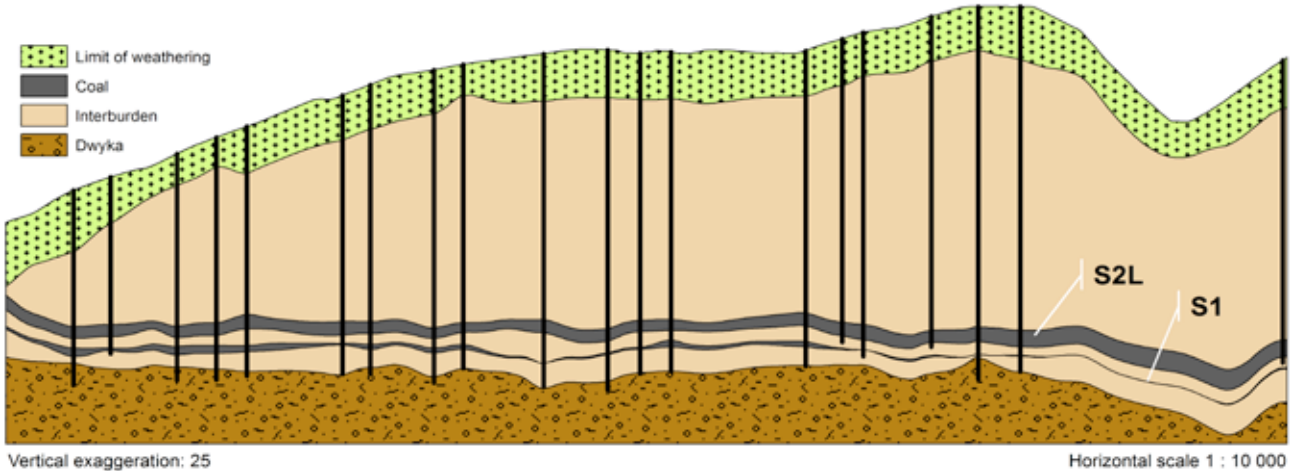
The S1 and S2L are the only coal seams of economic interest in the Arnot mining right area, and these correlate with the typical Witbank coalfield seams. The pre-Karoo basement topography consists of both felsites and diabase intrusives associated with the Transvaal supergroup and Bushveld igneous complex respectively. The Vryheid formation is conformably deposited on top of the reworked glacio-fluvial tillite of the Dwyka group.

Resource evaluation

The current geological model is the 2015 long-term geological model. Some 2 458 drillholes were used for resource estimation, using the Minex growth algorithm. Coal-quality compositing was conducted in Minex on a weighted average basis and signed-off substitute values were used for unsampled in-seam material. The 2015 updated resource classification was based on SANS 10320:2004 guidelines together with consideration of the mine's risk and opportunity domain analysis (RODA) model. Criteria for estimating mineable tonnes in-situ (MTIS) include visually determined coal thickness and quality continuity; a 1,8m thickness cut-off for underground resources; a 1,0m thickness cut-off for open-castable resources and a maximum ash content of 35% across the resource. A 10% geological loss was applied.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Figure 7: Typical north-south (B-B) section through Arnot geological model



8.2 Belfast project

Overview

The Belfast project aims to commission an open-cast coal mine in Mpumalanga, South Africa. The mine is scheduled to produce A-grade steam coal for the export market, as well as middlings products of thermal coal for local consumption. The project area, some 10km south-west of the town of Belfast, is accessed via the N4 national road.

Figure 8: Belfast project

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

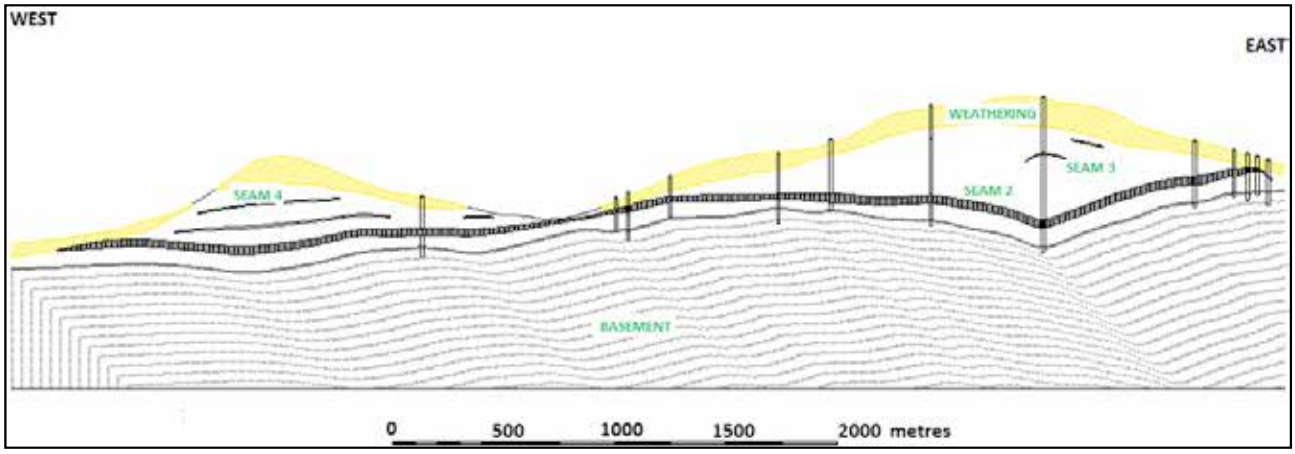
History
From 1967 to 1983, 78 drillholes were drilled. Of these, 43% were drilled by the Fuel Research Institute of South Africa (FRI) and Trans-Natal Steenkoolkorporasie Beperk (TNS). Eyesizwe Mining conducted drilling between 2001 and 2003 and Exxaro Resources' drilling campaign started in 2008. To date, 153 drillholes have been drilled on the farms Zoekop 426JS, Leeuwbank 427JS and Blyvooruitzicht 383JT.

Geology
The project area is in the Witbank coalfield and consists of four regionally correlated seams and a local seam. In some areas, seam 4 (S4) is weathered away. The seams are generally divided by an upward coarsening cycle of basal carbonaceous mudstone, carbonaceous siltstone, fine-grained sandstone and medium to coarse-grained sandstone. The parting between seam 3 (S3) and seam 2 (S2) consists of two sedimentary cycles. The top cycle is a 2 to 3m upward fining cycle, followed by a 4 to 6m upwards coarsening cycle. The strata in which the coal seam occurs consist predominantly of fine, medium and coarse-grained sandstone with subordinate mudstone, shale, siltstone and carbonaceous shale.

Resource evaluation
Evaluation of the Belfast project began in 2007 and several resource estimates have been generated to date. Initial studies focused on data integrity and a complete database validation of the then GBIS database, sourced from Eyesizwe, was completed in 2007 before a geological model comprising Eyesizwe-only drillholes was compiled in 2008. Subsequent geological models, all compiled in Minex geological modelling software and using the Minex growth algorithm, entailed updates with validated Exxaro drillholes and model refinements based on technical integrity. Coal quality compositing is undertaken in Minex on a weighted average basis. Resource classification is based on SANS 10320:2004 guidelines, applied using hand-drawn polygons to maintain geological continuity.

Criteria for estimating mineable tonnes in-situ (MTIS) include visually determined coal thickness and quality continuity, a 1,0m thickness cut-off, and a 5% geological loss.

Figure 9: West-east cross section through the 2012 geological model (10x vertical exaggeration)



Reserve evaluation
The 2012 geological model was used for the Belfast bankable feasibility study, together with a geotechnical report dated 2012 (Belfast feasibility study: geotechnical investigation). The geological data was used as supplied and no compositing was necessary in terms of plying. The data was aggregated and averaged from the smaller geological grid sizes of 25m x 25m to the mining blocks that are orientated to the mining direction and 45m x 45m in size.

The reserve model is a replica of the resource model, but with added modifying factors. The level of investigation for the Belfast reserve is a completed and approved feasibility study. The modifying factors used are:

- Mining method: Modified benching with doze-over strip mining
- Geotechnical: For highwall stability, soft material is mined at least one strip ahead of hard and coal-mining activities
- Geohydrological: The pit floor was taken into consideration to minimise water handling in the pit face
- Mining limits:
  - Economic cut-off
  - Farm boundary cut-off – only farms bought for phase 1 of the project were considered
  - Tenure and licence approvals
  - Seam thickness – only seams with a thickness of more than 1m were considered
  - Environmentally sensitive areas such as waterways and wetlands
- A factor of 5% was applied to RoM as a mining loss. The quality of coal was considered not to be affected by the mining loss
- A contamination factor of 0,1m of floor (footwall) was added onto the RoM and qualities duly adjusted. The assumption was for a CV of 0MJ/kg and ash of 100%
- The plant is designed to make a primary export product as well as a secondary local thermal product. A slimes loss of 6% and plant efficiency factor of 94,5% were applied to calculate the resultant product.

Total reserves are expected to be depleted within 17 years, whereas the allowable period under the mining right is 30 years. It should be noted that there are resources that fall outside the reserve due to various factors which could increase the LoMP. An amount of 0,5Mt inferred resources was considered for the LoMP but not converted to reserves. Proved reserves are derived from the measured resource category. Northern-located measured and indicated resources have not been converted to reserves due to outstanding surface purchasing agreements.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

8.3 Grootegeluk coal mine

Overview

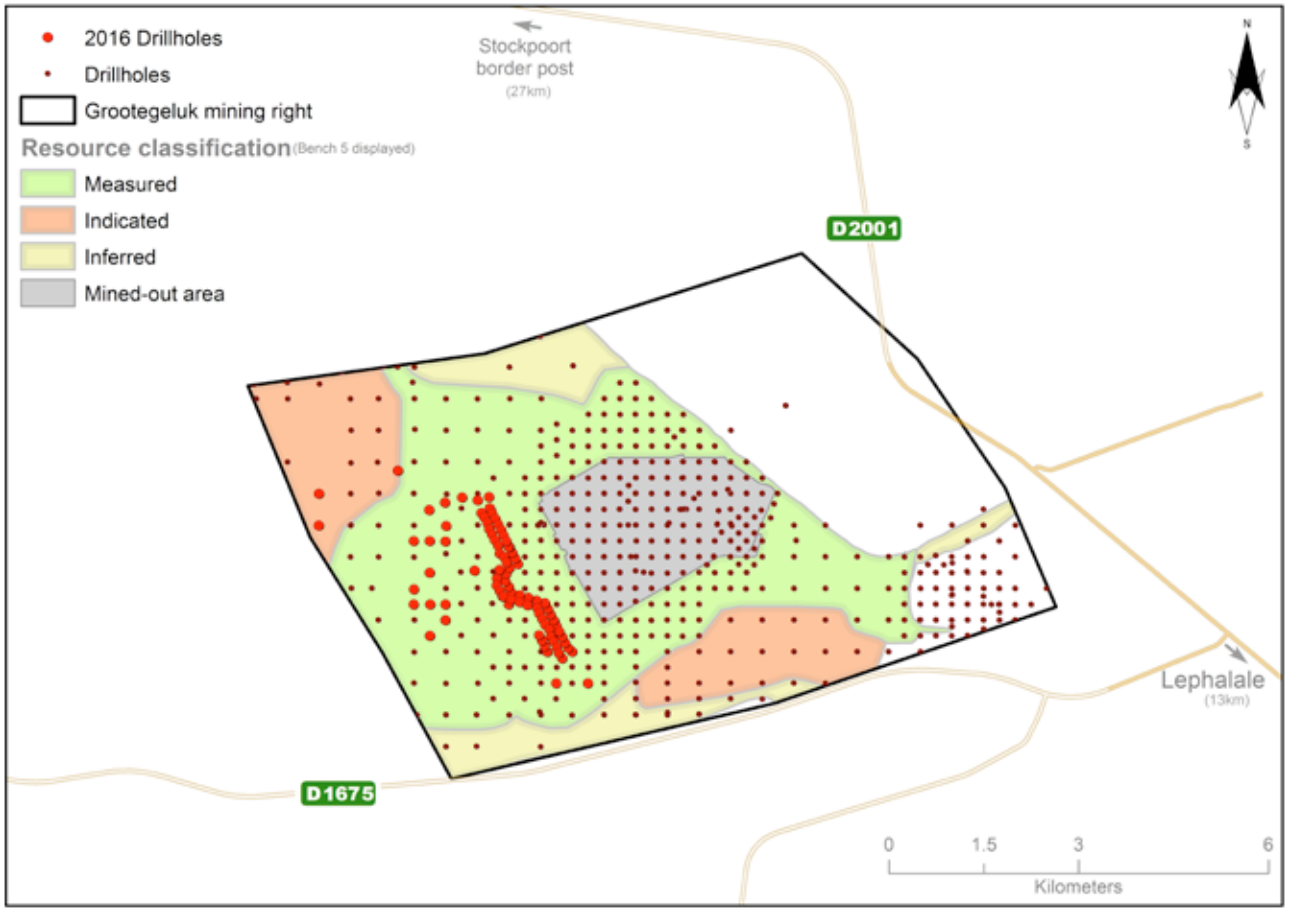
Grootegeluk mine is in the Waterberg coalfield, in the north-western part of the Limpopo province of South Africa. It is located in the Lephalale magisterial district, close to the residential suburbs of Marapong and Onverwacht. Although the current mining licence expires in 2041, the mine's production is projected to exceed the granted 30 years LoM. Exxaro has a reasonable expectation that the mining right will be renewed.

Grootegeluk is a surface coal-mining operation where 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.

The top half of the stratigraphy comprises a thick interbedded seam deposit type while the bottom half of the stratigraphy is a multiple seam deposit type. The mine has a multiproduct output (thermal coal, semi-soft coking coal and metallurgical coal as well as semi-coke as a downstream char product), sold to a spectrum of domestic and international clients.

The GG6 expansion project is a significant project, currently in feasibility phase. The project aims to add a second stage of beneficiation to the existing GG2 plant, and upgrade the two tip-bins to higher capacity. The end-state effect of the project will see the capacity of the current GG6 plant being tripled, while the current GG2 plant ceases to exist. The GG6 expansion plant will produce a semi-soft coking coal that will be suitable for sales in the export market, while producing thermal coal of suitable ash content.

Figure 10: Grootegeluk mine



History

The Waterberg coalfield was discovered in March 1920 during water-drilling operations on the farm Grootegeluk 459LQ, Limpopo. The discovery was followed by a reconnaissance study of the area by two geologists, Dr AL du Toit and HF Frommurze. A few short drillholes were drilled and Trevor & Du Toit (1922) summarised the results which, at the time, amounted to a discovery of scientific interest. The results of a later in-depth study by the Geological Survey and Fuel Research Institute indicated vast resources of metallurgical and non-metallurgical coal.

Iscor (now Exxaro) later acquired property rights to six farms in the Waterberg coalfield, on which 120 holes were drilled. Over a number of years, Iscor obtained bulk samples of coal for coking tests from a prospecting shaft on the farm Grootegeluk. Additional coking coal samples were obtained from large-diameter drillholes (254mm core).

In May 1973, Iscor started an intensive exploration programme on the six farms originally purchased for a final quantity and quality assessment of the resource on these properties. In 1975, a trial box-cut was established to obtain a bulk sample for beneficiation tests. The outcome of feasibility studies led to

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Grootegeluk mine being commissioned in 1980, originally designed to supply semi-soft coking coal as a reduction agent in Iscor's steel production process.

An agreement was later reached with Eskom to provide coal to a power station with 4 200MW generation capacity. Based on the projected life of this power station (Matimba), a pit layout containing 40 years of saleable thermal coal was designed. In addition to producing power station coal, the mine also produced semi-soft coking coal through a double-stage beneficiation plant, known as GG1.

As the ramp-up of Matimba power station progressed, another beneficiation plant, GG2, was commissioned to augment thermal coal supply to the power station. GG2 is a single-stage beneficiation plant running at an average separation density of 1,95g/cc.

To cope with the full demand of Matimba power station, after it started generating electricity at design capacity, another beneficiation plant, GG3 (crushing and screening only), was brought online.

As the market for medium to low-phosphorous coal evolved, additional beneficiation plants, GG4 and GG5, were commissioned to produce metallurgical coal for direct reduction and other smaller market applications, like the cement and tobacco industries.

In 2013, two additional plants, GG7 and GG8, were erected to supplement what was already the largest coal beneficiation complex in the world to produce coal for the Medupi power station.

The current pit layout was designed to cater for the remaining Matimba power-station contract as well as for the 4 770MW Medupi power station which started construction in 2007. This new layout was approved in 2012 and came into effect in that year. The remaining reserves reported here are therefore based on the 2012 pit layout.

Geology

Grootegeluk mine is in the Waterberg coalfield which has an east-west striking length of some 88km, complemented by a north-south width of around 40km, and lies in the Republic of South Africa, extending westward into Botswana. The coalfield is underlain by the Waterberg group and is fault-bounded along the southern and northern margins by the Eenzaamheid and Zoetfontein faults respectively.

The upper part of the coal deposit, the Volksrust formation (some 60m thick), comprises intercalated mudstone or carbonaceous shale and bright coal layers. It displays a well-developed repetition of coal-shale assemblages that can be divided into seven discrete sedimentary cycles or zones (zone 11 to zone 5). The Volksrust formation is classified as a thick interbedded seam deposit type according to SANS 10320: 2004.

The Vryheid formation (roughly 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. Due to its nature, the Vryheid formation is classified as a multiple seam deposit type according to SANS 10320:2004. There are five coal zones in the Vryheid formation, predominantly dull coal, with some bright coal developed at the base of zones 2, 3 and 4. Due to lateral facies changes and variations in the depositional environment, these zones are characterised by a large variation in thickness and quality. It appears that these zones depreciate in a westerly direction as observed within the mining rights area due to lateral facies changes.

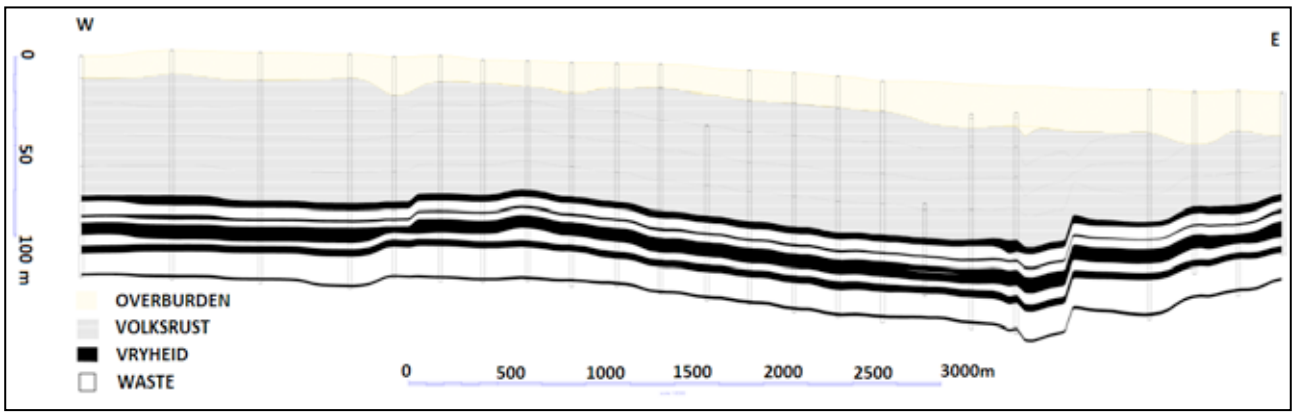
Resource evaluation

Resource evaluation at Grootegeluk is an extensive process and entails coal analysis and beneficiation simulation in Sable database software and geological modelling in Minex, using the Minex growth algorithm. Separate coal and shale (stratigraphically identified) samples are taken and these need to be composited first into combined coal/shale samples and subsequently into benches. The washability tables present proximate analyses from fractional relative densities of 1,35 to 2,2 and coal product simulation is undertaken in Sable and modelled in Minex. Some 714 drillholes were used for resource estimation, of which 464 contained coal-washability analyses.

Resource classification is largely based on SANS 10320:2004 guidelines for thick interbedded coal and incorporates geostatistical studies that justify a 500m x 500m drill spacing for measured resources. A 0,5m thickness cut-off and reconciliation-based bench-specific geological losses are applied to convert GTIS to MTIS. The geological model was updated in 2016 resulting in a negligible total MTIS increase of around 53Mt (1%), offset by some 45Mt of mining depletion.

The geological modelling process included a re-evaluation of structural complexity and certain areas were accordingly downgraded in classification. These areas will be supplemented with additional open-hole drilling to increase geological confidence in interpreted structures.

Figure 11: Typical west-east section through Grootegeluk geological model



8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Reserve evaluation
The resource estimates used for conversion to reserves are those derived from the 2016 resource geological model based on geological data available to 31 March 2016, and are contained within the approved pit layout only. Indicated resources are converted to probable reserves and measured resources to proved reserves. All inferred resources, including those within the pit layout, are omitted from reserve reporting in compliance with the SAMREC Code.

XPAC mine scheduling software is used to derive the 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 quality data for each bench is imported into the XPAC model. In this model, validations are performed to evaluate the data for possible discrepancies, such as incremental yields for each bench rising with increases in the relative float densities. The resource category areas are also loaded into the XPAC model for reserve categorising.

The modifying factors used are as follows:
› Mining limits:
- Economic cut-off
- Farm boundary cut-off
- Tenure and licence approvals
- Seam thickness – only seams with a thickness of more than 1m were considered
- Environmentally sensitive areas such as waterways and wetlands.

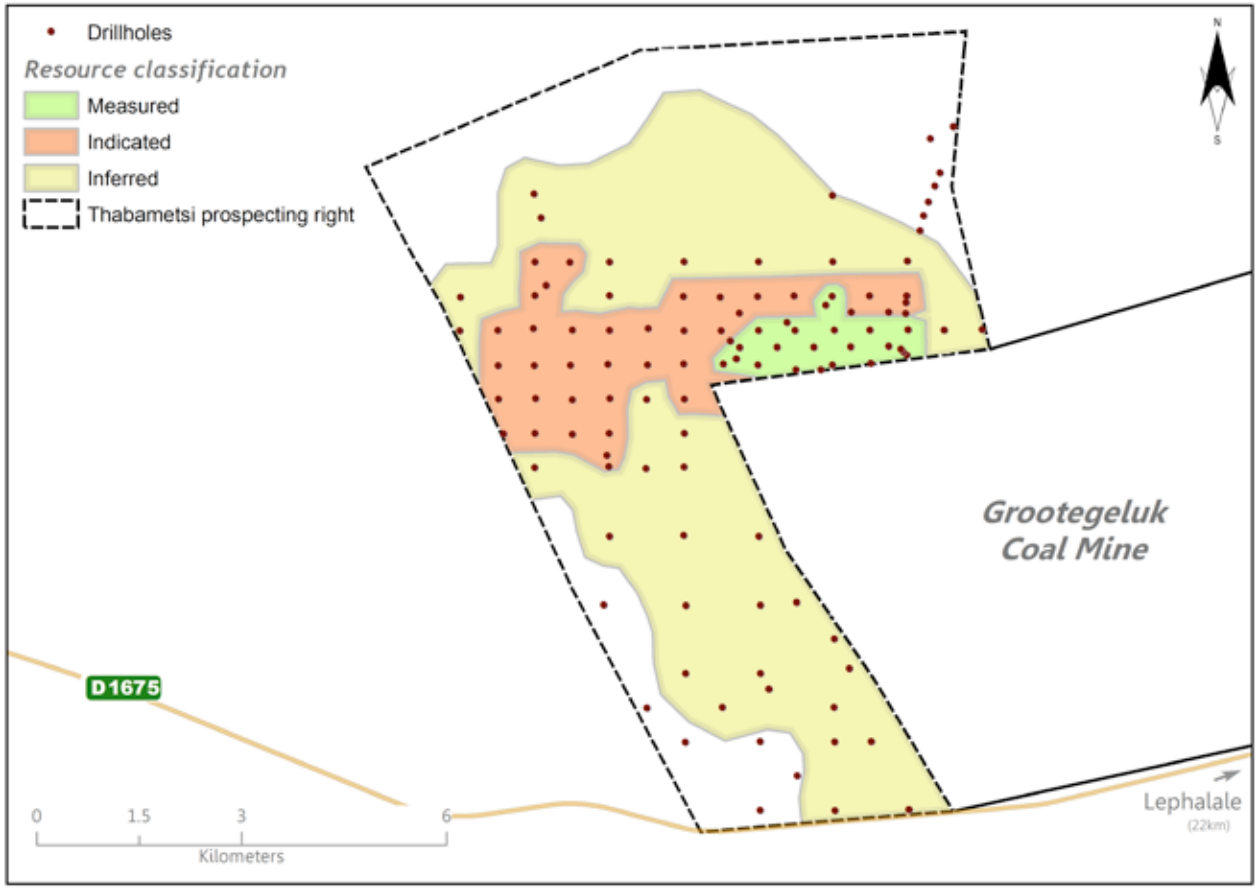
› Geological losses:
- Probable: -1% to -1,5% (varies per bench)
- Proved: -0,5% to -0,75% (varies per bench)
- Mining losses: negligible.

8.4 Thabametsi project

Overview
The Thabametsi project is 22km west of the town of Lephalale and adjacent to Exxaro's Grootegeluk mine. The project area is divided into a northern open-castable portion, and a southern underground area. The northern portion aims to produce power station coal for an on-site independent power producer (IPP) as part of phase 1. A feasibility study on phase 1 was successfully concluded in 2016 and studies on the southern project area are ongoing.

In October 2016, the South African Minister of Energy announced that the Thabametsi power project, for which Thabametsi project has a 30-year coal-supply agreement, had been selected as a preferred bidder in the first bid window of South Africa's coal-baseload independent power producer procurement programme (CBIPPPP).

Figure 12: Thabametsi project



8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

History
Drilling on the Thabametsi project area began in 1979 during a regional exploration of the Waterberg conducted by Iscor. This regional investigation was prompted by positive results on adjacent farms where Grootegeluk mine began production in 1980. As part of this regional exploration, one drillhole was drilled on all farms of interest. On farms where results were promising, follow-up drilling was conducted in 1980/81. During this time, eight drillholes were drilled on four of the five Thabametsi farms: McCabesvley, Jackalsvley, Zaagput and Vaalpensloop.

In 1988, two drillholes were drilled on the remaining farm, Van der Waltspan, to complete the regional exploration of the Thabametsi project area. All regional exploration during this time, except the drillholes on Van der Waltspan, was conducted through rotary core diamond drilling using an NQ-sized (47,5mm) core barrel. The drillholes on Van der Waltspan used a T6-146 (123mm) sized core barrel.

In 2008, exploration activities began in earnest on the project area. Since the start of the latest drilling programme, 61 drillholes have been drilled on Thabametsi at a cost of around R49,7 million. All drillholes completed on the project site since 2008 were undertaken using a T6-146 sized core barrel to produce a 123mm diameter core.

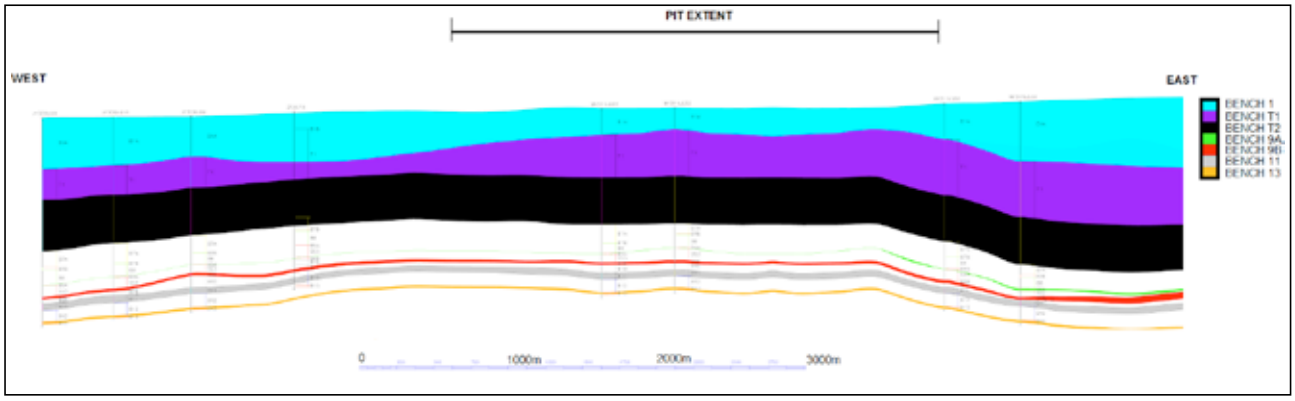
Geology
The geology is similar to Grootegeluk's geology but increased weathering and deteriorating coal qualities necessitated a different bench configuration. A cross-section through the geological model is presented in figure 13.

Resource evaluation
Resource estimation and data-compositing methods are aligned to the methodology applied at Grootegeluk and described above. In recent years, five geological models have been built for the Thabametsi project area, accounting for alternate interpretations and compositing scenarios.

Resource classification, throughout the Volksrust and Vryheid formations, is based on SANS 10320:2004 guidelines for multi-seam deposits. This approach is recognised as more conservative than applying guidelines for thick interbedded type deposits or the classification methodology applied at the adjacent Grootegeluk mine. It was chosen to remain conservative at feasibility study level and it is envisaged that the classification methodology will be reviewed once a geostatistical study into optimum drillhole spacing is finalised. Some 112 drillholes were used for resource estimation, all of which contain coal-washability data. A thickness cut-off of 1m and 5% geological losses were used for the estimation of MTIS.

The criteria for reasonable prospects for eventual economic extraction were inferred from the current economic viability of resources within the IPP phase 1 pit layout.

Figure 13: Cross-section through 2015 Thabametsi geological model (10 x vertical exaggeration)



Reserve estimation
For phase 1 feasibility study, the XPAC mine scheduling software is used to derive remaining saleable reserves from run-of-mine reserves contained within 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 are rising with increases in relative float densities. The resource category areas are also loaded into the XPAC model for reserve categorisation. Indicated resources are converted to probable mineable reserves and in-situ measured resources converted to proved mineable reserves. The reserve model is on a bankable feasibility project level of investigation.

The modifying factors used are as follows:

- Mining limits:
  - Economic cut-off
  - Farm boundary cut-off
  - Tenure and licence approvals
  - Seam thickness – only seams with a thickness of more than 1m were considered
  - Environmentally sensitive areas such as waterways and wetlands
- Geological losses:
  - 5% (both benches)
- Mining losses:
  - For bench T1, a loss of 0,5m of T1 thickness due to overburden stripping operation
  - For bench T2, a loss of 0,25% of coal left at the pit bottom.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

8.5 Dorstfontein Complex

Overview

Dorstfontein Complex, illustrated below, lies just north of the town of Kriel, in Mpumalanga, South Africa. The complex comprises the underground Dorstfontein West (DCMW) operation and open-cast Dorstfontein East (DCME) mine. Dorstfontein Complex is on the farms Welstand 55IS, Rietkuil 57IS, Fentonia 54IS, Dorstfontein 71IS, Vlakfontein 72IS and Boschkrans 53IS and occupies 7 822ha.

DCMW has been in operation since 1997, exploiting the no 2 seam lower (S2L) by underground means. The mine runs three continuous miner (CM) sections and one drill-and-blast section. DCME started operating in 2011 and has since run continuously as a truck-and-shovel operation. Seams exploited are predominantly seam 4, both upper and lower plies, and seam 2, both upper and lower plies.

A prefeasibility study was completed and approved for the DCMW S4L underground project. The project is currently moving into the feasibility phase with the intent to move from the current DCMW S2 operation in two years' time, due to challenges associated with the remaining S2 reserves and low margins from the low seam mining environment that characterises S2.

History

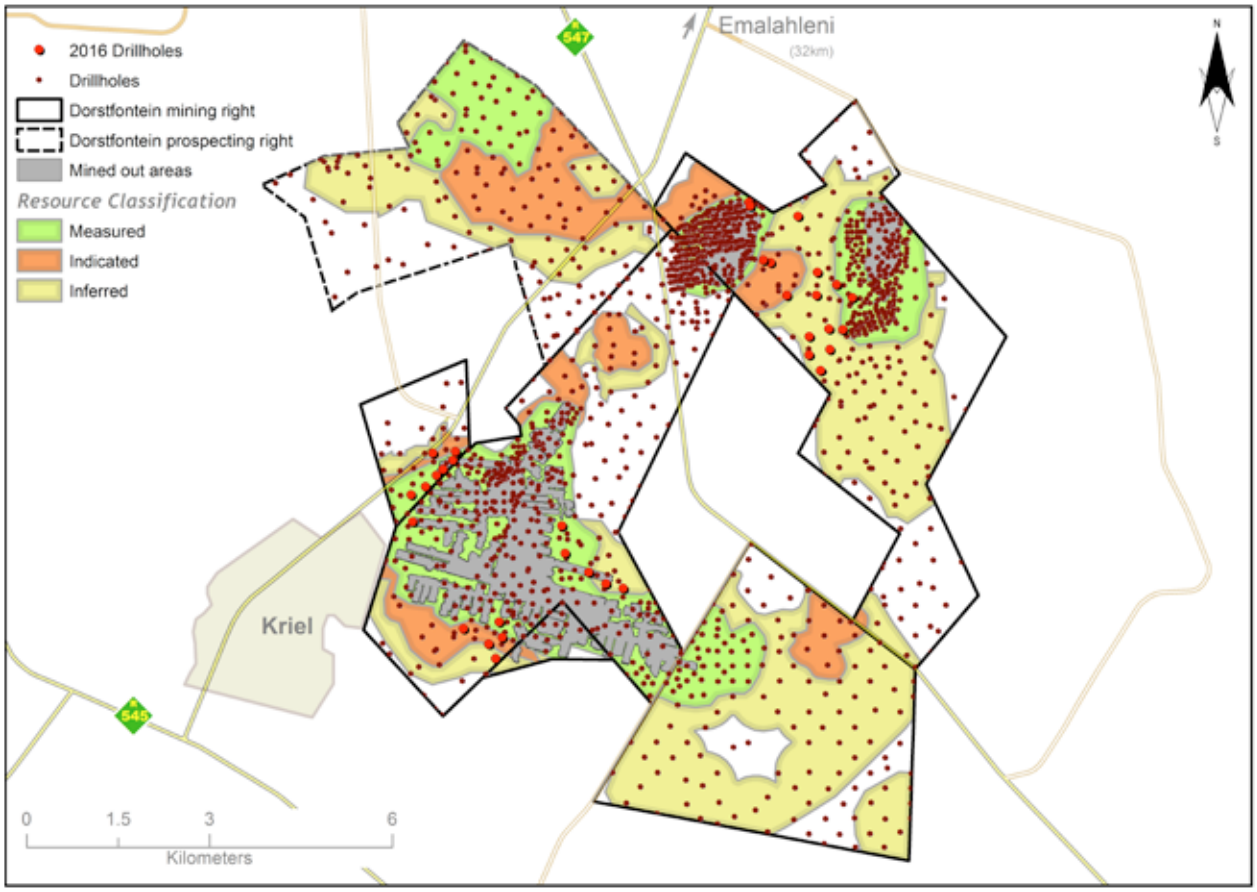
Since the mid-1950s, the Dorstfontein Complex has been evaluated through various exploration phases guided by a number of companies. Exploration tools comprised diamond core or percussion drilling with appropriate coal analysis techniques and geophysical surveys, the latter aimed at identifying positions of dolerite intrusions. To date, over 2 800 drillholes have been drilled, covering the 7 822ha complex. This translates to a drillhole density of over 11 drillholes per 100ha.

Ground and aerial magnetic surveys were undertaken between 1995 and 1997, supplemented by airborne surveys in 2007 to cover the remaining properties.

DCMW is currently mining the S2L, on the southern portion of the farm Dorstfontein 71IS, for export and inland metallurgical markets. First coal was in 1997, by Anglovaal Proprietary Limited. DCMW produced around 900kt RoM per annum at its peak. Current production is over 500kt per annum. Coal is beneficiated in a heavy medium coal-washing plant for various sizes of product. A small amount of "nuts" and "peas", sold to the inland market's ferrochrome and charring plants, is produced.

DCME is the only open-cast mine in the ECC portfolio. First coal was in 2011, by Total Coal South Africa (TCSA). The main seams being exploited are S2 and S4 while the S5, S3 and S1 are also extracted where they are greater than 1,0m thick. The mine produces a 5 400kcal/kg export product with mining operations outsourced to Andru Mining.

Figure 14: Dorstfontein Complex



8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Geology

Dorstfontein Complex is on the northern margin of the Highveld coalfield between the towns of eMalahleni in the north and Bethal in the south. The Highveld coalfield extends from Nigel and Greylingstad in the west to Davel in the east, with its eastern boundary formed by a straight line joining Hendrina, Davel and Morgenzon. Dorstfontein Complex is on the Smithfield Ridge, the boundary between the Highveld and Witbank coalfields. Basement rocks in the area comprise pre-Karoo rocks, ie Transvaal supergroup, the Waterberg group, and intrusives of the Bushveld igneous complex. These are overlain unconformably by diamictites and associated glaciogenic sediments of the Dwyka group of the Karoo supergroup. Dwyka rocks are overlain by sediments of the Vryheid formation of the Ecca group. The coal seams in the area are hosted in the Vryheid formation which ranges in thickness from 80m to 300m.

Five major coal seams are present in the area, named from the base upwards:

- No 1 seam (S1)
- No 2 seam (S2 subdivided into S2L and S2U)
- No 3 seam (S3)
- No 4 seam (S4 subdivided into S4L and S4U)
- No 5 seam (S5).

Numerous Jurassic dolerites (dykes and sills) intruded the Vryheid formation at various stratigraphic levels in the area. These intrusions tend to negatively influence stratigraphy and coal qualities in places. The distribution of the lower coal seams is strongly influenced by basement topography while the distribution of the upper seams is controlled by present-day topography. Seams often thin and sometimes pinch out over and against paleo-highs. Strata (including coal) are often faulted, although displacements are rarely more than 1m. Faulting is not tectonically controlled, but the result of differential compaction during burial and lithification. Younger seams, such as S4 and S5, are less affected by basement topography than they are by present-day topography.

Structural displacements, resulting from intrusions of dolerite sills through seams, often complicate the mining of seams. In the Dorstfontein area, strata of the Permian Vryheid formation – comprising sandstone, mudstone, carbonaceous rocks and coal itself – are exposed on surface. Locally, these rocks are interrupted by the surface expression of the northwest-southeast striking Smithfield Ridge.

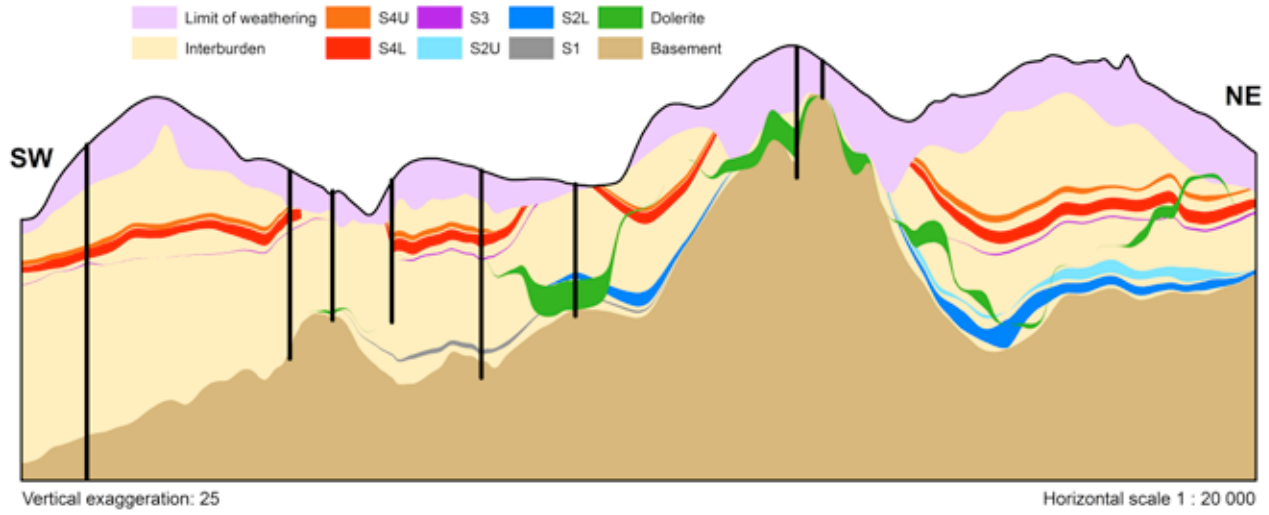
Resource evaluation

Some 2 800 drillholes were used for resource evaluation with higher drillhole density noted in the two active mining right areas of DCMW and DCME. Lower drillhole density is noticeable in the only prospecting right area as well as in the Vlakfontein mining right. The nature of the dolerite intrusions is such that current drillhole density is inadequate for accurate modelling of the dolerite, leading to a geological loss being applied in areas of concern, based on the reasonable probability of geological loss not recognised through quality directly from drillhole information.

Although historical drillhole data was included in the model, a conservative approach has been taken when using this data. Drillholes that do not correlate with surrounding drillholes were excluded rather than recorrelating these in the interest of confidence. The decrease in the number of drillholes through this process resulted in a lower concentration of drillholes used, mostly in the Vlakfontein prospecting right, which is subsequently reflected in the reported mineral resource classification.

For drillholes used in the model, all raw data was composited in Sable Data Warehouse, on a per-seam basis. Wash data was composited on a per-seam basis within Minex, weighted by relative density and yield. Resource modelling and estimation was undertaken in Geovia Minex, using the Minex growth algorithm and based on validated drillhole data to August 2015. The geological model was created independent of structure as no faults have been identified in the complex, except for zones where the sill transgresses seams and displaces them in a "pseudo-fault" manner. Geological loss domains have been grouped, by percentage geological loss per seam, into those affected by the proximity to a basement high and possible seam thinning or weathering (50% loss), dolerite (20% loss) and the base geological loss (10% loss). A thickness cut-off of 0,5m for open-castable resources and 1,2m for underground resources was applied and maximum ash content was limited to 50%. In terms of resource classification, SANS 10320:2004 guidelines were adopted and based on coal-washability points of observation. Classification domains were downgraded based on uncertainty surrounding the effect of dolerite, basement highs and anomalous drillhole data.

Figure 15: Typical SW-NE section through Dorstfontein geological model



8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

The change in resource estimation is due to the following:
- **Depletion (-3,7Mt):** Mining depletion from January to December 2016, with DCMW contributing 0,9Mt and DCME 2,8Mt.
- **Economic assumptions (-51Mt):** Change is attributed to economic assumptions where a 1,2m seam thickness cut-off was applied for 2016 underground resources compared to the 0,5m seam thickness cut-off applied in 2015. This resulted in around 31Mt less resources in the mining right area and 20Mt less in the prospecting rights area.
- **Disposal (-0,1Mt):** Loss due to sterilisation of S1 resources at DCME pit 1 where the S2 has been mined out and the void backfilled.

Reserve evaluation
The 2015 geological model was used to build the 2016 reserve model. On receipt of the geological model, an evaluation was conducted to determine areas that can be converted into reserves. The process was to ensure that only economically viable areas are reserved. This takes into account mining, beneficiation, material handling and transport costs, ie input costs.

Dorstfontein Complex is divided into two operations, namely DCME (Dorstfontein East) and DCMW (Dorstfontein West). Due to different exploitation strategies employed in these operations, modifying factors used for reserve conversion differ between them.

Reserve estimations were conducted using XPAC mine planning software package, allowing for parameters and modifying factors to be applied for reporting.

Dorstfontein West (underground operation)
Dorstfontein West is currently mining S2. However, a prefeasibility study was completed for mining S4L in this area. Therefore, S4L reserves are reported in the statement. The same modifying factors applied for S2L were used for S4L. The modifying factors used are:
- Mining limits:
  - Economic cut-off
  - Farm boundary cut-off
  - Tenure and licence approvals
  - Seam thickness – only seams with a thickness of more than 1,65m were considered
  - Environmentally sensitive areas such as waterways and wetlands
- Geological losses:
  - 10% to 25% (depending on dykes, floor and roof rolls, seam pinching, etc)
- Mining losses:
  - 5%.
  - Extraction factor: >71%.

Dorstfontein East (open-cast operation)
The modifying factors used are:
- Mining limits:
  - Economic cut-off
  - Farm boundary cut-off
  - Tenure and licence approvals
  - Seam thickness – only seams with a thickness of more than 0,5m were considered
  - Environmentally sensitive areas such as waterways and wetlands
- Geological losses:
  - 10% to 25% (depending on dykes, floor and roof rolls, seam pinching, etc)
- Mining losses:
  - 5%.

8.6 Forzando

Overview
The Forzando Complex, illustrated below, is in Mpumalanga province, 10km north of Bethal, 55km south-east of Witbank and 140km east of Johannesburg. The complex comprises two underground mines, Forzando North (FZON) and Forzando South (FZOS). Forzando Complex covers 12 113ha over the farms Weltevreden 193IS, Koppie 228IS, Bankpan 225IS, Geluk 226IS, Halfgewonnen 190IS, Uitgedacht 229IS, Kalabasfontein 232IS, Schurvekop 227IS, Legdaar 78IS, Rensburgshoop 74IS and Kafferstad 79IS. Currently, only FZOS is in operation with FZON under care and maintenance.

FZON started operating in 1995, exploiting mainly S4L and a small amount of S2L in a downthrown block.

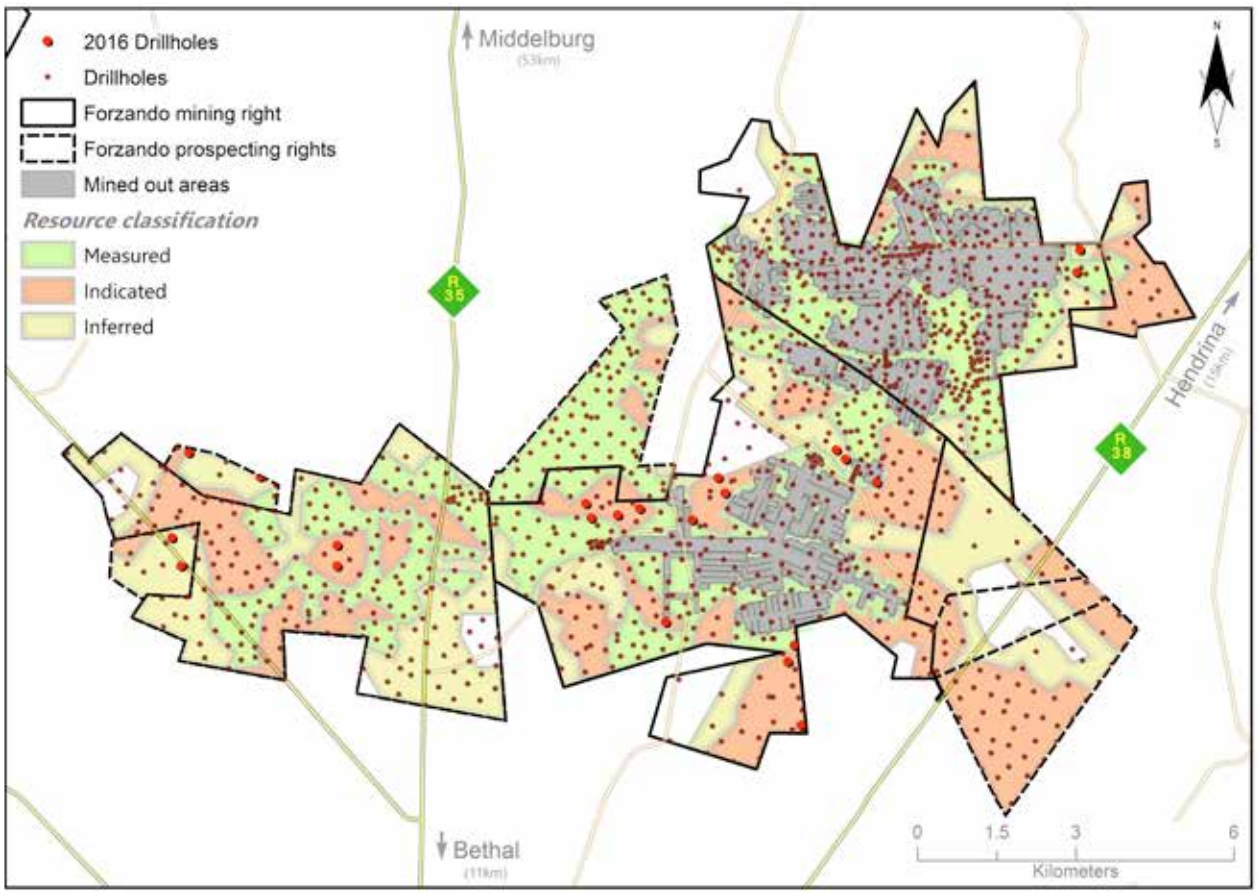
FZOS is currently exploiting the S4L using bord-and-pillar mining. The mine runs five continuous miner sections (the fifth was added in 2016). Exploration work in 2016 focused on increasing the level of confidence, understanding the lateral continuity of the seam being exploited and understanding the general geological structure. Most drillholes were drilled to below the Vryheid formation, to better understand the pre-Karoo depositional environment and obtain more information on dolerite structures prevalent in the area.

Due to lack of pit-room, 2016 has been a challenging year on section placement as FZOS productivity is essentially driven by geological conditions, ie seam thickness, particularly the bottom coal horizon of the S4L and presence and extent of in-seam parting.

Forzando Complex is projected to be in production until at least 2036, although the mining right is due to lapse in 2029. Exxaro has a reasonable expectation that renewal of the mining right will be approved.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Figure 16: Forzando mines



History

The Forzando Complex has been prospected by several mining groups in the past. Anglo American Corporation was the first to conduct exploration programmes between 1966 and 1969. Other companies that explored the complex include General Mining, Gold Fields and Anglovaal. Further exploration work was undertaken by TCSA from 2000. A total of 2 504 drillholes have been drilled to date, translating to a density of over 11 drillholes per 100ha.

Several geophysical surveys were undertaken from 1992 to 2002, including a high-resolution total field and vertical gradient airborne magnetic survey (1992), an aerial survey to acquire data to construct a digital terrain model (2009) and a Dighem electromagnetic and magnetic airborne geophysical survey over the Schurvekop property (2012).

Mineral rights were first acquired in the 1980s by Anglovaal Minerals. First coal at FZON was in 1995 by Anglovaal Minerals. FZON exploited mainly S4L and a small amount of S2L. The mine was a flagship operation for TCSA until 2004. It produced roughly 2 300kt RoM per annum at its peak between 2002 and 2004. FZON produced a 5 800kcal/kg export product with mining operations outsourced to G&B contractors. The mine operated with three production CM sections. Surface infrastructure includes a coal-washing plant linked to the main Richards Bay Coal Terminal (RBCT) via a privately owned railway loop and rapid coal-loading facility.

FZOS mine has been operating since 2006, exploiting S4L. After FZON was placed under care and maintenance, FZOS became the flagship ECC underground mine, operating four production CM sections, achieving around 170kt of RoM per month. FZOS used to produce a 5 800kcal/kg export product. The product was changed to 5 400kcal/kg at the beginning of 2015 to capitalise on the significant yield differential of 10% between the two products. The mine uses the coal-washing plant and rapid coal-loading facilities at FZON.

Geology

The Forzando Complex – comprising Forzando North and Forzando South mines and contiguous prospecting right areas – is in the north-eastern corner of the Highveld coalfield, separated from the Witbank coalfield by the pre-Karoo Smithfield Ridge. Basement rocks comprise Rooiberg felsites and granites of the Bushveld Lebowa suite. These felsites and granites are often paleo-weathered to a depth of several metres. Diabase has been recorded in the western end of the complex. Because of the proximity of the Forzando Complex to the edge of the basin, only an abbreviated Karoo sequence is present. This package comprises the Dwyka, characterised by tillites, diamictites and varvites, and Vryheid formation, consisting of an arenaceous sequence of sandstones and conglomerates with subordinate siltstones and coal seams.

Diverse paleo-environments including transgressive shorelines, lacustrine, fluvial and deltaic have been recognised. The entire suite of five seams exists with the thickest and most ubiquitous being the S2, S4 and S5 seams. S1 is restricted to palaeo lows while S3 only occurs on the western side of the mining right. Seam splitting is a common feature. Local Forzando nomenclature recognises the following seams from the base upwards: S1, S1 lower, S2, S2 leader, S3, S4 and S5.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

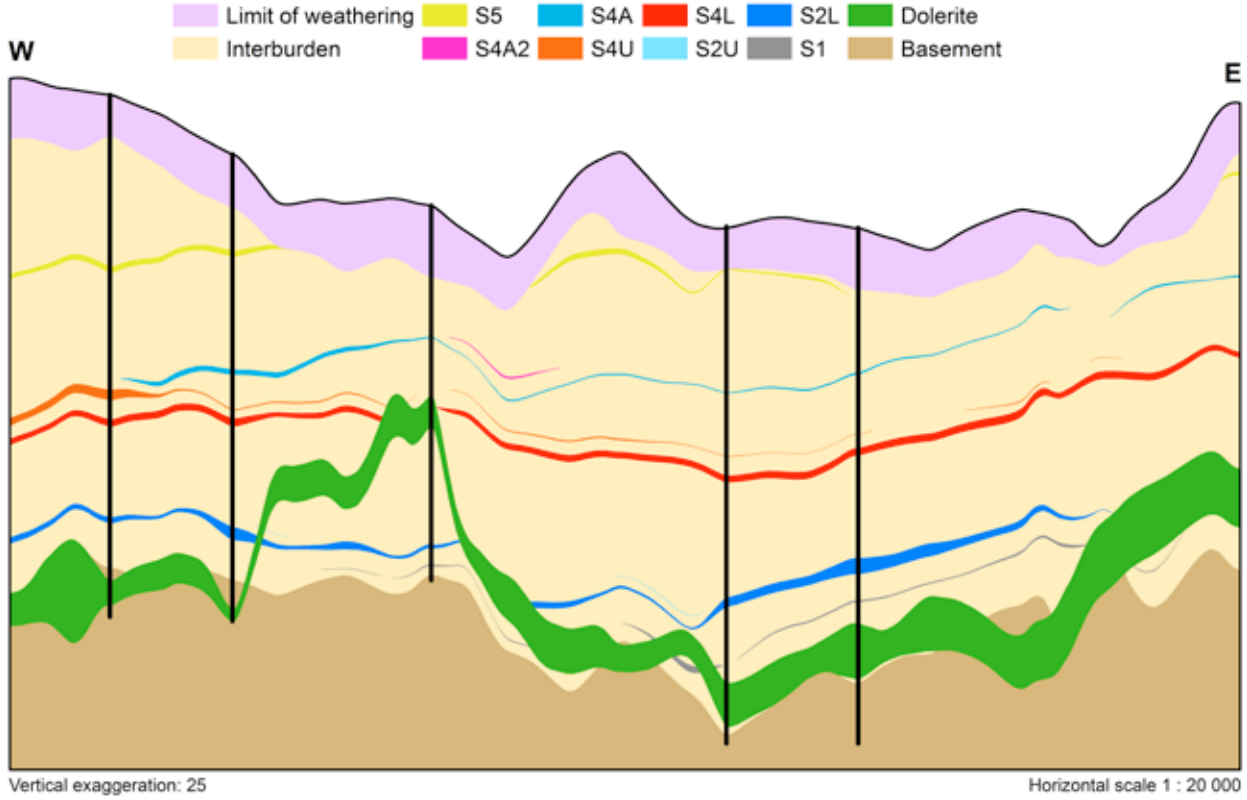
Most exploited is S4, whose internal composition is reasonably consistent. The S2, which presents challenges of rapid seam-width variability, was also mined at Forzando North. Remaining seams are either too thin, laterally inconsistent, poor quality or impractical to mine.

During the late Jurassic era, dolerite intrusions, in the form of dykes and sills, displaced the coal seams with devolatilisation or burning of some areas of coal.

Resource evaluation

Resource modelling and estimation was undertaken in Geovia Minex, using the Minex growth algorithm, and based on validated data to December 2014. Geological losses were applied based on reconciliation information and resource classification was undertaken using coal-washability points of observation and aligned to SANS 10320:2004. A 1,2m seam thickness cut-off, 50% maximum ash content and 24% maximum dry ash-free volatile content was applied.

Figure 17: Typical W-E section through Forzando geological model



The change in resource estimation is due to the following:

- **Depletion (-2,4Mt):** Mining depletion from FZOS for January 2016 to December 2016.
- **Economic assumptions (-2,6Mt):** The change is attributed to economic assumptions where a 1,2m seam thickness cut-off was applied for 2016 potential underground resources compared to the 1,0m seam thickness cut-off applied in 2015.
- **Transfer (+45Mt):** This is explained by the inclusion of Forzando West 1066PR into Forzando South 380MR after approval of a section 102.

Reserve evaluation

The 2015 geological model was used to build the 2016 reserve model. On receipt of the geological model, reserve evaluation was conducted to determine areas that could be converted into reserves. The process was to ensure that only economically viable areas were reserved. This took into account mining, beneficiation, material handling and transport costs, ie input costs.

Reserve estimation was conducted using XPAC mine planning software, allowing for parameters and modifying factors to be applied for reporting.

The modifying factors used are:

- Mining limits:
  - Economic cut-off
  - Farm boundary cut-off
  - Tenure and licence approvals
  - Seam thickness – >2,1m as per equipment selection
  - Environmentally sensitive areas such as waterways and wetlands
- Geological losses:
  - 10% to 25% (depending on dykes, floor and roof rolls, seam pinching, etc)
- Mining losses:
  - 5%
  - Extraction factor: >71%.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

8.7 Matla coal mine

Overview

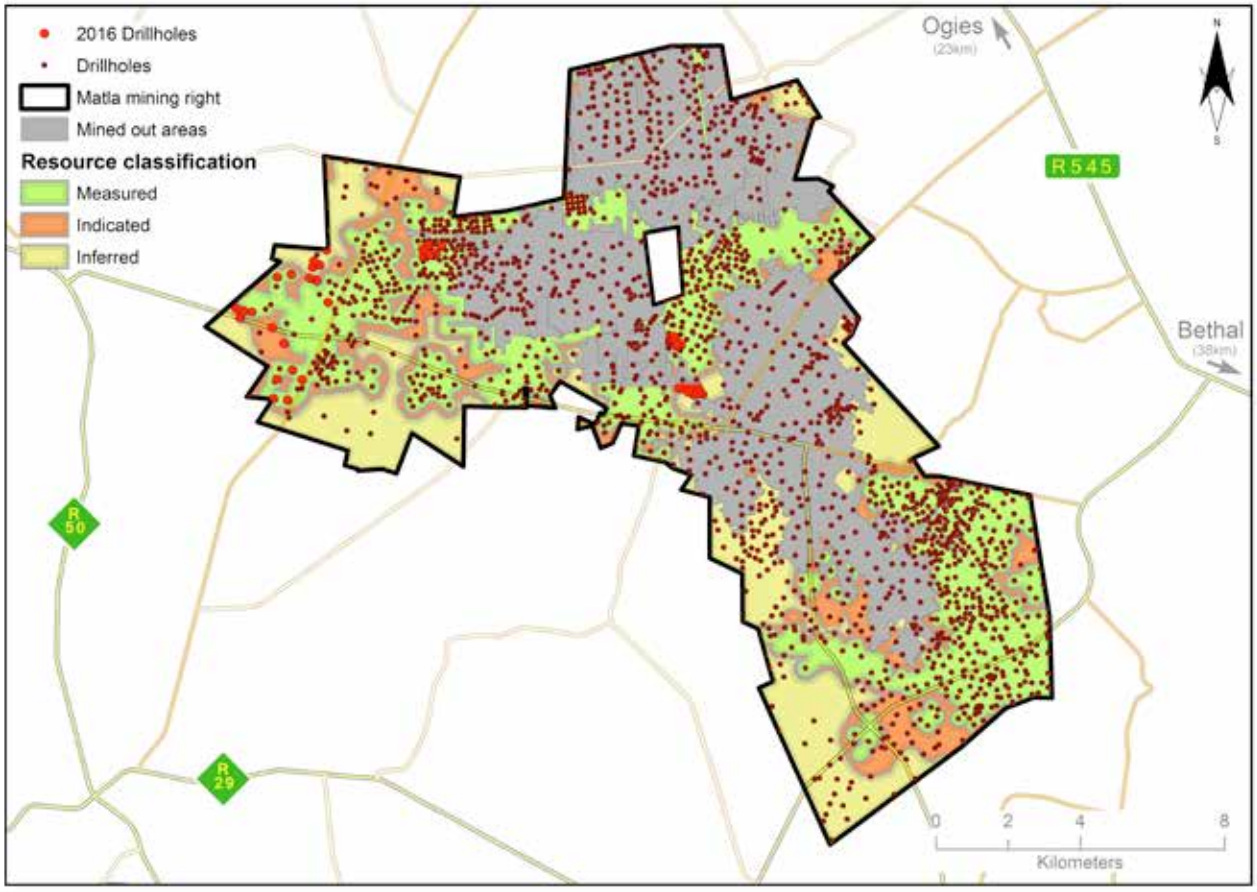
Matla is in the Kriel district of Mpumalanga, some 20km west of Kriel, 50km south-west of eMalahleni and 30km south of Ogies. Matla is an underground operation with three mines – mine 1, mine 2 and mine 3 – all supplying coal directly to Eskom's Matla power station via conveyor belt. At the current extraction rate, Matla is projected to be in production until at least 2037, although the mining right is due to lapse in 2025. Exxaro has a reasonable expectation that renewal of the mining right will be approved.

Mining at mine 1 was stopped in 2015 due to pillar instability. The impact of this is the continued drop in production and overall qualities are slightly lower than the required customer specifications. The mitigating strategy is to increase production from the remaining two shafts to ensure the quality specification required.

Two feasibility studies were successfully completed in 2015, the north-west (NW) access project and shortwall replacement project. The objective of these projects is to establish access to future reserves that are at a sub-optimal distance from current infrastructure. The NW project entails establishing an incline and decline to access reserves above and below current workings. The shortwall replacement project entails bringing in additional CM sections to compensate for production when the shortwall ground is finally depleted. All projects form part of the exploitation strategy as per the LoMP. These projects are currently undergoing a technical review, a requirement of Exxaro's governance process.

The 2016 drilling programme, 192 drillholes, resulted in upgrading inferred resources to the measured category for both S2 and S4L in the northwest portion of the mine area. There was also infill drilling of the S2 low section to address geological complexities in this section. This translated into an increase of proved reserves.

Figure 18: Matla mine



History

The construction of Matla began in 1976 and the mine came into full production in 1983, supplying all its bulk production to the nearby Eskom Matla power station. Over the years, the mine has drilled around 2 000 drillholes to quantify the volume and quality of coal in the mine area, and determine the lateral continuity of coal seams. In addition, an aeromagnetic survey across the mine area was conducted to investigate the presence and behaviour of igneous intrusions and other structures.

Various hydrogeological studies have been undertaken to understand the groundwater regime and continuous monitoring of groundwater is in place. The emphasis is on monitoring the impact of mining on the groundwater resource, both from a quantity and quality point of view.

Matla currently exploits seam 4L (S4L) and seam 2 (S2). In the past, it also exploited seam 5 (S5).

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Geology

Matla is in the Highveld coalfield, immediately south of the Witbank coalfield. The coalfield is host to up to five coal seams contained in the middle Ecca group sediments of the Karoo supergroup. The stratigraphic sequence in the mine area includes five coal seams that can be correlated with seams found in the Witbank coalfield. The principal economic seams currently exploited are S2 and S4L, with mining of S5 terminated in 1998 due to high levels of contamination and subsequent increase in abrasivity. Coal seams in the area are generally flat and continuous, with subsequent igneous activity resulting in displacements and devolatilisation of coal seams at places.

Resource evaluation

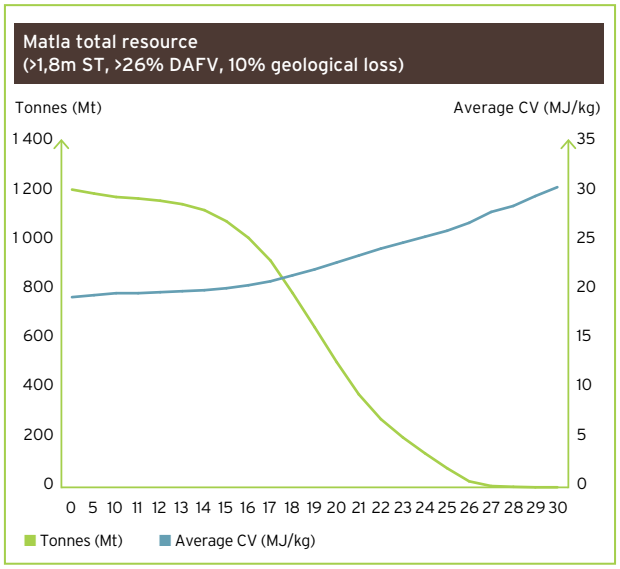
Geological modelling was undertaken using Geovia Minex to create a full-seam and select-seam model using the Minex growth algorithm. A DTM signed off by the mine surveyor was used to create the topography for Matla.

A total of 2 142 available drillholes were exported from the Geobank database, of which 192 were drilled in 2016. After validating the geological database of Matla, 25m x 25m grids for the roofs, floors, thicknesses and qualities of the full S5, S4L and S2 as well as select S4L and S2, were modelled. The data was composited per seam in Minex on a weighted average basis.

Resource classification is based on SANS 10320:2004 and undertaken separately for S4L and S2 due to certain drillholes not being drilled through to S2 from S4L. Criteria for MTIS outside the LoMP included a 1,8m seam thickness cut-off, minimum dry ash-free volatiles content of 26%, 10% geological and geotechnical losses and a minimum air-dried CV content of 15MJ/kg. The geological and geotechnical losses were increased to 10% to account for expected geological complexity of the remaining resources and based on the 2016 structural model. No resource cut-offs, other than 10% geological and geotechnical losses, were applied in the LoMP as these resources have been converted to reserves, with the ratio based on mining modifying factors.

A grade-tonnage curve for Matla, based on CV, is shown in figure 19. From this curve, it is clear that above a 15MJ/kg CV cut-off, the change in resource tonnages is disproportionate to the change in average CV. Noting that current mining practices include a blending strategy, the choice of CV cut-off represents the remaining MTIS with reasonable prospects for eventual economic extraction.

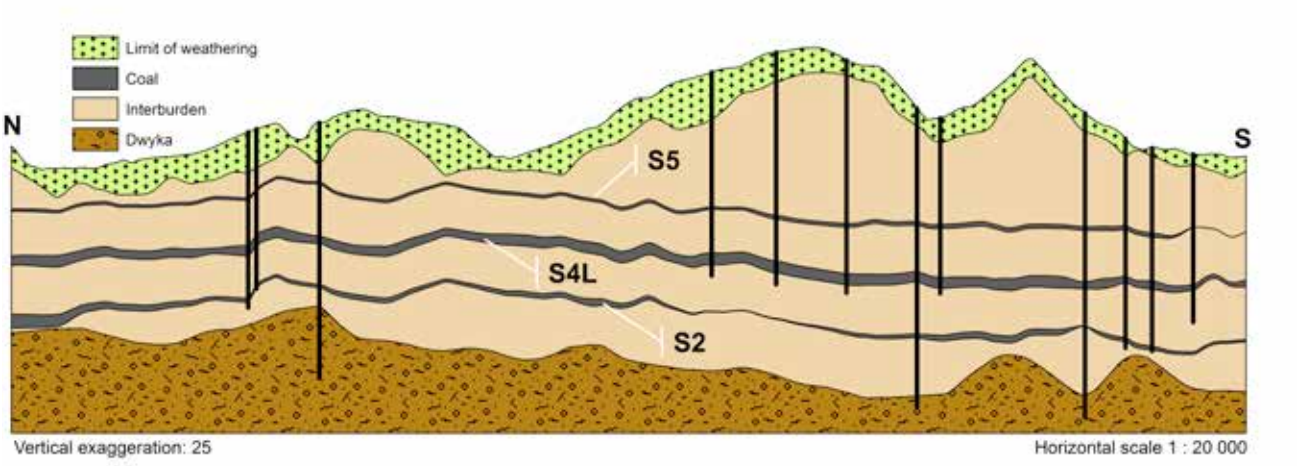
Figure 19: Matla grade-tonnage curve



The change in resource estimation is due to:

- **Depletion (-16Mt):** This is attributed to mining depletion for January 2016 to December 2016, based on estimated resources in surveyed mined-out polygons.
- **Economic assumptions (+44Mt):** The net result of increased geological and geotechnical losses (-152Mt), a reduced CV cut-off (+160Mt) outside the LoMP and exclusion of resource cut-offs within the LoMP (+36Mt).
- **New information (+10Mt):** The net result of 192 drillholes (~10%) additional drillholes used for geological modelling and refined mined-out polygons.

Figure 20: Typical north-south section through Matla geological model



8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Reserve evaluation
The geological 3D model used for the reserve statement is referred to as the reserve geological 3D model. This reserve model differs from the resources model, as the latter uses the full coal seam while the reserve model uses a select mining height from the drillhole profile. The process ensures that the model represents reality on the capability of production sections.

The reserve model is built from the resources model. A select mining horizon is defined on the drillholes and this data is used to create the reserve model, using the same Minex software used to build the geological resource model. This select horizon is defined in conjunction with the rock engineering department. Rock engineering is also involved in the reserve estimation process, especially in the project areas. Detailed rock engineering studies, logging, sampling and testing of rock material are ongoing.

Three criteria are used to determine the practical safe mining height with the best possible coal qualities:
- Mining equipment maximum and minimum production height
- The best-possible coal qualities in the equipment height
- A selection that will result in a competent roof beam to protect the workforce and equipment.

Environmental and hydrogeological conditions are considered in the reserve estimation process. Areas underlying wetlands and other eco-sensitive areas are excluded and a high safety factor is factored for bord-and-pillar sections underneath rivers where environmental approvals have been obtained. The updated hydrological model for Matla is used to predict the impact on water resources due to mining. The model is updated with monitoring data continuously collected in the mine right area.

The ore reserve is estimated using the mining scheduling programme XPAC and supported by CADopia. There was a total increase of 32Mt in the reserve, primarily due to an update in the mineral resource (22Mt), modifications to the mining layout and mined-out polygons (18Mt) and mining (-8Mt).

The accuracy and confidence of predicted ore reserves and qualities are considered fairly high, with predictions and actuals in terms of both qualities and quantities mined out being close.

The modifying factors used are:
- Mining limits:
  - Economic cut-off
  - Farm boundary cut-off
  - Tenure and licence approvals
  - Seam thickness – only seams with a thickness of more than 3,1m were considered
  - Environmentally sensitive areas such as waterways and wetlands
- Geological losses:
  - 1% (depending on dykes, floor and roof rolls, seam pinching, etc) – applied to "select" model
- Mining losses:
  - 5% (depending on mining layout, panel placements and assumed mining conditions)
  - Extraction factor: 45%.

8.8 Leeuwpan coal mine

Overview
Leeuwpan coal mine is 10km south-east of the town of Delmas, 80km east of Johannesburg and 70km south-east of Pretoria in Mpumalanga. It lies alongside the R50 secondary road and is serviced by a rail track that includes a rapid load-out station.

Leeuwpan is an open-cast operation with various reserves being mined simultaneously. It is estimated that the mine will be in production until 2029, with the mining right lapsing in 2040.

Leeuwpan supplies both the domestic market as well as export market. The mine is equipped with a rapid rail load-out station and this is also the preferred means of coal offtake, although road transport is accommodated. Leeuwpan has a dense medium separator (DMS) plant that mainly beneficiates metallurgical and export thermal coal, a jig plant mostly beneficiating thermal coal (including export grade) and a crush-and-stack plant that handles selectively mined thermal coal. The jig plant was decommissioned in November 2016 and replaced with a DMS plant that will be operated by Fraser Alexander. This new Fraser Alexander DMS plant was commissioned in December 2016 and ramp-up production is planned for quarter 1 of 2017. The product from this DMS plant will be mainly routed into the export thermal coal market.

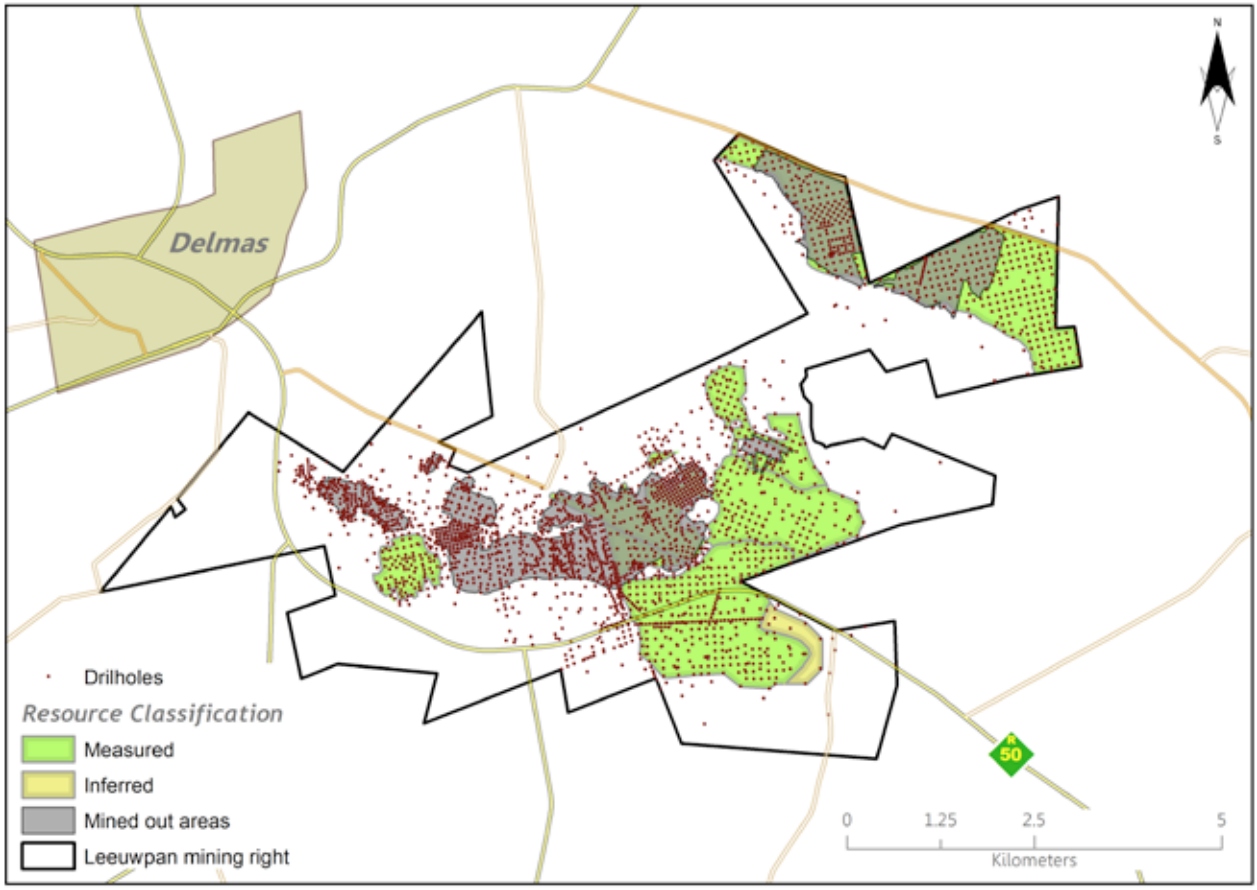
The focus for 2016 was to conclude the Leeuwpan life extension bankable feasibility study. The project was found to be technically feasible and forms a substantial part of the remaining life of mine for Leeuwpan.

History
Iscor bought the Leeuwpan coal reserve from Southern Sphere in 1988. Kumba's exploration started in 1990, which led to opening a box-cut for mining in 1992. Mineral rights to Leeuwpan were originally owned by Kumba Coal Proprietary Limited, a 100% owned subsidiary of Kumba Resources Limited. After unbundling Kumba Resources in 2006, the mineral rights were ceded to Exxaro Resources.

Exploration continued year on year over the whole project area, systematically increasing geological confidence and defining coal reserve blocks in more detail. The majority of resources at Leeuwpan are currently at 100m x 100m drill-spacing, depending on infrastructure and wetland restrictions. Areas with high geological variability have a smaller drilling grid size to increase the confidence level of the various resources.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Figure 21: Leeuwpan coal mine



Geology

Two coal seams have been identified at Leeuwpan: top coal seam (TC) and bottom seam (BC). BC correlates with seam 2 of the Witbank coalfield and TC with seams 4 and 5.

Factors controlling geological and grade continuity are mainly surface weathering, significant variation in seam thickness due an undulating tillite floor and devolatilisation and weathering due to dolerite intrusions (sills and dykes). These geological risks have been managed by extensive drilling campaigns in recent years, where the drilling grid was reduced to 100m spacing on average, and down to 50m spacing as required in some areas. This information has been used to update the structural model for the mine and, together with pit-mapping information, integrated into a risk and opportunity domain analysis (RODA) tool for production, geotechnical risk management and grade-control purposes.

Resource evaluation

The drillhole density is shown in table 10 and separate geological models are compiled for each resource based on this validated drillhole information. Additionally, a Lidar digital terrain model signed off by the Exxaro group surveyor is used for topographical modelling. Modelling is undertaken in Geovia Minex software where seam roofs, floors and thicknesses are gridded using the Minex growth algorithm and validated by cross-sections and contour plots. Coal-quality compositing is undertaken in Sable Data Warehouse, using representative substitute values for unsampled non-coal material.

Table 10: Drillhole density at Leeuwpan

Resource	Drillhole density per 100ha	Drillhole spacing
OI	168 drillholes per 100ha	100m x100m
OL	86 drillholes per 100ha	100m x100m
OJ	103 drillholes per 100ha	100m x100m
UB	307 drillholes per 100ha	100m x100m
OWM	142 drillholes per 100ha	100m x100m
OH	346 drillholes per 100ha	50m x 50m
OI (inferred)	28 drillholes per 100ha	400m x 400m

Modelling is undertaken within resource boundaries that have been delineated based on a minimum seam thickness of 2m, as evident from drillhole information, together with other information used to assess mineability. This implies the geological models represent total tonnes in-situ (TTIS) of the resource and extrapolation is not required due to TTIS resource blocks falling within the drillhole grid. For conversion to MTIS, a 5% geological loss is applied.

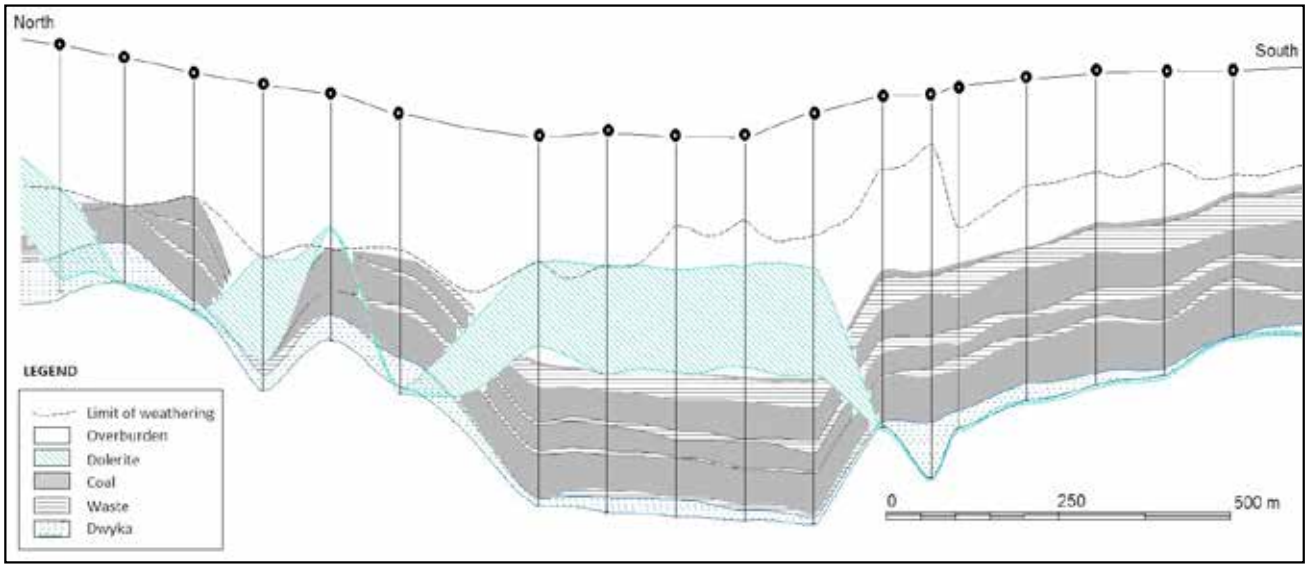
8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

A standalone structural geology model was compiled for the resource blocks. This model was not used explicitly within the Minex model, mainly due to the low level of confidence assigned to the interpreted structures. However, these structures are considered on a risk-based approach for both mine planning and production. The exception lies with modelling the dolerite sill and this was undertaken directly in Minex.

The change in resources estimation is due to:

- **Depletion (-8Mt):** Mining depletion from January 2016 to December 2016, based on estimated resources within surveyed mined-out polygons.
- **Model refinement (-2Mt):** OWM was remodelled and included the influence of a dolerite intrusion in close proximity of the coal.
- **Disposals (-8,5Mt):** Weltevreden reserve (in OWM) and OH were completely mined in 2016 and 8,12Mt and 0,36Mt remain in these resources respectively. The remaining resources are not economically extractable due to the prohibitively steep incline of the final pit-shell and are therefore excluded from the resource statement.

Figure 22: Typical cross-section through Leeuwpan geological model (Moabsvelden)



Reserve evaluation

The reserve models used for Leeuwpan were based on the 2016 (MV), 2015 (OI, OL, OJ) and 2014 (UB) geological models.

LoM at Leeuwpan is 13 years to 2029, compared to the mining right expiry date of 2040. Although an Environmental Management Plan (EMP) was granted for underground mining for reserve block OI, this EMP has been resubmitted for open-cast mining; therefore, the reserve remains in the probable category. The environmental management plan, environmental impact assessment (EIA) and integrated water use licence (IWUL) for OI/OL/UB reserves have been resubmitted for open-cast mining. A total of 52,9Mt RoM is affected. The road (R50) leading from Delmas to Leandra overlies reserve block OI. This road has to be moved for open-cast mining and formed part of the Leeuwpan Lifex bankable feasibility study.

RoM decreased by 32,54Mt due to mining depletion (5,83Mt) and disposals (2,79Mt). A reduction of 9,65Mt was recorded due to model refinement. The difference occurred as result of the transition from a 2013 model to a 2015 model. Economic assumption resulted in a decrease of 14,27Mt.

The modifying factors used are:

- Mining limits:
  - Economic cut-off
  - Farm boundary cut-off
  - Tenure and licence approvals
  - Seam thickness – only seams with a thickness of more than 1m were considered
  - Environmentally sensitive areas such as waterways and wetlands
- Geological losses:
  - 0% at block MV and 5% for all other reserves.
- Mining losses:
  - 5%.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

8.9 North Block Complex

Overview

NBC comprises Glisa (converted mining right), Strathrae (converted mining right), Eerstelingsfontein (executed new mining right) and Glisa South (prospecting, submitted new mining right) resource areas.

The primary operation is the Glisa mine, a multi-seam open-cast mining operation, 5km west of Belfast in the Highveld region of Mpumalanga.

A study at the Glisa South project, adjacent to Glisa mine, is at prefeasibility stage, and its mining right application was accepted in June 2012. Given its proximity to Glisa, resources are expected to be a natural extension of the Glisa reserve base.

The mining method at Glisa and Eerstelingsfontein is normal strip mining. At Glisa there are two pits (Blesbok and block A), and there is one pit at Eerstelingsfontein. NBC supplies thermal coal to three Eskom power stations: Arnot, Tutuka and Komati. Mining activities at Eerstelingsfontein started in February 2015, and its contribution allowed NBC to re-enter other sectors of the domestic market with a B-grade peas product after a hiatus of four years.

The current coal supply agreement (CSA) with Eskom ends in June 2017. However, Exxaro has a reasonable expectation that Eskom will continue offtake until end-December 2017. The resource block (block C) adjacent to Blesbok pit comprises the bulk of remaining resources at NBC. A project is under way to evaluate the economic viability of this resource, with results expected in quarter 1 of 2017.

Figure 23: NBC locality map with mine and project areas

History

NBC has a long mining history. Historical records suggest that mining at Glisa started in the early 1900s to supply coal to Paul Kruger's railways. The mine is still operational, albeit nearing its end, which suggests a long hiatus at some point. In recent history, until 2006, the mine was an underground operation, focused on exploiting a "select" portion of seam 2 (S2). Open-cast mining started after 2006, exploiting the full complement of the Witbank coalfield seams, and reclaiming S2 left in underground pillars.

Eerstelingsfontein was in project phase until October 2014, when the IWUL was reinstated and mining activities started in March 2015. In Strathrae, mining activities ceased in 2010, and the emphasis since then has been on rehabilitation.

Geology

NBC (Glisa) mine resource area is close to the eastern edge of the Witbank coalfield, in the northern part of the Main Karoo basin. All Witbank coalfield seams, ie S1, S2, S3, S4 and S5, occur in the Glisa area, with S2, S3 and S4 seams being economically important. The stratigraphy consists predominantly of the different coal seams separated by fine and medium to coarse-grained sandstone, with subordinate mudstone, shale, sandstone and carbonaceous shale.

The Eerstelingsfontein block to the south-east of Glisa comprises gently sloping topography. The coal resource here is contained in a single seam, S2. This seam occurs as an erosional remnant on high ground at shallow depths, suitable for open-cast mining. The thickness of the coal seam ranges from

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

0,5m to 3,1m, with an average thickness of around 2,3m. The coal seam is overlain by medium to fine-grained sandstone with shaly bands. On top of the whole succession is overburden material comprising sandy soil and regolith. The average total depth to coal is relatively shallow at 10,7m and the maximum depth to top of coal is around 17,8m.

Resource evaluation

Resource evaluation is undertaken as per the Exxaro resource estimation procedure and based on 88 diamond drillholes, drilled between 2008 and 2013 and spaced some 350m apart. Coal quality compositing is undertaken in Geovia Minex on a weighted average basis and maximum extrapolation is set to 175m. A 0,5m seam thickness cut-off and 5% geological loss is applied to convert GTIS to MTIS. Changes in resource estimation are primarily the result of mining depletion (-4,3Mt), partially offset by annual reconciliation (0,6Mt) in which the accuracy of the resource estimate is established.

Reserve evaluation

The reserve model was generated using XPAC mine scheduling software. XPAC takes into account the in-situ coal resources as generated from the resource model. For Glisa, where portions of seam 2 select were mined underground, the tonnage that has already been mined is subtracted from in-situ coal resources. The reserve model estimate is based on the approved pit layout, which forms the basis of the scheduling. After factoring all technical modifying factors, the reserve model generates an estimate of RoM and resultant saleable product and qualities.

The modifying factors applied are based on known mining and coal-processing methods. The resource and reserve discount factors have been confirmed to be realistic by actual reconciliation. The mining method at Glisa and Eerstelingsfontein is surface strip mining, which involves the selective extraction of overburden, interburden and coal seam(s). RoM coal is beneficiated via a combination of a dense medium processing plant and two dry crushing-and-screening plants. The entire saleable product is sold domestically, primarily to Eskom.

The modifying factors used are:

- Mining limits:
  - Economic cut-off
  - Farm boundary cut-off
  - Tenure and licence approvals
  - Seam thickness – only seams with a thickness of more than 0,5m were considered
  - Environmentally sensitive areas such as waterways and wetlands
- Geological losses:
  - 5%
- Mining losses:
  - 10%.

A number of optimisation initiatives have been implemented in the past and at present to extract maximum reserve value. The bench mining method implemented in 2012 significantly reduced the amount of low losses. Realigning the geological model with the selective mining method renewed the emphasis on selective mining, as it became much easier to reconcile between planned and actuals. The coal quality (grade) control practices, particularly in the pit, put great focus on minimising RoM contamination to get the benefit of higher yields at the coal processing plants. When the strip ratio increased in Glisa's block A, the pit-advance direction was reconfigured to ensure continued operation at block A.

The classification of reserves is informed by the classification of resources. All NBC's reported reserves are in the proved category, except for those scheduled to be mined after the lapse of the Eskom CSA. Thorough considerations were factored in application of modifying factors. The result of the classification appropriately reflects the reserve competent person's view of the deposits.

It is expected that total reserves will be depleted within one year, whereas the allowable period as prescribed by the mining right is 30 years. It should be noted that block C's resources fall outside the reserve base due to market limitations, and thus have the potential to increase life of mine.

8.10 Eloff project

Overview

Eloff project forms part of the ECC Complex, and lies 75km east of Johannesburg and 18km south-west of Delmas. It comprises two prospecting rights, 273PR and 274PR, held by Eloff Mining Company (EMC) and covering 8 635ha.

History

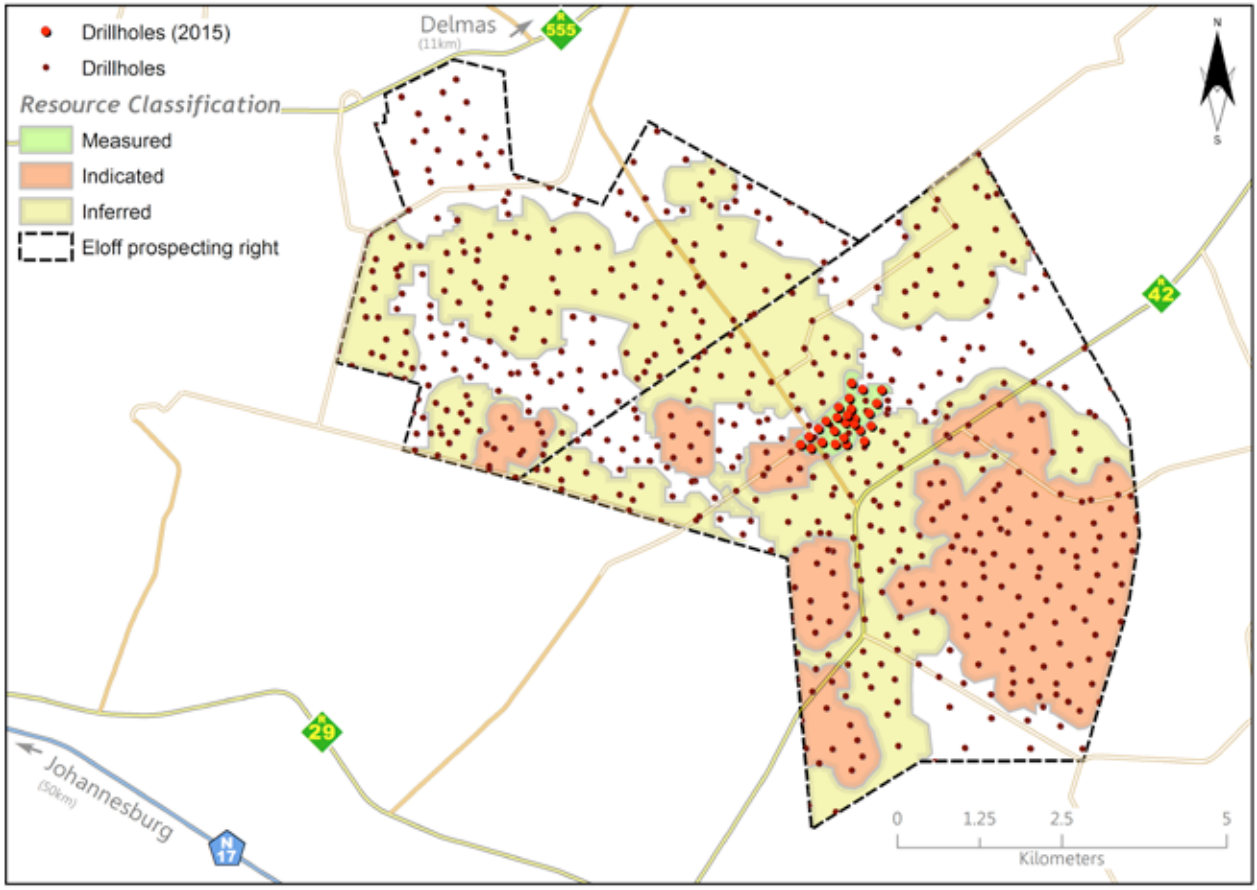
EMC acquired prospecting rights from Southern Sphere Holdings in 1984, along with drilling information from 1977 to 1984 consisting of 344 drillholes. In 1988, 54 drillholes were purchased from Coronade. In 1999, Anglovaal sold its stake of the Eloff prospecting rights to TCSA, now ECC. In 2004, BHP Billiton sold shares to TCSA and Siyanda Resources, leading to the current shareholding:

- 51% ECC
- 29% Siyanda Resources
- 20% South32.

Between 2007 and 2015, EMC drilled 376 drillholes and acquired 36 drillhole logs from Universal Coal in 2009 which are adjacent to Eloff.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Figure 24: Eloff project

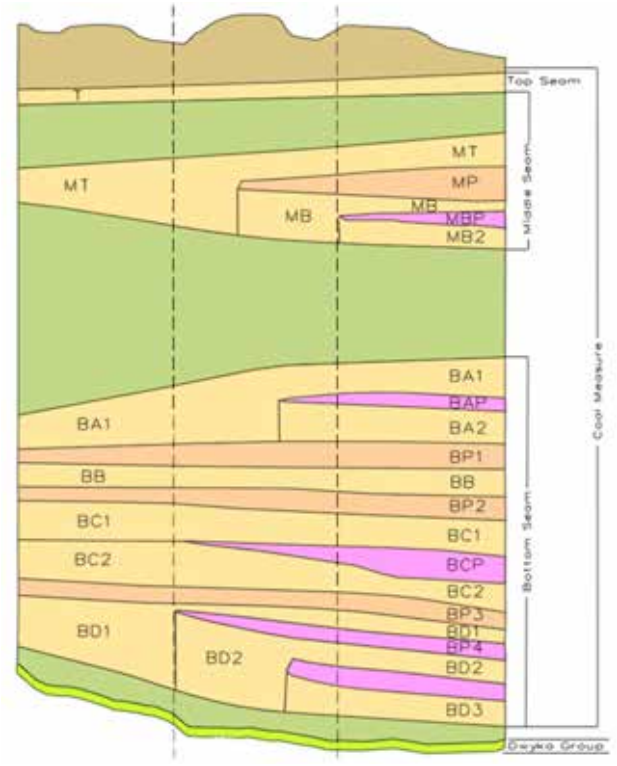


Geology

Eloff lies in the Delmas coalfield, which in turn lies west of the Witbank coalfield, north of the Highveld coalfield and along the northern edge of the Main Karoo sedimentary basin. The basement rocks consist of granite of Archean age, quartzite of the Witwatersrand supergroup, lavas of the Ventersdorp supergroup, dolomites and cherts from the Transvaal supergroup, and shale and sandstone of the Pretoria group. In some areas, diabase and andesite are defined. Glaciated relief that formed during the permo-carboniferous erosion, comprising elongated low ridges and shallow valleys, influenced depositional patterns and peat accumulation. Sediments of glacial origin-like tillites, diamictites and varvites characterise the Dwyka group. Deposited above the Dwyka group is the Vryheid formation, comprising a predominately arenaceous sequence of sandstones and conglomerates with subordinate siltstones, shale and coal seams.

Three major coal seams are present in the area. These are named from the base upwards as bottom, middle and top seams (figure 25). The middle and top seams are discrete units and can respectively be correlated directly with the Witbank seam 4 and seam 5. The bottom seam is a complex coal zone that is difficult to correlate. It is commonly thought to represent a combination of seam 1, seam 2 and seam 3, with the major portion being equivalent to seam 2. Dolerite intrusions during the late Jurassic affected Eloff in the form of dykes and sills.

Figure 25: Seam sequence and splitting at Eloff



8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Resource evaluation

Resource evaluation was undertaken in Geovia Minex as per the Exxaro resource estimation procedure. Coal-quality compositing, including the use of representative substitute values, was undertaken in Sable Data Warehouse and extrapolation of data was not required due to the availability of drillhole data beyond the prospecting right boundary.

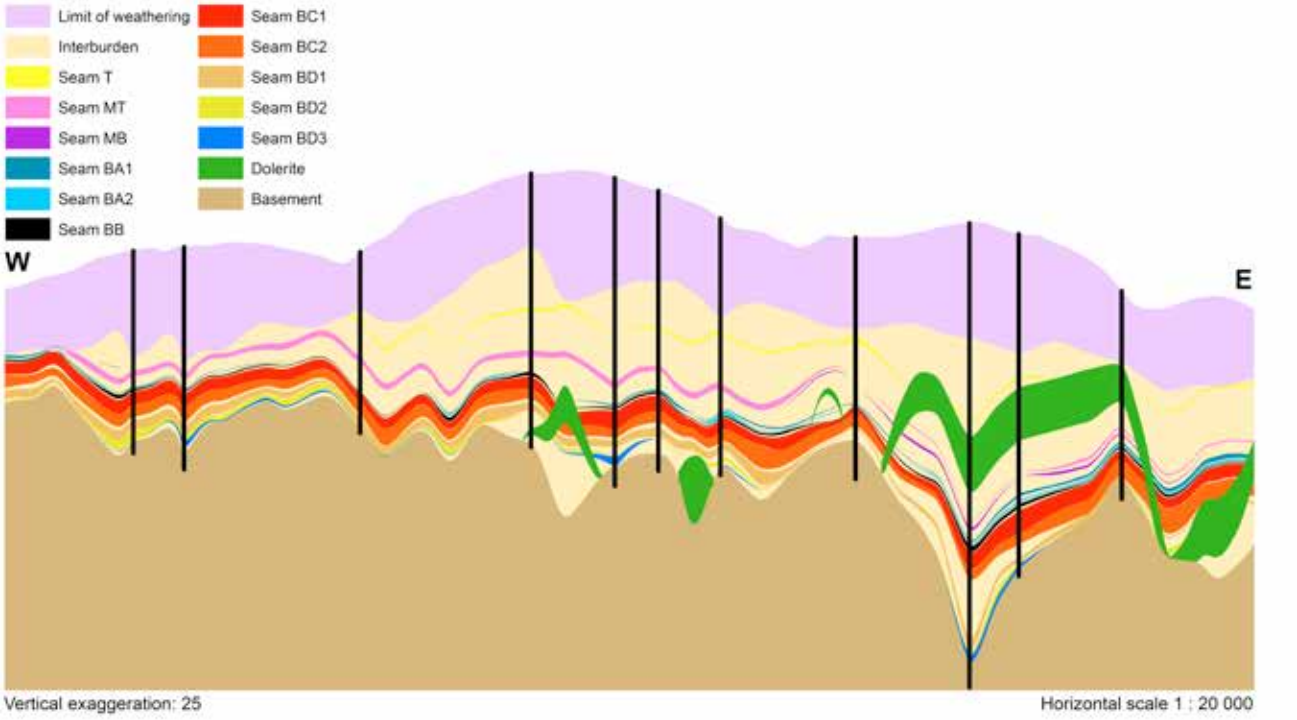
Criteria for reasonable prospects of eventual economic extraction and estimating MTIS were aligned to a 2012 conceptual optimisation study by external consultants. Open-cast and underground working areas were identified and a 40m depth to BC1 roof used as a guide to delineate reported blocks. All seams were reported for open-cast and only the BC sequence was reported for underground based on thickness and continuation.

The following cut-offs, together with domain-based geological loss, were applied to obtain reported MTIS:

- Minimum 0,5m cut-off for OC areas and 1,0m for UG areas
- Minimum dry ash-free volatiles content of 24%
- Maximum of 35% ash.

The changes in resource estimation reflect the domain-based geological loss approach, necessitated by structural complexity. This resulted in an overall increase of geological losses from 10% to a weighted average of 11%, accounting for around 51Mt less MTIS resources.

Figure 26: Typical west-east cross section through Eloff



8.11 Tumelo

Exxaro's attributable interest in Tumelo is 49%. Exxaro is expected to retain management control over the mine and hence this ancillary section is provided.

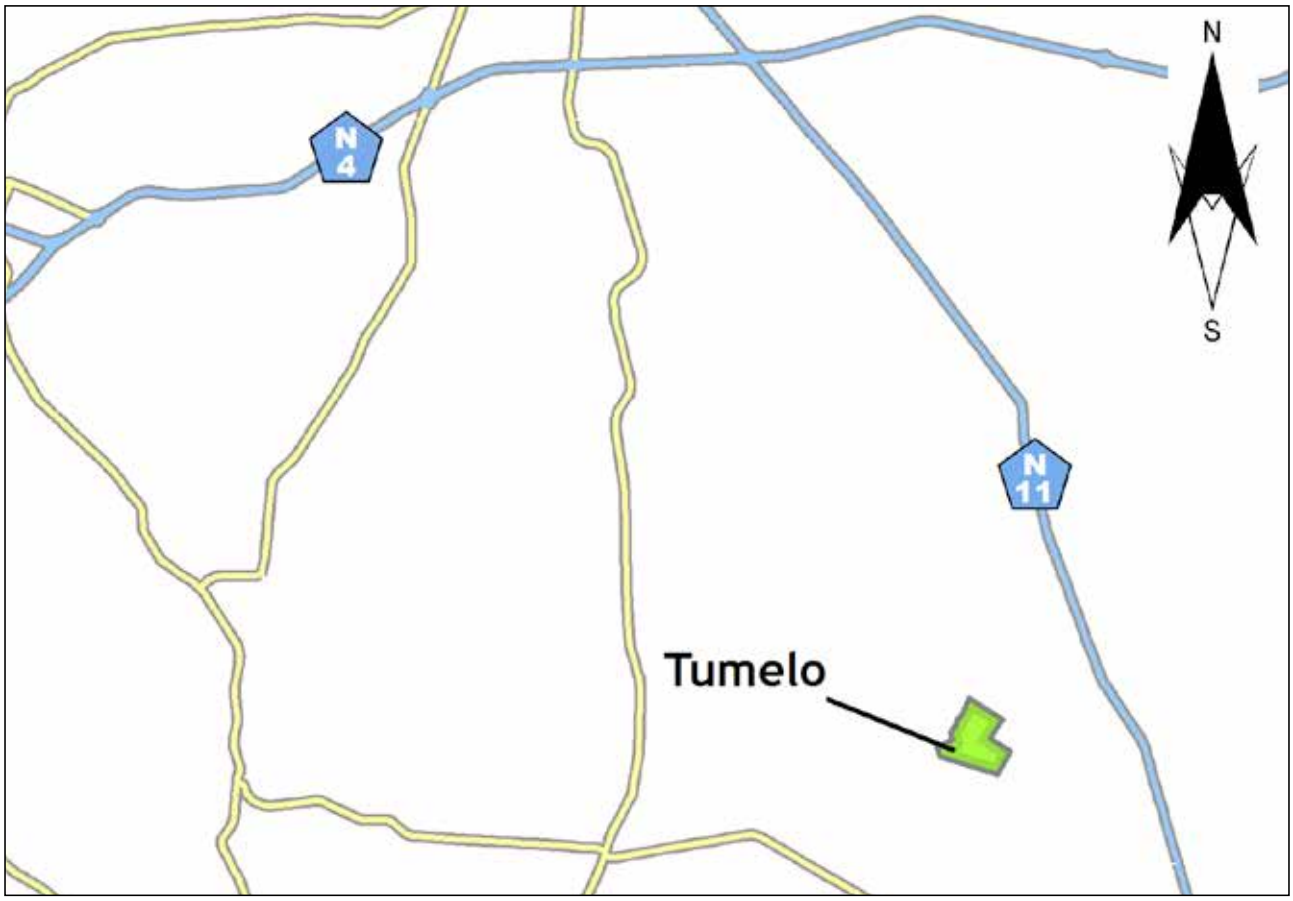
Overview

Tumelo mine is in Mpumalanga, 15km north-west of the town of Hendrina and 5km south-east of Hendrina power station. The Hendrina-Middelburg road passes 6km east of the property. An all-weather dirt road linking the town of Hendrina and Hendrina power station runs 500m to the west of the property, while the Wonderfontein-Broodsnyersplaas railway line is 2km west with the closest siding being Pullenshope, 3,5km from the property. Tumelo's mining right (116MR) covers an area of 461,9ha over the farm Boschmanskop 154IS and was acquired by Total Exploration South Africa in October 2000. The Boschmanskop project (as Tumelo was known then) would be further explored through diamond drilling by TCSA. A 2002 feasibility study confirmed the presence of economic coal reserves. The Boschmanskop project would become known as Tumelo when a mining right was applied for in 2006 in the name of Tumelo coal mines. First coal was recorded in 2009, with Tumelo exploiting S2 by means of bord-and-pillar. Mining was outsourced to SBS Mining Proprietary Limited, a mining contractor. Using one continuous miner, the mine produced some 700kt run-of-mine at its peak. Initially, RoM coal was custom-washed for an export product at the Shanduka (Glencore)-owned Koornfontein mine washing plant, but would later be carted to Total Coal's Forzando North and washed for a 5 800kcal/kg export product.

Tumelo mine was placed under care and maintenance at the end of January 2014 after contract renewal terms could not be agreed between Total Coal and the mining contractor. Following the purchase of TCSA assets by Exxaro in August 2015, the current Tumelo coal mine shareholding is 51% Mmakau Mining and 49% Exxaro Coal Central (ECC) Proprietary Limited.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Figure 27: Tumelo locality map



History
A total of 132 drillholes have been drilled over the 462,9ha area, resulting in a theoretical drillhole density of 23,5/100ha. Early exploration operators were Senekal Mine and Hanover Mining from which TCSA acquired the surface and mineral rights before transferring these to TCSA.

Geology
Tumelo lies north of the Smithfield Ridge on the north-eastern edge of the Springs-Witbank coalfield. The area is part of the Karoo basin whose stratigraphy is similar to that of Dorstfontein and Forzando, but with subtle location-induced differences.

Resource evaluation
The Tumelo geology model, unlike those of Dorstfontein and Forzando, has not yet been aligned to the Exxaro resource estimation procedure. The geology model is a Stratmodel (Minescape)-built version and is yet to be converted to Minex. Given incomplete wash fractions and missing values from old and third-party acquired drillholes, eg those drilled in 1990/91, there is a need to redrill some drillholes in areas where mining has not yet taken place.

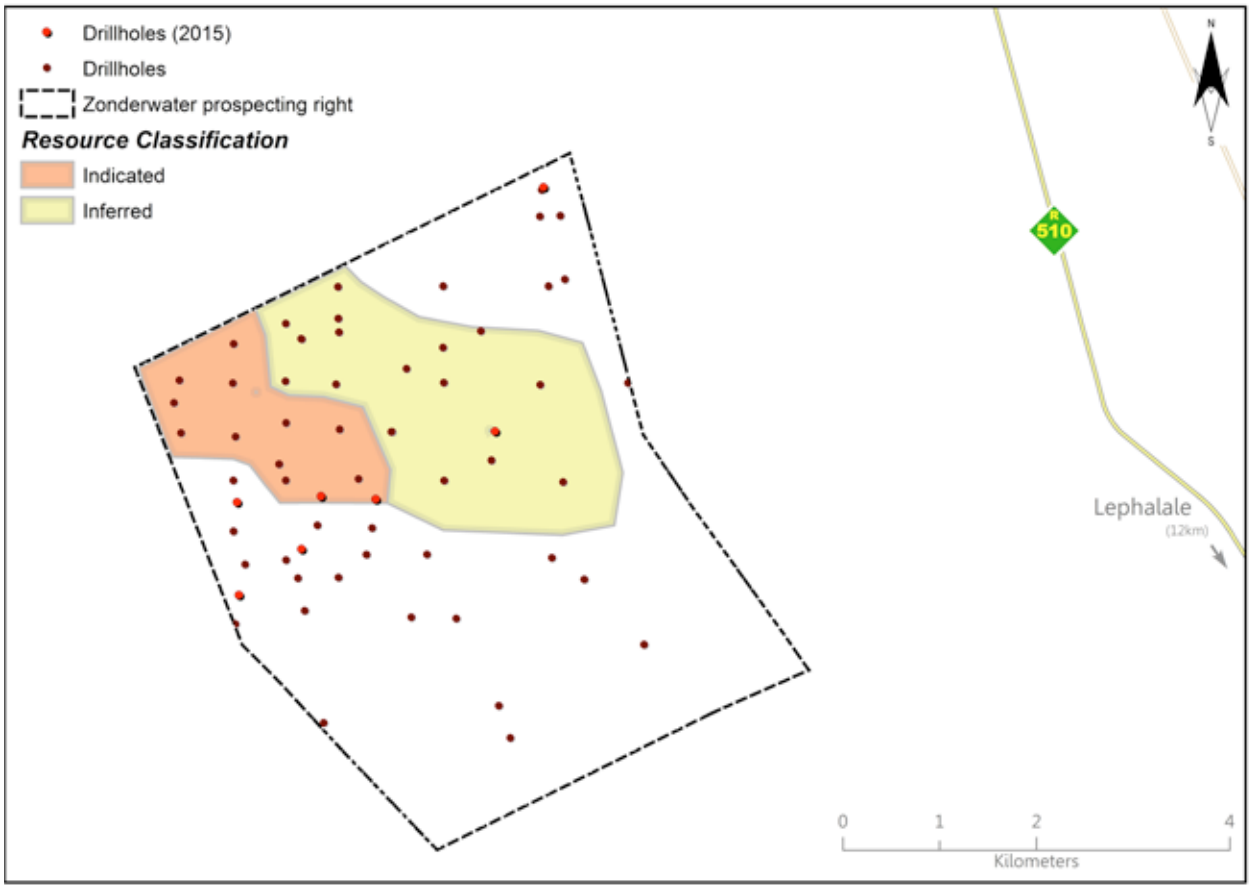
A geological loss of 10% was applied and resource cut-offs are: minimum 1,5m seam thickness, maximum ash content of 30% (S2) and 35% (S4), minimum CV of 22MJ/kg (S2) and 18MJ/kg (S4) and minimum volatiles content of 16% (S2) and 20% (S4).

8.12 Zonderwater project
Overview
Exxaro has a prospecting right over the farms Zonderwater and Van Wykspan, near the town of Lephalale in Limpopo.

Exxaro has reviewed the project for both underground coal gasification (UCG) and conventional underground coal mining but decided against applying for a mining right. The prospecting right will lapse in the first quarter of 2017 and the Zonderwater resource will be excluded from Exxaro's resource statement from the 2017 reporting year.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Figure 28: Zonderwater project



History

Five drillholes were identified as being drilled on the farm Zonderwater prior to 1972. Following this, two diamond-cored drillholes were completed in the 1980s as part of the regional Waterberg exploration by Iscor. In 2003 and 2004, Kumba Resources completed drilling additional holes on the project area. Three of these were on the farm Van Wykspan, while one was on the farm Zonderwater. This drilling was conducted under an old-order prospecting right and investigations on the Zonderwater project continued in earnest over 2010 and 2011, when 19 drillholes were completed on the project site. These were for resource evaluation and were drilled from surface using either percussion drilling or a combination of percussion and rotary core drilling to produce 123mm core for sampling.

In 2011, Exxaro applied for extension and conversion of the old-order prospecting right for the Zonderwater project area. This was granted in 2013, and executed in 2014.

In 2013, Exxaro undertook drilling in the north-western portion of the Zonderwater farm as part of routine coal exploration. The location was chosen based on historical exploration results which suggested coal-seam floor elevation differences varied least between drillholes in this area while coal qualities were high. Drilling in this area was carried out on a 500m x 500m grid with the aim of using coal-quality sampling and downhole geophysics to bring the area up to an indicated resource level of confidence.

Geology

The major coal-bearing horizons of the Karoo supergroup are the Volksrust and Vryheid formations in the Ecca group. The Ecca group is underlain by the Dwyka group, a glaciofluvial deposit ranging from gravel to mudstone. The Dwyka group, in turn, is underlain by the Waterberg group, characterised by coarse sandstone and conglomerates and sitting unconformably on the basement which is Bushveld Complex in the south-eastern part of the Ellisras basin. Overlying the Ecca are the Beaufort and Stormberg groups. Volksrust formation coals are classified as thick interbedded deposit type while Vryheid formation coals are classified as multiple-seam type.

The total thickness of the coal measures is some 120m. The general dip of the strata is 2° to 4° south-east across the Waterberg coalfield.

The upper coal or Volksrust formation is represented by interbedded carbonaceous shales and coal. The vitrinite content in the coal plies towards the top of the Volksrust formation, with a semi-soft coking coal yield. The rest of the Volksrust formation yields varying grades of thermal coal.

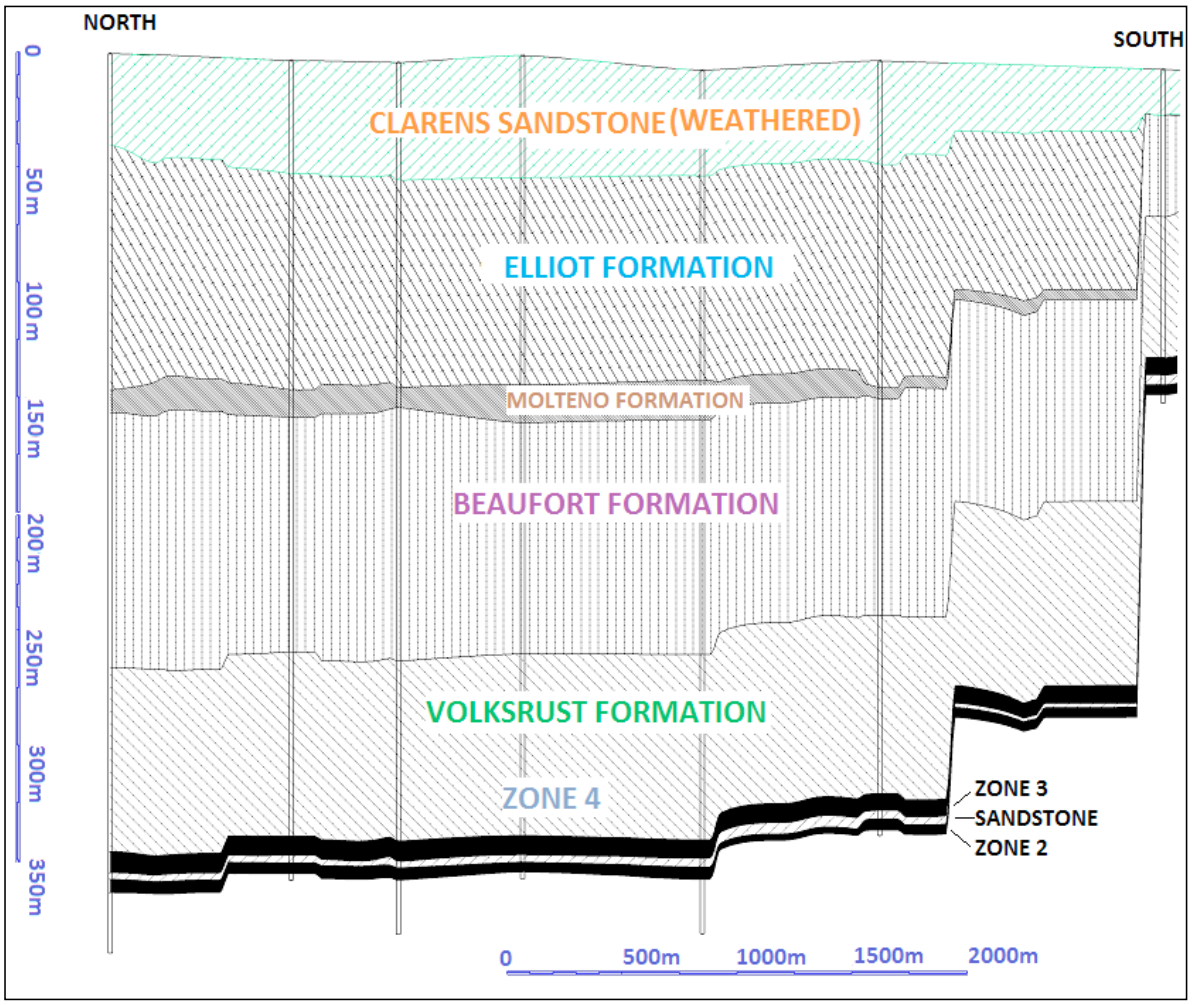
The Vryheid formation is locally made up of five distinct coal seams, composed of predominantly dull coal interbedded with minor carbonaceous mudstone and shale. These coal seams are named from bottom up as zone 1 through zone 4, with zone 4 further subdivided into zone 4 seam at the top and zone 4A which is interbedded coal and shale towards the base.

8 ANCILLARY RESOURCE AND RESERVE INFORMATION BY OPERATION (CONTINUED)

Resource evaluation

Resource evaluation was undertaken using Geovia Minex software and the methodology applied was similar to that used at Grootegeluk mine and Thabametsi project. A total of 60 drillholes were used for resource evaluation, 45 of which are located in the Zonderwater and Van Wykspan farms. Resource classification is aligned to SANS 10320:2004 guidelines for multi-seam deposits, and a 2m minimum and 6m maximum thickness cut-offs with 5% geological losses were applied for estimating MTIS. Estimation was constrained to zone 3 which exhibited the highest coal qualities while underground mining limitations were recognised in applying the maximum thickness cut-off of 6m.

Figure 29: Typical north-south section through Zonderwater project



9 EXPLORATION

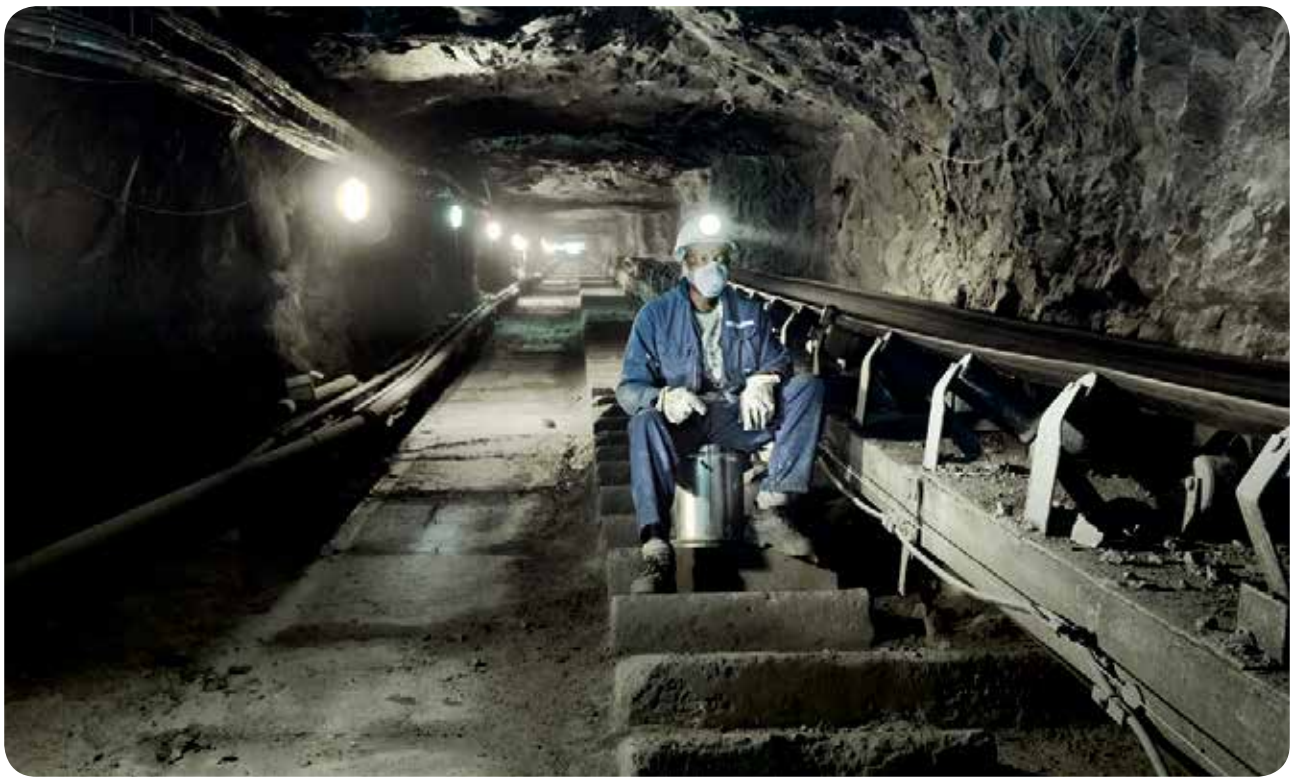
Exploration conducted in the coal business in existing operations consisted of drilling (diamond core and reverse circulation) with surface geophysical surveys, when required, and downhole geophysical logging. Exploration was primarily conducted on mining right areas and new information has been incorporated into updated geological models and included in the mineral resource statement. Drilling was carried out for production purposes and to improve geological confidence to enhance geological modelling and estimation. These drillholes are depicted in the relevant locality maps in chapter 8 ancillary resource and reserve information by operation. A limited amount of geotechnical and hydrogeological drilling was conducted to improve mine-planning parameters and is included in exploration results (table 11).

No exploration was conducted on areas not included in the mineral resource statement.

Table 11: Summary of exploration expenditure for coal

	2015 actual		2016 actual				2017 planning*	
Project or mining operation	Drillholes Number	Cost (Rm) Total	Drillholes Number	Drilling	Cost (Rm) Analyses and other	Total	Drillholes Number	Cost (Rm) Total
Grootegeluk coal mine	21	12,3	**83****	**3,3**	**7,9**	**11,2**	91**	20,2***
Arnot coal mine	160	10,5	**–**	**–**	**–**	**–**	–	–
Matla coal mine	180	16	**192**	**12,5**	**4,7**	**17,2**	120	9,6
NBC coal mine	–	–	**–**	**–**	**–**	**–**	–	–
	–	–	**–**	**–**	**–**	**–**	35	2,1
Leeuwpan coal mine	–	–	**–**	**–**	**–**	**–**	22	4,3
Thabametsi exploration	–	–	**–**	**–**	**–**	**–**	2	3,1
Dorstfontein coal mines	43	3,8	**34**	**2,5**	**0,35**	**2,85**	23	3,2
Forzando coal mines	49	5,4	**24**	**2,4**	**0,5**	**2,9**	27	5,3
Eloff exploration	26	2,1	**–**	**–**	**–**	**–**	–	–
Total	479	50,1	**333**	**20,7**	**13,45**	**34,15**	320	47,8
Mining right areas	453	48	**333**	**20,7**	**13,45**	**34,15**	283	42,6
Prospecting right areas	26	2,1	**–**	**–**	**–**	**–**	37	5,2

** Non-committed*
*** Include overburden percussion drilling*
**** Include 2016 analysis backlog*



10 APPENDIX

Appendix A

Table 12: Shareholding and tenure of reported coal resources and reserves

Complex		Name of right	Type	Status	% attributable to Exxaro	Expiry date	Remainder attributable to
Arnot	Arnot (UG and OC)	Arnot (325MR)	mining right	executed	100	05 Dec 2039	
Matla	Matla (UG)	Matla (327MR)	mining right	executed	100	05 Mar 2025	
Leeuwpan	Leeuwpan (OC)	Leeuwpan (157MR)	mining right	executed	100	23 Mar 2040	
		Leeuwpan Extension (171MR)	mining right	registered	100	23 Mar 2040	
Mafube	Mafube (OC)	Mafube (172MR)	mining right	registered	50	30 Jul 2030	Anglo American Coal Proprietary Limited
		Nooitgedacht (10026MR)	mining right	registered	50	13 Nov 2043	Anglo American Coal Proprietary Limited
North Block Complex (NBC)	Glisa (OC)	Glisa (326MR)	mining right	executed	100	12 May 2039	
	Strathrae (OC)	Strathrae (328MR)	mining right	granted	100		
	Eerstelingsfontein (OC)	Eerstelingsfontein (10068MR)	mining right	renewal submitted	100	06 Nov 2013	
	Paardeplaats (OC)	Glisa South/ Paardeplaats (190PR)	prospecting right	renewal submitted – MR application submitted	100	29 Oct 2011	
		Glisa South Ptn 13/ Paardeplaats (1734PR)	prospecting right	renewal submitted – MR application submitted	100	18 Jun 2010	
		Paardeplaats (10090MR)	mining right	new application	100		
	Belfast (OC)	Belfast (431MR)	mining right	registered	100	10 Aug 2043	
Grootegeluk	Grootegeluk (OC)	Grootegeluk (46MR)	mining right	registered	100	29 Mar 2041	
Waterberg prospecting	Thabametsi (UG and OC)	Grootegeluk West (10766PR)	prospecting right	renewal submitted – MR application submitted	100	24 Apr 2012	
		Thabametsi (10013MR)	mining right	registered	100	29 Jun 2046	
	Zonderwater (UG)	Zonderwater (1106PR)	prospecting right	registered	100	25 Feb 2017	
	Waterberg North (OC)	Pentoville (10719PR)	prospecting right	renewal submitted	100	20 Feb 2012	
		Dartmore (10720PR)	prospecting right	renewal granted	100	20 Feb 2012	
		Carolina (10718PR)	prospecting right	renewal submitted	100	20 Feb 2012	
	Waterberg South (OC)	Swelpan (10721PR)	prospecting right	renewal submitted	100	20 Feb 2012	
Tshikondeni	Tshikondeni (UG and OC)	Tshikondeni (54MR)	mining right	granted	100		
		Goni (34MR)	mining right	registered	100	31 Mar 2039	
Australian region	Moranbah South (UG & OC)	MDL277 and 377	mineral development licences	submitted	50	31 Jul 2018 and 30 Sept 2018	Anglo American Coal Proprietary Limited
	Dorstfontein (OC and UG)	Dorstfontein West + Vlakfontein (119MRC)	mining right	registered	74	06 Dec 2042	Mmakau Mining Proprietary Limited
		Dorstfontein West (123MRC)	mining right	registered	74	06 Dec 2042	Mmakau Mining Proprietary Limited
		Dorstfontein East (51MR)	mining right	registered	74	12 May 2036	Mmakau Mining Proprietary Limited
		Rietkuil Vhakoni (1916PR)	prospecting right	registered	74	07 Oct 2015	Mmakau Mining Proprietary Limited

10 APPENDIX (CONTINUED)

Table 12: Shareholding and tenure of reported coal resources and reserves (continued)

Complex		Name of right	Type	Status	% attributable to Exxaro	Expiry date	Remainder attributable to
Exxaro Coal Central (ECC)	Forzando (UG)	Forzando South (380MR)	mining right	executed	74	27 Jun 2029	Mmakau Coal Proprietary Limited
		Forzando North (381MR)	mining right	registered	74	27 Jun 2029	Mmakau Coal Proprietary Limited
		Forzando West (380MR)	mining right	registered	74	30 Jul 2018	Mmakau Coal Proprietary Limited
		Legdaar (1846PR)	prospecting right	renewal submitted	74	04 May 2015	Mmakau Mining Proprietary Limited
		Kalabasfontein (1035PR)	prospecting right	registered	74	31 Jul 2018	Mmakau Coal Proprietary Limited
		Kalabasfontein (1170PR)	prospecting right	registered	74	31 Jul 2018	Mmakau Coal Proprietary Limited
		Schurvekop Ptn 24 (4627PR)	prospecting right	granted	74	31 Sept 2020	Mmakau Coal Proprietary Limited
		Schurvekop (1063PR) Mmakau Coal	prospecting right	MR application submitted	49	27 Nov 2016 21 Nov 2016	Mmakau Mining Proprietary Limited
Exxaro Coal Central (ECC)	Eloff	Eloff South (274PR)	prospecting right	registered	51	18 Mar 2017	South 32 and Canyon Springs
		Eloff North (273PR)	prospecting right	registered	51	18 Mar 2017	South 32 and Canyon Springs
Exxaro Coal Central (ECC)	Tumelo (UG)	Boschmanskop (116MR)	mining right	renewal submitted	49	12 Oct 2015	Mmakau Mining Proprietary Limited

Table 13: Shareholding and tenure of reported mineral sands and base metals resources and reserves

Commodity	Name of right	Type	Status	% attributable to Exxaro	Expiry date	Remainder attributable to
Mineral sands	Hillendale Mine + Braeburn + Braeburn Extension	converted right	executed	58,55%	closed	Tronox
	Block P	converted right	executed	58,55%	24 Mar 2035	Tronox
	Fairbreeze A+B+C+D	converted right	executed	58,55%	24 Mar 2035	Tronox
	Fairbreeze C Extension	converted right	executed	58,55%	04 Aug 2039	Tronox
	Port Durnford project	converted right	executed	58,55%	06 Mar 2018	Tronox
	Namakwa Sands mine	converted right	executed	58,55%	17 Aug 2038	Tronox
	Namakwa satellite deposits (Houtkraal and Rietfontein)	prospecting right	MR application submitted	58,55%	29 Mar 2046	Tronox
	Cooljarloo	mining licence	executed	43,98%	31 Jan 2020	Tronox
	Jurien	mining licence	executed	43,98%	12 Nov 2031	Tronox
	Dongara	mining licence	executed	43,98%	30 Mar 2029	Tronox
	Cooljarloo west	mining licence	executed	43,98%	17 Mar 2036	Tronox
	Cooljarloo North-west project	retention licence	executed	43,98%	07 Jul 2019	Tronox
Base metals	Deeps and Swartberg (zinc, lead, copper and silver)	converted right	executed	26%	30 Sept 2038	Vedanta Resources plc
	Gamsberg North and Gamsberg East prospecting (zinc)	converted right	executed	26%	18 Aug 2038	Vedanta Resources plc

10 APPENDIX (CONTINUED)

Table 14: 2016 competent persons' register

	Mineral resources				Ore reserves			
Operation/ project	Name	Relevant experience (years)	Job title	Registration	Name	Relevant experience (years)	Job title	Registration
Lead CP, Exxaro	JH Lingenfelder	21	Group manager geosciences	SACNASP (400038/11)	C Ballot	20	Group manager mining	ECSA (20060040)
Arnot mine	JH Lingenfelder	21	Group manager geosciences	SACNASP (400038/11)	n/a			
Belfast project	G Gcayi	9	Resident geologist, NBC	SACNASP (400299/11)	PDM Lourens	11	Principal mining engineer	SAIMM (702550)
Glisa South project	G Gcayi	9	Resident geologist, NBC	SACNASP (400299/11))	n/a			
Grootegeluk coal mine	CW van Heerden	14	Resident geologist, Grootegeluk	SACNASP (400069/04)	R van Staden	14	Manager mining operations	ECSA (20050123)
Leeuwpan coal mine	M Steenkamp	6	Resident geologist, Leeuwpan	SACNASP (400173/13)	H Motsotsoana	8	Senior engineer, Leeuwpan	ECSA (201110036)
Matla	TF Moabi	11	Senior geologist	SACNASP (400067/08)	B Young	20	Planning and optimisation manager	PLATO, PMS (0182)
NBC	G Gcayi	9	Resident geologist, NBC	SACNASP (400299/11)	Ettienne Bergh	17	Planning and optimisation manager	SAIMM (705991)
Thabametsi project	JH Lingenfelder	21	Group manager geosciences	SACNASP (400038/11)	C Ballot	20	Group manager mining	ECSA (20060040)
Dorstfontein, Forzando, Eloff, Tumelo	G Bittah	9	Manager geology, ECC	SACNASP (400217/12)	Gunn Ndebele	25	MRM manager, ECC	SACNASP (400107/10)
Waterberg North project	JH Lingenfelder	21	Group manager geosciences	SACNASP (400038/11)	n/a			
Waterberg South project	JH Lingenfelder	21	Group manager geosciences	SACNASP (400038/11)	n/a			
Mafube (Nooitgedacht and Wildfontein)	D Xaba	17	Geology manager, Anglo Coal	SACNASP (400019/05)	D Xaba	17	Geology manager, Anglo Coal	SACNASP (400019/05)
Mafube mine (Springboklaagte)	D Xaba	17	Geology manager, Anglo Coal	SACNASP (400019/05)	D Xaba	17	Geology manager, Anglo Coal	SACNASP (400019/05)

10 APPENDIX (CONTINUED)

Table 14: 2016 competent persons' register (continued)

	Mineral resources				Ore reserves			
Operation/ project	Name	Relevant experience (years)	Job title	Registration	Name	Relevant experience (years)	Job title	Registration
Moranbah South, Australia	AJ Laws	21	Specialist resource geologist, Anglo American Coal	AusIMM (209913)				
Hillendale mine, Extension	D Sibiya	21	Geologist, Tronox	SACNASP (400294/06)	C Philander	20	Manager, Tronox	SACNASP (400181/15)
Fairbreeze A+B+C+C Extension	D Sibiya	21	Geologist, Tronox	SACNASP (400294/06)	C Philander	20	Manager, Tronox	SACNASP (400181/15)
Block P and Block extension	D Sibiya	21	Geologist, Tronox	SACNASP (400294/06)	C Philander	20	Manager, Tronox	SACNASP (400181/15)
Port Dunford	D Sibiya	21	Geologist, Tronox	SACNASP (400294/06)	C Philander	20	Manager, Tronox	SACNASP (400181/15)
Fairbreeze D	D Sibiya	21	Geologist, Tronox	SACNASP (400294/06)	C Philander	20	Manager, Tronox	SACNASP (400181/15)
Namakwa Sands	C van Vuuren	14	Geologist, Tronox	SACNASP (400111/96)	C Philander	20	Manager, Tronox	SACNASP (400181/15)
Cooljarloo, Australia	P Stevenson	31	Manager resource development, Tronox	AusIMM (107759)	P Stevenson	31	Manager resource development, Tronox	AusIMM (107759)
Jurien, Australia	P Stevenson	31	Manager resource development, Tronox	AusIMM (107759)	P Stevenson	31	Manager resource development, Tronox	AusIMM (107759)
Dongara, Australia	P Stevenson	31	Manager resource development, Tronox	AusIMM (107759)	P Stevenson	31	Manager resource development, Tronox	AusIMM (107759)
Black Mountain	S Jenniker	17	Mineral resources manager, Vedanta	SACNASP (400129/08)	S Jenniker	17	Mineral resources manager, Vedanta	SACNASP (400129/08)
Gamsberg	S Jenniker	17	Mineral resources manager, Vedanta	SACNASP (400129/08)	S Jenniker	17	Mineral resources manager, Vedanta	SACNASP (400129/08)

** All competent persons are Exxaro employees except where otherwise stated*

Table 15: Coal production figures (kilotonnes)

Operation	Product	2015	**2016**	FC 2017*	FC 2018**
Grootegeluk	Thermal coal	21 637	**20 616**	26 028	26 995
Grootegeluk	Metallurgical coal	1 856	**1 985**	2 451	2 458
Matla	Thermal coal	7 859	**7 900**	8 530	8 135
ECC*	Thermal coal	1 365	**3 904**	4 050	4 026
Leeuwpan	Thermal coal	3 786	**3 774**	3 806	4 094
NBC	Thermal coal	2 870	**2 857**	3 127	627
Mafube	Thermal coal	1 147	**1 760**	1 676	940
Arnot	Thermal coal	1 401			
Inyanda	Thermal coal	1 035			

** Included for four months in 2015*
*** Forecast*

exxaro

POWERING POSSIBILITY

www.exxaro.com