
1 INTRODUCTION

1.1 Background Information

1.1.1 Eskom Holdings

Eskom Holdings is South African utility that generates, transmits and distributes electricity. Eskom supplies approximately 95% of the country's electricity, and approximately 60% of the total electricity consumed on the African continent. Eskom's vision "*Together building the powerbase for sustainable growth and development.*"¹ places a responsibility on the company to ensure that sustainable development in the country becomes a reality. Eskom further plays a major role in accelerating growth in the South African economy by providing a high-quality supply of electricity. Eskom's vision means:¹

TABLE 1: ESKOM'S VISION.

Together	One Eskom, unified, working together in partnership with others
Building	Planning for the future, building South Africa's economy
Powerbase	Providing the electricity foundation for positive sustainable development
Sustainable	Ensuring continued delivery on economic, environmental and social outcomes
Growth	Empowering South Africa, its people and the economy
Development	Securing a brighter future for all and integrating the first and second economy

The details of the proponent are as follows:

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Contact:	Project Manager: Mr Vuledzani Thanyani
Address:	Eskom Transmission, Mega Watt Park, Maxwell Drive, Sunninghill
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For more information regarding Eskom please refer to the Eskom website at www.eskom.co.za

¹ Taken from the Eskom website, 27 August 2008 (http://www.eskom.co.za/live/content.php?Category_ID=58)

1.2 Purpose and Motivation for the Proposed Project

In South Africa, our most abundant source of energy is coal. Eskom therefore relies on coal-fired power stations to produce approximately 90% of its electricity. Coal mining in South Africa is relatively cheap compared to the rest of the world. In Europe, by contrast, costs are almost four times higher.

In order for the electricity generated by these power stations to be transmitted safely and efficiently, it must be at a high voltage (Typically 400 kilo Volts [kV]) and a low current. The transmission system carries the electricity from source (power stations) to consumption areas.

Electricity delivered by transmission circuits is then stepped down in facilities called substations to voltages more suitable for use. At distribution substations electricity is stepped down to 11 kV for local distribution and then further reduced according to need, for example, 220 volts for domestic use. Substations are used to transform power from one voltage level to another; interconnect alternative sources of power; connect generators, transmission or distribution lines and loads to each other, as well as provide switching for alternate connections and isolation of failed or overloaded lines and equipment. Substations are also used to interconnect adjacent power systems for mutual assistance in case of emergency.

1.2.1 Increased Electricity Supply Plan

For many years Eskom has operated in an environment of surplus capacity. However, this surplus capacity has now been exhausted with increased consumer demand. Eskom's power system will remain tight over the next five years with an increased likelihood of power interruptions. This trend is set to continue at least until the first new coal-fired base load power station (Medupi Power Station) is commissioned in 2011.

During the Integrated Strategic Electricity Planning (ISEP) process Eskom identified long-term options regarding both the supply and demand sides of electricity provision in South Africa. The ISEP is informed by the White Paper on the Energy Policy of the Republic of South Africa (1998), the Integrated Energy Plan (2003) and the National Integrated Resource Plan (2003/ 2004).

The latest ISEP (October 2005) has identified the need for increased base load electricity supply by the year 2010, while peaking generation is being attended to in the shorter term. The National Energy Regulator of South Africa (NERSA) is the regulatory authority responsible for the electricity supply industry in South Africa. In its National Integrated Resource Plan (NIRP), NERSA has determined that, while various alternative and renewable electricity generation options should be continually investigated, coal should still provide the main fuel source in South Africa. Accordingly, coal-fired power stations will be required for the expansion of generation capacity during the next 20 years.

On 5 June 2007, Eskom received environmental authorisation (12/12/20/807) from the National Department of Environmental Affairs and Tourism (DEAT) to proceed with the construction of the

new Bravo Power Station, between Bronkhorstspuit and Witbank in Mpumalanga. The EIA for the Bravo Power Station was conducted.

On 29 February 2008 Eskom awarded contracts for its "Bravo Project", a coal-fired power station to be built near Emalahleni in Mpumalanga by 2017. Site clearance for this station has already started. The first unit is planned to be online by 2013.

The proposed Bravo Integration Project is necessary to integrate and connect Bravo Power Station (which will aid in the delivery of additional electricity supply) into the existing Eskom electricity network.

For additional information on the Eskom build programme, or increased electricity supply plan, please visit the Eskom website: http://www.eskom.co.za/live/content.php?Item_ID=5981&Revision=en/2.

1.2.2 Bravo Integration Project

The Bravo Integration project consists of the following five components (Figure 2):

Phase 1: Sol – Camden By-Pass Power Line

The intention of Bravo 1 is to build two 400 kV by-pass lines for Zeus Substation, the two 400 kV lines from Sol Substation and the two 400 kV power lines from Camden Power Station will be disconnected from Zeus Substation and joined to each other to form two Camden- Sol 400 kV power lines. The location of the two by-pass lines is planned to be within approximately 10 km radius of the Zeus Substation. The project is located within the Govan Mbeki District Municipality.

Phase 2: Apollo and Kendal loop in and loop out lines

Eskom propose to construct four new 400 kV overhead power lines, located within the Emalahleni Local Municipality in Mpumalanga, to loop in and out of Bravo Power Station. The existing Kendal-Apollo line will be looped in and out of Bravo to form the Bravo-Apollo and Bravo-Kendal lines. In addition, the existing Duvha-Minerva 400 kV overhead power line will be looped in and out of Bravo Power Station, to form the Bravo-Duvha and Bravo-Minerva lines. The study area in which the alternatives were selected is within the 10 km radius surrounding the new Bravo Power Station and each of the alternative 400 kV power lines will be not exceed 10 km in length.

Phase 3: Construction of a 400 kV power line from Bravo Power Station to Lulamisa Substation

In order for the Bravo Power Station to be integrated within the existing Eskom infrastructure, Eskom propose to construct a new 400 kV power line from the new Bravo Power Station to the existing Lulamisa Substation, near Diepsloot. This line will be approximately 150 km in length. The construction of this proposed 400 kV power line is aimed to ensure sufficient electricity supply to the Diepsloot and Johannesburg North areas, where currently frequent electricity shortages are

experienced. The alternative Bravo power line corridors are located on the eastern Highveld of Southern Africa. The corridors cover an area from Witbank in the east, to Diepsloot in the west.

Phase 4: Two new 70 km Kendal –Zeus 400 kV Power Lines

Eskom propose to construct two new 400 kV power lines, one from Bravo to Zeus and the other one from the Kendal Power Station (near Ogies) to the Zeus Substation (near Secunda), Mpumalanga. These lines will run parallel to each other and will be approximately 70 km's in length. The three alternative route corridors will be 5 km's wide. These three alternative corridors merge into two corridors approximately 30 km's from the Zeus Substation.

Phase 5: New 10 km Bravo-Vulcan Power Line (This report)

Eskom propose to construct a 400 kV overhead power line, by-passing the existing Duvha Substation, to form a new Bravo-Vulcan line near Emahlaheni, Mpumalanga. This by-pass line is planned to be approximately 10 km in length. The area to be investigated for this by-pass line is a 10 km radius surrounding the existing Duvha Substation.

1.2.3 Context of this Report

This report constitutes the Final Environmental Impact Report, a key component of the Environmental Authorisation Process for Phase 5-Duvha by-pass overhead power line.

1.3 The Project Team

The project team for the proposed Duvha by-pass power line is divided into various role players as follows:

- The Applicant / Proponent;
- The Environmental Assessment Practitioner (EAP); and
- The Decision Making Authority.

1.3.1 The Applicant / Proponent

Eskom Holdings, the “*Proponent*” is applying for the Environmental Authorisation from the Department of Environmental Affairs and Tourism (DEAT). As the owner and operator of the proposed power lines Eskom will remain the responsible legal entity and will carry the environmental liability for the proposed project.

1.3.2 The Environment Assessment Practitioner (EAP)

In terms of the EIA Regulations, the Proponent has appointed the following independent environmental consultants to undertake the detailed EIA Phase of this project:



FIGURE 1: ENVIRONMENTAL ASSESSMENT PRACTITIONERS.

The environmental consultants were selected on the basis of their experience in environmental management and assessment, their familiarity with EIA requirements specifically for projects related to the industry, and their knowledge of the project area. Neither Zitholele Consulting (Pty) Ltd (ZC) nor Cymbian Enviro-Social Consulting Services (Pty) Ltd (Cymbian) have any vested interest in the proposed project.

1.3.3 The Decision Making Authority

The Department of Environmental Affairs and Tourism (DEAT) is the delegated lead authority responsible for authorising this project. However, in the spirit of co-operative governance, the following government departments will be consulted before making a decision:

- Department of Water Affairs and Forestry (DWAF);
- Mpumalanga Department of Agriculture and Land Administration (MDALA);
- South African Heritage Resource Agency (SAHRA);
- Emalahleni Local Municipality; and
- Nkgangala District Municipality.

1.4 Project Progress

To date the following has been completed by the Environmental consulting team.

- Pre-application consultation with relevant stakeholders and authorities;
- Completion and submission of the relevant Screening / EIA Application documentation;
- Compilation, submission, and approval of the Plan of Study for Scoping;
- Placement of advertisements;
- Compilation and distribution of a Background Information Document;
- Hosting a public meeting;
- Compilation of a Draft Scoping Report;
- Compilation, submission and approval of the Final Scoping Report and Plan of Study for EIA;
- Compilation of a Draft Environmental Impact Report;

- Public consultation during the EIA phase (including adverts, letters and public meetings); and
- Specialist Studies.

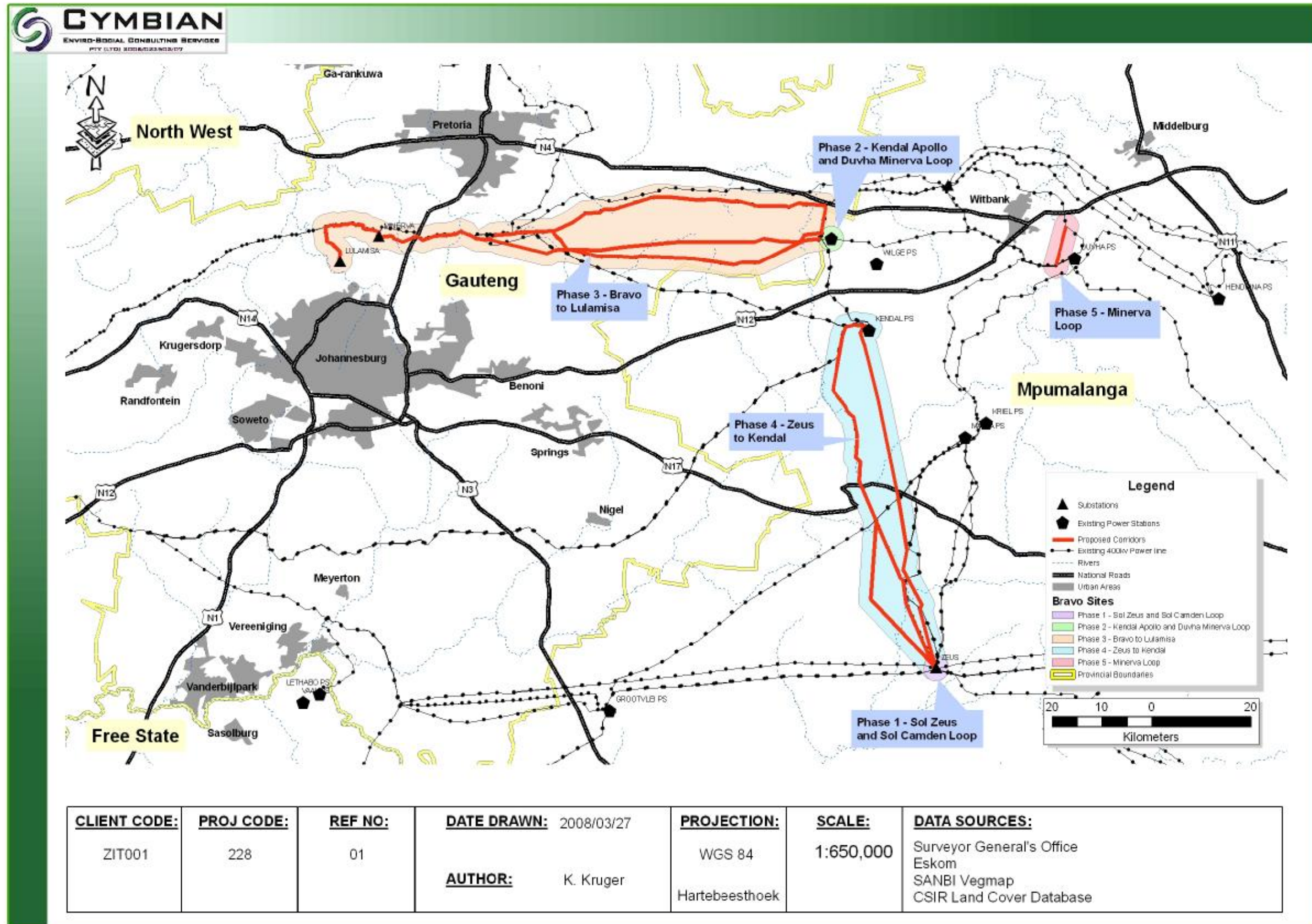


FIGURE 2: OVERVIEW OF THE BRAVO INTEGRATION PROJECT.