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## **12 ENVIRONMENTAL IMPACT STATEMENT**

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According to Regulations 385, promulgated in terms of the NEMA, No 107 of 1998, Section 33 (n), an Environmental Impact Report must contain an Environmental Impact Statement, which contains a summary of the key findings of the EIA, and a comparative assessment of the positive and negative implications of the proposed activity and identified alternatives.

### **12.1 Alternatives Assessed**

The following alternatives were considered and discussed in the Environmental Impact Report:

- Project alternatives;
- Route alternatives;
- Design alternatives; and
- “No-go” alternative.

In summary the three route alternatives and the no-go alternative were assessed and are outlined below:

#### **12.1.1 Alternative Route 1 (The Preferred Route)**

Alternative 1 is to construct the proposed 400 kV power line approximately 106.8 km along a north alignment. Alternative 1 will run furthest to the north. This alternative is the longest alternative, and follows an existing servitude.

#### **12.1.2 Alternative Route 2**

Alternative 2 is to construct the proposed 400 kV power line approximately 102.3 km along a central alignment. The alternative will lead to the shortest power line length, which runs primarily outside Eskom’s property. Alternative 2 is currently the preferred alternative by Eskom.

#### **12.1.3 Alternative Route 3**

Alternative 3 is to construct the proposed 400 kV power line approximately 102.7 km along a southern alignment. Alternative 3 will be shorter than Alternative 1 but longer than Alternative 2. This route follows an existing servitude partially and to place the route primarily on Eskom property. This route is least favourable.

#### **12.1.4 The No-Go Alternative**

The No-Go alternative was considered. If the new proposed 400 kV power line is not constructed, the new Bravo Power Station will not be able to be integrated into the existing Eskom infrastructure grid.

The existing Eskom infrastructure grid will thus not benefit from the construction of the new Bravo Power Station

## **12.2 Environmental Aspects addressed in the EIA**

The key issues that were assessed in detail in this Environmental Impact Assessment are as follows:

- Topography and Land Use;
- Geology, Soil and Land Capability, and Drainage Features;
- Climate;
- Infrastructure;
- Flora;
- Fauna;
- Electric and Magnetic Fields;
- Cultural and Historical Resources; and
- Socio-Economic Environment.

## **12.3 Summary of Impacts Identified**

The impacts identified in the Environmental Impact Assessment can be divided into positive and negative impacts. They are discussed below.

### **12.3.1 Positive Impacts**

#### 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.

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.

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

### 12.3.2 Negative Impacts

The potential impacts that were identified for the proposed project are outlined in the table below. The table indicates the impacts as they are currently (initial), if the project is undertaken (additional); if mitigation measures as outlined in the EMP are adhered to (residual) and the cumulative impacts.

		Initial	Additional	Residual	Cumulative
GEOLOGY	Significance	-	Very Low	Very Low	Very Low
	Spatial	-	Isolated Sites	Isolated Sites	Isolated Sites
	Temporal	-	Long Term	Long Term	Long Term
	Probability	-	Probability	Probability	Probability
	CLASS	-	Low	Very Low	Low
TOPOGRAPHY	Significance	-	Very Low	Very Low	Very Low
	Spatial	-	Isolated Sites	Isolated Sites	Isolated Sites
	Temporal	-	Long Term	Long Term	Long Term
	Probability	-	Practically impossible	Unlikely	Practically impossible
	CLASS	-	Very Low	Very Low	Very Low
SOILS & LAND CAPABILITY	Significance	Moderate	Moderate	Moderate	Moderate
	Spatial	Study Site	Study Site	Study Site	Study area
	Temporal	Long Term	Long Term	Long Term	Long Term
	Probability	Is occurring	Its going to happen	Is occurring	Its going to happen
	CLASS	Moderate	Moderate	Moderate	Moderate
VEGETATION	Significance	Moderate	Low	Very Low	Low
	Spatial	Study Site	Study Site	Study Site	Study area
	Temporal	Long Term	Long Term	Medium Term	Long Term
	Probability	Is occurring	Its going to happen	Unlikely	Its going to happen / has occurred
	CLASS	Moderate	Moderate	Very Low	Moderate
FAUNA	Significance	High	Moderate	High	High
	Spatial	Region	Isolated Site	Region	Region
	Temporal	Long Term	Short Term	Long Term	Long Term
	Probability	Likely	Will occur	Likely	Likely

		<b>Initial</b>	<b>Additional</b>	<b>Residual</b>	<b>Cumulative</b>
	<b>CLASS</b>	<b>High</b>	<b>Low</b>	<b>High</b>	<b>High</b>
<b>SURFACE WATER</b>	<b>Significance</b>	Very low	Very low	Very low	Low
	<b>Spatial</b>	Study Site	Study Site	Study Site	Study area
	<b>Temporal</b>	Medium Term	Medium Term	Medium Term	Long Term
	<b>Probability</b>	Could happen	Could happen	Could happen	Could happen
	<b>CLASS</b>	<b>Very Low</b>	<b>Very Low</b>	<b>Very Low</b>	<b>Low</b>
<b>CULTURAL HISTORICAL</b>	<b>Significance</b>	-	Very Low	-	Very Low
	<b>Spatial</b>	-	Isolated Sites	-	Isolated Sites
	<b>Temporal</b>	-	Long Term	-	Long Term
	<b>Probability</b>	-	Unlikely	-	Unlikely
	<b>CLASS</b>	<b>No Impact</b>	<b>Very Low</b>	<b>No Impact</b>	<b>Very Low</b>
<b>VISUAL</b>	<b>Significance</b>	High	Low	High	High
	<b>Spatial</b>	Local	Local	Local	Local
	<b>Temporal</b>	Long Term	Short Term	Long Term	Long Term
	<b>Probability</b>	Has occurred	Is going to happen	Has occurred	Has occurred
	<b>CLASS</b>	<b>High</b>	<b>Low</b>	<b>High</b>	<b>High</b>
<b>SOCIO-ECONOMIC</b>	<b>Significance</b>	Moderate	Low	Moderate	Moderate
	<b>Spatial</b>	Study Site	Study Site	Study Site	Study Site
	<b>Temporal</b>	Long Term	Short Term	Long Term	Long Term
	<b>Probability</b>	Is occurring	Its going to happen	Is occurring	Is occurring
	<b>CLASS</b>	<b>Moderate</b>	<b>Moderate</b>	<b>Moderate</b>	<b>Moderate</b>

### 12.4 Summary of Mitigation Measures Proposed

The following potential impacts were identified as requiring specific mitigation measures (which are included in the EMP):

- Impacts on Initiation and construction activities
- Site Establishment and Demarcation
- Water Management (including Storm water, Water Sources, Wet Areas)
- Hazardous Substance spills

- Delivery of Materials
- Building, Civil's and Structural Steel Work
- Circuit Breakers and Current Transformers
- Access Roads
- Waste Management Fire prevention
- Designated Storage Areas
- Tower Positioning
- Claims from damage
- Erosion, Donga and River Crossings
- Flora Management (including Vegetation Clearing, General, and Herbicides)
- Fauna Management
- Interaction with adjacent landowners
- Noise / Working Hours
- Infrastructure
- Archaeology
- Residential Property

Mitigation measures to address these impacts are included in Chapter 11 above.

## **12.5 EAP Opinion of the Preferred Alternative**

Three alternative routes have been considered. Based on the findings from this Environmental Impact Report the EAP is of the opinion that alternative 1 is the preferred alternative, to construct the proposed 400 kV power line approximately 106.8 km along a north alignment. Alternative 1 will run furthest to the north. As mentioned this alternative is the longest alternative, and follows an existing servitude. It intersects the least sensitive environments such as wetlands, ridges etc. In conclusion Alternative 1 is the preferred route alternative.