

APPENDIX D – Criteria against which the impacts of the proposed power line are evaluated – Garona Aries 400kV

Method of Assessing Significant Impacts

The assessment of impacts will largely be based on DEAT's (1998) Guideline Document: EIA Regulations. The assessment will consider impacts arising from the construction and operation phases of the proposed project both before and after the implementation of appropriate mitigation measures.

It is proposed that the impacts will be assessed according to the criteria outlined below. Each issue is ranked according to extent, duration, magnitude (intensity) and probability. From these criteria, a significance rating is obtained, the method and formula is described below.

Nature of Impact

The impacts are to be assessed as either having a:

- negative effect (i.e. at a 'cost' to the environment),
- positive effect (i.e. a 'benefit' to the environment), or
- neutral effect on the environment.

Extent of the Impact

- (1) Site (i.e. within the boundaries of the study area),
- (2) Local (i.e. the area within 10 km of the study area),
- (3) Municipal
- (4) Provincial (i.e. Northern Cape Province),
- (5) National (i.e. South Africa), or
- (6) International (i.e. Southern Africa and beyond).

Duration of the Impact

The length that the impact will last for is described as either:

- (1) immediate (>1 year)
- (2) short term (1-5 years),
- (3) medium term (6-15 years),
- (4) long term (the impact will cease after the operational life span of the project),

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- (5) permanent (no mitigation measure of natural process will reduce the impact after construction).

Magnitude of the Impact

The intensity or severity of the impacts is indicated as either:

- (0) none (where the aspect will have no impact on the environment),
- (2) Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected),
- (4) Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected),
- (6) Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way),
- (8) High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease), or
- (10) Very high / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease).

Probability of Occurrence

The likelihood of the impact actually occurring is indicated as either:

- (0) None (the impact will not occur),
- (1) improbable (the possibility of the impact materialising is very low as a result of design, historic experience, or implementation of adequate corrective actions)
- (2) low probability (there is a possibility that the impact will occur),
- (3) medium probability (the impact may occur),
- (4) high probability (it is most likely that the impact will occur), or
- (5) definite / don't know (the impact will occur regardless of the implementation of any prevention or corrective actions, or you don't know what the probability will be based on too little published information).

Significance of the Impact

Based on the information contained in the points above, the potential impacts are assigned a significance weighting (**S**). This weighting is formulated by adding the sum of the numbers assigned to extent (**E**), duration (**D**) and magnitude (**M**) and multiplying this sum by the probability (**P**) of the impact.

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$$S=(E+D+M)P$$

The significance weightings are given below:

- (<30) low (i.e. where this impact would not have a direct influence on the decision to develop in the area),
- (30-60) medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- (>60) high (i.e. where the impact must have an influence on the decision process to develop in the area).

The above significance rating methodology is presented in tabular form overleaf (Table A):

Table A: Summary of Significance Rating Methodology

Significance Rating				
Nature	Magnitude	Duration	Extent	Probability
Positive	10- Very High/ Unsure (environmental functions* permanently ceases)	5- Permanent	5- International	5- Definite/ Don't know
Negative	8- High (environmental functions temporarily ceases)	4- Long term (ceases after operation life of activity)	4- National	4- Highly probable (most likely to occur)
	6- Moderate (environmental functions altered but continue)	3- Medium term (5-15 years)	3- Regional (e.g. provincial)	3- Medium probability (distinct probability that impact will occur)
	4- Low	2- Short term (0-5 years)	2- Local (limited to site boundary and immediate surrounds)	2- Low probability (unlikely to occur)
	2- Minor	1- Immediate	1- Site only	1- Improbable (probability very low due to design or experience)
	0- None			0- None

Combining the consequence (magnitude, duration, and extent) with the probability of occurrence provides an overall significance rating (i.e. (magnitude+duration+extent) multiplied by probability = significance). Based on the overall significance rating the impact is assigned as having a low, medium or high significance. The criteria for the significance categories are as follows: <30 points = low significance; > 30 and <60 points = medium significance; and >60 = high significance.

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The significance ratings applied to each impact will be used to provide a quantitative comparative assessment of the alternatives being considered. In addition, professional expertise and opinion of the specialists and the environmental consultants will be applied to provide a qualitative comparison of the alternatives under consideration. This process will identify the best route alignment for the proposed development.