12 ENVIRONMENTAL IMPACT STATEMENT

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 by-pass line approximately 1.5 km from the Duvha Power Station. The Minerva loop will be approximately 7.4 km in length. The construction will take place within Eskom property, but may not be technically feasible.

12.1.2 Alternative Route 2

Alternative 2 is to construct the proposed by-pass line approximately 4 km from the Duvha Power Station. The Minerva loop will be approximately 5.4 km. The construction would take place on Eskom property but may not be technically feasible due to it transecting the Olifants River and dams on this river.

12.1.3 Alternative Route 3

Alternative 3 is to construct the proposed by-pass line approximately 2 km to the north-west of the Duvha Power Station. The Minerva loop will be approximately 9.5 km. The construction will take place outside of Eskom property, but may avoid crossing the Olifants River. For the locality of the alternative sites refer to Figure 4.

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

- 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

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.

	Construction Phase						
		Initial	**Additional**			**Residual**	**Cumulative**
			Alt 1, 2 and 3				
GEOLOGY	**Significance**	-	Very low			Very low	Very low
	Spatial	-	Isolated sites			Isolated sites	Isolated sites
	Temporal	-	Long term			Long term	Long term
	Probability	-	Probably			Probably	Probably
	CLASS	-	**Low**			**Low**	**Low**
			Alt 1, 2 and 3				
TOPOGRAPHY	**Significance**	-	-			-	-
	Spatial	-	-			-	-
	Temporal	-	-			-	-
	Probability	-	-			-	-
	CLASS	-	-			-	-
			Alt 1	**Alt 2**	**Alt 3**		
SOILS AND LAND CAPABILITY	**Significance**	High	Low	Moderate	Moderate	High	High
	Spatial	Study Site	Isolated Site	Isolated Site	Isolated Site	Study Site	Study Site
	Temporal	Long Term	Long Term	Long Term	Long Term	Long Term	Long Term
	Probability	Is occurring	Will occur	Will occur	Will occur	Is occurring	Is occurring
	CLASS	**High**	**Moderate**	**Moderate**	**Moderate**	**High**	**High**
			Alt 1	**Alt 2**	**Alt 3**		
FLORA	**Significance**	Moderate	Very Low	High	High	Moderate	High
	Spatial	Study Site	Isolated Site	Isolated Site	Isolated Site	Study Site	Isolated Site
	Temporal	Long Term	Short Term	Long Term	Long Term	Medium Term	Long Term
	Probability	Is occurring	Will occur	Will occur	Will occur	Will happen	Will occur
	CLASS	**Moderate**	**Low**	**Moderate**	**Moderate**	**Moderate**	**Moderate**
			Alt 1	**Alt 2**	**Alt 3**		
FAUNA	**Significance**	High	Moderate	High	High	High	High
	Spatial	Region	Isolated Site	Isolated Site	Isolated Site	Isolated Site	Region
	Temporal	Long Term	Short Term	Short Term	Short Term	Short Term	Long Term
	Probability	Likely	Will occur	Will occur	Will occur	Will occur	Likely
	CLASS	**High**	**Low**	**Moderate**	**Moderate**	**Moderate**	**High**
			Alt 1,2 and 3				
SURFACE WATER	**Significance**	Very Low	Very Low			Very Low	Very Low
	Spatial	Study Site	Study area			Study Site	Study Site
	Temporal	Medium Term	Short Term			Medium Term	Medium Term
	Probability	Could happen	Could happen			Could happen	Could happen
	CLASS	**Low**	**Very Low**			**Low**	**Low**
CULTURAL HISTORICAL	**Significance**	-	-			-	-
	Spatial	-	-			-	-
	Temporal	-	-			-	-
	Probability	-	-			-	-
	CLASS	-	-			-	-
			Alt 1	**Alt 2**	**Alt 3**		
VISUAL	**Significance**	High	Low	Low	Low	High	High
	Spatial	Local	Local	Local	Local	Local	Local
	Temporal	Long Term	Short Term	Short Term	Short Term	Long Term	Long Term
	Probability	Has occurred	Will occur	Will occur	Will occur	Has occurred	Has occurred
	CLASS	**High**	**Moderate**	**Moderate**	**Moderate**	**High**	**High**
			Alt 1	**Alt 2**	**Alt 3**		
SOCIO-ECONOMIC	**Significance**	-	-	-	-	-	-
	Spatial	-	-	-	-	-	-
	Temporal	-	-	-	-	-	-
	Probability	-	-	-	-	-	-
	CLASS	-	-	-	-	-	-

		Operational Phase					
		Initial	Additional			Residual	Cumulative
			Alt 1, 2 and 3				
GEOLOGY	Significance	-	Very low			Very low	Very low
	Spatial	-	Isolated sites			Isolated sites	Isolated sites
	Temporal	-	Long term			Long term	Long term
	Probability	-	Probably			Probably	Probably
	CLASS	-	Low			Low	Low
			Alt 1, 2 and 3				
TOPOGRAPHY	Significance	-	-			-	-
	Spatial	-	-			-	-
	Temporal	-	-			-	-
	Probability	-	-			-	-
	CLASS	-	-			-	-
			Alt 1	Alt 2	Alt 3	-	-
SOILS AND LAND CAPABILITY	Significance	High	Low	Moderate	Moderate	High	High
	Spatial	Study Site	Isolated Site	Isolated Site	Isolated Site	Study Site	Study Site
	Temporal	Long Term	Long Term	Long Term	Long Term	Long Term	Long Term
	Probability	Is occurring	Will occur	Will occur	Will occur	Is occurring	Is occurring
	CLASS	High	Moderate	Moderate	Moderate	High	High
			Alt 1	Alt 2	Alt 3		
FLORA	Significance	Moderate	Very Low	High	High	Moderate	High
	Spatial	Study Site	Isolated Site	Isolated Site	Isolated Site	Study Site	Isolated Site
	Temporal	Long Term	Short Term	Long Term	Long Term	Medium Term	Long Term
	Probability	Is occurring	Will occur	Will occur	Will occur	Will happen	Will occur
	CLASS	Moderate	Low	Moderate	Moderate	Moderate	Moderate
			Alt 1	Alt 2	Alt 3		
FAUNA	Significance	High	High	High	High	High	High
	Spatial	Region	Local	Local	Local	Regional/ Provincial	Region
	Temporal	Long Term	Long Term	Long Term	Long Term	Long Term	Long Term
	Probability	Likely	Could occur	Could occur	Could occur	Unlikely	Likely
	CLASS	High	Moderate	Moderate	Moderate	Low	High
			Alt 1,2 and 3				
SURFACE WATER	Significance	Very Low	Very Low			Very Low	Very Low
	Spatial	Study Site	Study area			Study Site	Study Site
	Temporal	Medium Term	Short Term			Medium Term	Medium Term
	Probability	Could happen	Could happen			Could happen	Could happen
	CLASS	Low	Very Low			Low	Low
CULTURAL HISTORICAL	Significance	-	-			-	-
	Spatial	-	-			-	-
	Temporal	-	-			-	-
	Probability	-	-			-	-
	CLASS	-	-			-	-
			Alt 1	Alt 2	Alt 3		
VISUAL	Significance	High	Low	Low	Low	High	High
	Spatial	Local	Local	Local	Local	Local	Local
	Temporal	Long Term	Short Term	Short Term	Short Term	Long Term	Long Term
	Probability	Has occurred	Will occur	Will occur	Will occur	Has occurred	Has occurred
	CLASS	High	Moderate	Moderate	Moderate	High	High
			Alt 1	Alt 2	Alt 3		
SOCIO-ECONOMIC	Significance	-	-	-	-	-	-
	Spatial	-	-	-	-	-	-
	Temporal	-	-	-	-	-	-
	Probability	-	-	-	-	-	-
	CLASS	-	-	-	-	-	-

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 by-pass line approximately 1.5 km from the Duvha Power Station. The Minerva loop will be approximately 7.4 km in length. The construction will take place within Eskom property, but may not

be technically feasible Alternative 1 intersects the least sensitive environments such as wetlands, ridges etc. In conclusion Alternative 1 is the preferred route alternative.