

IMPACT ASSESSMENT:

BASIC ASSESSMENT REPORT FOR 132kV CHIKADEE POWER LINE BETWEEN THE EXISTING HENDRINA/ARBEDEEN 132kV POWER LINE AND THE PROPOSED BOSCHMANSKOP TRACTION, DEC 2017 Assessment tables

It is important to note that this section aims to highlight areas of concern. The details of the mitigation measures that are finally put in place should ideally be based on these issues, but must necessarily take into consideration the physical and economic feasibility of mitigation.

Vegetation and Flora Impacts Assessment

This assessment found that all three (3) alternatives include modified areas of a low sensitivity to the proposed powerline construction and the impacts in such areas are envisaged to be minimal. However, the moist grasslands along Alternative 2 and at the substation locality pose a significant constraint to the powerlines. Only one pan area that was historically disturbed/cultivated will be directly traversed by Alternative 1 and 3. All three alternatives will impact on the moist grassland around the substation locality.

Destruction & Fragmentation of vegetation

Nature: Clearing of pylon sites as well as the strip of vegetation in powerline corridor.

This impact will involve the clearing of vegetation and digging of pylon foundations. The impact footprint will be at the site and directly around it is unlikely that significant amount of natural habitat will be lost.

The consequences of this impact are:

- habitat loss for plants and animal species;
- loss of plant species of conservation importance;
- Total destruction or reduction in biodiversity at the pylon site and under the conductors (depending on the extent of the clearance of
- increased potential for fragmentation (depending on the clearing of the vegetation along the power line route);
- disturbance to processes maintaining biodiversity and ecosystem goods and services; and
- local loss of ecosystem goods and services.

While the significance of this impact is Moderate before mitigation, mitigation measures will still be necessary in order to mitigate the impacts to all indigenous vegetation to be restored once the

earthworks have been completed, the pylon has been erected and the conductors have been stringed.

CONSTRUCTION PHASE

Rating of Impacts	Without mitigation	With mitigation
Probability	Highly Probable (4)	Probable (3)
Duration	Medium-term (3)	Short Duration (2)
Extent	Site (1)	Site (1)
Magnitude	Low (4)	Low (3)
Significance	32 (moderate)	18 (Low)
Status (positive or negative)	Negative	Negative

OPERATIONAL PHASE

Probability	Highly Probable (4)	Probable (3)
Duration	Medium-term (3)	Short Duration (2)
Extent	Site (1)	Site (1)
Magnitude	Low (4)	Low (4)
Significance	32 (moderate)	21 (Low)
Status (positive or negative)	Negative	Negative
Reversibility	Low	High
Irreplaceable loss of resources?	Moderate	Low
Can impacts be mitigated?	Yes	

NO GO Option

Mitigation:

- There should be a preconstruction walk-through of the development footprint/project site in order to assess the pylon footprint areas for Red Data / protected species.

- A search and rescue operation should be done to remove plants which can be successfully transplanted
- Bush clearing can be avoided or stopped to allow vegetation to restore itself
- The footprint of the impact area around a pylon can be minimised
- Disturbed areas must be revegetated

Cumulative impacts:

Residual Risks: Bush clearing and the disturbances of the soil at the pylon sites will destroy the natural vegetation. It will take many years (40+) to restore the vegetation in a natural way, even then the restoration will still not be exactly as before the disturbance.

Nature: Introduction and spread of alien vegetation.

Activity: Any activities that damage the natural vegetation cover will result in opportunistic invasions after disturbance and the introduction of seed in construction materials and on vehicles. Invasions of alien plants can impact on hydrology, by outcompeting natural vegetation and decreasing the natural biodiversity.

	Without mitigation	With mitigation
CONSTRUCTION PHASE		
Probability	Definite (5)	Highly probable (4)
Duration	Long-term (4)	Medium-term (3)
Extent	Limited to Local Area (2)	Limited to Local Area (2)
Magnitude	High (8)	Low (4)
Significance	70 (high)	36 (moderate)
Status (positive or negative)	Negative	Negative
OPERATIONAL PHASE		
Probability	Probable (3)	Improbable (1)

Duration	Permanent (5)	Permanent (5)
Extent	Limited to Local Area (2)	Limited to the Site (1)
Magnitude	High (8)	Low (4)
Significance	45 (moderate)	10 (low)
Status (positive or negative)	Negative	Negative
Reversibility		
	Low	Moderate
Irreplaceable loss of resources?		
	Low	Low
Can impacts be mitigated?		
	Yes	
Mitigation:		
<ul style="list-style-type: none"> • Weed control • Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area and returning it where possible afterwards. • Monitor the establishment of alien invasive species within the areas affected by the construction and maintenance and take immediate corrective action where invasive species are observed to establish. • Rehabilitate or revegetate disturbed areas 		
Cumulative impacts: Expected to be high to moderate. Regular monitoring should be implemented during construction, rehabilitation including for a period after rehabilitation is completed. Refer to the accompanying General Rehabilitation and Monitoring Report		
Residual Risks: Expected to be moderate provided that the mitigation measures are implemented correctly and effective rehabilitation of the site is undertaken where necessary.		

Impact on Watercourses Impact Assessment

The development changes habitats, the ecological environment, infiltration rates, amount of runoff and runoff intensity of stormwater, and therefore the hydrological regime of the area. A range of management measures are available to address threats posed to water resources. In the context of the

proposed powerlines, the mitigation measures proposed below are intended to prevent further degradation to the wetland areas as a result of the powerline upgrade.

Nature: Changes in sediment entering and exiting the system. This impact is equally relevant to each alternative		
Activity: Changing the amount of sediment entering the wetland. Construction and operational activities will result in earthworks and soil disturbance as well as the removal of natural vegetation. This could result in the loss of topsoil, sedimentation of the wetland and increase the turbidity of the water. Possible sources of the impacts include:		
<ul style="list-style-type: none"> • Earthwork activities during structure construction and upgrade • Disturbance of soil surface including soil compaction • Disturbance of slopes through creation of access roads and tracks adjacent to the wetland 		
	Without mitigation	With mitigation
CONSTRUCTION PHASE		
Probability	Highly probable (4)	Probable (3)
Duration	Long-term (4)	Medium-term (3)
Extent	Regional (3)	Limited to Local Area (2)
Magnitude	High (8)	Moderate (6)
Significance	60 (high)	33 (moderate)
Status (positive or negative)	Negative	Negative
OPERATIONAL PHASE		
Probability	Probable (3)	Possible (2)
Duration	Short-term (2)	Short-term (2)
Extent	Regional (3)	Limited to Local Area (2)
Magnitude	Low (3)	Low (3)
Significance	24 (low)	14 (low)
Status (positive or negative)	Negative	Negative
Reversibility		
	Moderate	High
Irreplaceable loss of resources?	Low	Low
Can impacts be mitigated?	Yes	

Mitigation:

- In the case of Alternative 1 where the proposed line runs parallel to the valley bottom wetland, particular care should be taken during the construction phase to prevent sediment ingress into the wetland by installing temporary sediment barriers and effective monitoring
- Pylons/towers should not be located in the wetlands or their buffer zone
- Prevent access of heavy vehicles and machinery in the wetlands
- Work in wet conditions should be avoided
- Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction activities and that plan must be implemented immediately upon completion of construction.
- Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.
- Implementation of best management practices

Cumulative impacts: May be high unless effective mitigation measures are applied. Refer to the accompanying General Monitoring and Rehabilitation report.

Residual Risks: Expected to high unless the mitigation measures are implemented correctly and effective rehabilitation of the site is undertaken where necessary.

Nature: Changes in the hydrology of wetlands also impacts downstream areas.

Activity: Any activities that change the catchment of a wetland will affect the way in which water enters into the wetlands. This has an effect on water flow volumes as well as energy. Possible sources of the impacts include:

- Soil compaction through movement of heavy vehicles
- Disturbance of slopes through creation of roads and tracks adjacent to the wetland
- Disturbance of vegetation cover through trampling
- Creation of additional access roads, particularly parallel to wetlands

	Without mitigation	With mitigation
CONSTRUCTION PHASE		
Probability	Probable (3)	Possible (2)
Duration	Medium-term (3)	Short-term (2)
Extent	Regional (3)	Limited to Local Area (2)

Magnitude	High (8)	Moderate (6)
Significance	42 (medium)	20 (low)
Status (positive or negative)	Negative	Negative
OPERATIONAL PHASE		
Probability	Possible (2)	Possible (2)
Duration	Long-term (4)	Short-term (2)
Extent	Regional (3)	Limited to Local Area (2)
Magnitude	High (8)	Moderate (6)
Significance	30 (medium)	20 (low)
Status (positive or negative)	Negative	Negative
Reversibility	Moderate	High
Irreplaceable loss of resources?	Low	Low
Can impacts be mitigated?	Yes	
Mitigation: <ul style="list-style-type: none"> • Prevent access of heavy vehicles and machinery in the wetlands • Rehabilitation plans must be submitted and approved for rehabilitation of damage during upgrade activities and that plan must be implemented immediately upon completion of construction. • Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access. • Implementation of best management practices • Source-directed controls 		
Cumulative impacts: May be high unless effective mitigation measures are applied. Refer to the accompanying General Monitoring and Rehabilitation report.		
Residual Risks: Expected to high unless the mitigation measures are implemented correctly and effective rehabilitation of the site is undertaken where necessary.		

Impact on Fauna (including Avifauna) Impact Assessment

Considering on the nature of the development and the fact that it is not necessary to implement conservation measures, it is most likely that none of the terrestrial vertebrates with their habitat(s) will be displaced. The mitigation measures in the Fauna Assessment Report are required to reduce the likelihood of impacts on birds through collisions and electrocutions.

Impact assessment – avifaunal habitat loss				
Nature: Avian habitats will be lost in the areas cleared for the substation and servitude involved in this project. In the case of the Boschmanskop power line, this impact will be of low severity on account of the small area involved and disturbed nature of the habitats. Additional habitat loss may occur during the construction phase.				
	Without mitigation		With mitigation	
CONSTRUCTION PHASE				
Probability	Highly probable	4	Probable	3
Duration	Short term	2	Short term	2
Extent	Limited to Site	1	Limited to Site	1
Magnitude	Low	2	Low	1
Significance	Low	20	Low	12
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Probable	3	Improbable	2
Duration	Long-term	4	Long-term	4
Extent	Limited to Route	1	Limited to Route	1
Magnitude	Low	1	Low	1
Significance	Low	18	Low	12
Status (positive or negative)	Negative		Negative	

Reversibility	Low	Low
Irreplaceable loss of resources?	Low	Low
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> Minimise areas cleared for towers, construction activities and access roads, and as far as possible use existing roads Restrict construction activities to area directly below power line 		
Cumulative impacts: Will result in additional loss of habitat in an area that is already highly transformed.		
Residual Risks: None anticipated provided that the mitigation measures are implemented correctly.		

Impact assessment – avifaunal disturbance				
Nature: The presence of vehicles and personnel during construction will create disturbance for birds along the route of the proposed line. This disturbance will be most likely manifested through increased stress levels modulated by the stress hormone corticosterone, with consequences for breeding success, immune function and foraging. Further disturbance will occur during the operational phase as a consequence of routine maintenance, but the magnitude of this impact will be lower than during the construction phase.				
	Without mitigation		With mitigation	
CONSTRUCTION PHASE				
Probability	Highly probable	4	Probable	3
Duration	Short term	2	Short term	2
Extent	Limited to Site	1	Limited to Site	1
Magnitude	Low	2	Low	2
Significance	Low	20	Low	15
Status (positive or negative)	Negative		Negative	

OPERATIONAL PHASE				
Probability	Improbable	2	Very improbable	1
Duration	Permanent	5	Permanent	5
Extent	Limited to Route	1	Limited to Route	1
Magnitude	Low	1	Low	1
Significance	Low	14	Low	7
Status (positive or negative)	Negative		Negative	
Reversibility	Moderate		Moderate	
Irreplaceable loss of resources?	Low		Low	
Can impacts be mitigated?	Yes			
Mitigation:				
<ul style="list-style-type: none"> • Construction of the proposed power line should take place during winter, outside the breeding season of most birds and when migrants are absent. • Construction workers must be instructed to minimise disturbance of birds at all times. • Illegal hunting of birds must be strictly prevented • All construction and maintenance should take place as per Eskom Transmission's environmental best practice standards. 				
Cumulative impacts: Construction activities, and to a lesser extent maintenance activities thereafter, will increase overall levels of human disturbance along the power line route.				
Residual Risks: None anticipated provided that the mitigation measures are implemented correctly.				

Impact assessment – avian collisions

Nature: Avian mortalities and injuries as a result of birds colliding with power lines while in flight.

	Without mitigation		With mitigation	
CONSTRUCTION PHASE				
Probability	Probable	3	Very improbable	2
Duration	Short term	2	Short term	2
Extent	Limited to Route	1	Limited to Route	1
Magnitude	Low	2	Low	1
Significance	Low	15	Low	8
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Probable	3	Improbable	2
Duration	Permanent	5	Permanent	5
Extent	Limited to Site	1	Limited to Site	1
Magnitude	Moderate	5	Moderate	3
Significance	Moderate	33	Low	18
Status (positive or negative)	Negative		Negative	
Reversibility				
Reversibility	Low		Low	
Irreplaceable loss of resources?				
Irreplaceable loss of resources?	Low		Low	
Can impacts be mitigated?				
Can impacts be mitigated?	Yes			

Mitigation:

- The possibility that several large-bodied threatened species (e.g., Secretarybird, Blue Crane, Southern Bald Ibis) move through the area from time to time means that the risk of collision needs to be taken seriously.
- Bird flight diverters should be fitted to the line. Specifically, “Bird flappers” or double-loop flight diverters developed by the Eskom / Endangered Wildlife Trust (EWT) Strategic Partnership should be fitted to the line during initial construction. These devices must be attached to the centre 60% of the line between each pair of pylons, with the flappers 5 m apart in a staggered configuration.

Cumulative impacts: Collisions caused by power lines have had devastating impacts on the populations of a number of threatened bird species, but the risk posed by the proposed Boschmanskop powerline is unlikely to be significant if mitigation measures are employed as described above.

Residual Risks: None.

Impact assessment - electrocutions

Nature: Avian mortalities and injuries as a result of birds creating short circuits between live wires, or between live wire and tower. Risk generally significant for 132 kV lines.

	Without mitigation		With mitigation	
CONSTRUCTION PHASE				
Probability	Improbable	2	Improbable	1
Duration	Short term	2	Short term	2
Extent	Limited to Route	1	Limited to Route	2
Magnitude	Low	4	Low	4
Significance	Low	14	Low	8
Status (positive or negative)	Negative		Negative	

OPERATIONAL PHASE				
Probability	Probable	3	Improbable	1
Duration	Permanent	5	Permanent	5
Extent	Limited to Route	1	Limited to Route	1
Magnitude	Moderate	4	Low	3
Significance	Moderate	30	Low	9
Status (positive or negative)	Negative		Negative	
Reversibility				
	Low		Low	
Irreplaceable loss of resources?				
	Low		Low	
Can impacts be mitigated?				
	Yes			
Mitigation:				
<ul style="list-style-type: none"> Electrocutions are likely on 132 kV towers. In the interests of preventing short circuits caused by excreta, it is recommended that standard Eskom Bird Guards be fitted to all towers in the proposed line. 				
Cumulative impacts: Electrocutions are likely to be a cause of avian mortality unless adequately mitigated, and have contributed significantly to the declines of some threatened species.				
Residual Risks: None.				

Heritage and Cultural Impacts

The cultural landscape qualities of the region essentially consist of two components. The first is made up of a pre-colonial (Stone Age and Iron Age) occupation. The second component is a rural settlement largely based on farming, but also in which coal mining activities in recent years contributed to a densification of settlement and concurrent business development.

No sites, features or objects of cultural heritage significance were found in the development area. As no sites, features or objects of cultural heritage significance were found in the development area, there would be no impact as a result of the proposed development. Alternative 1 is recommended as it is the shortest possible route.

Impact assessment – Heritage and Cultural Impacts		
Nature: Loss and disturbance of heritage sites due to the development.		
CONSTRUCTION PHASE		
Rating of Impacts	Without mitigation	With mitigation
Probability	Probable (3)	Probable (3)
Duration	Permanent(5)	Permanent(5)
Extent	Limited to Local Area (1)	Limited to Local Area (1)
Magnitude	Minor (1)	Minor (1)
Significance	21 (Low)	21 (Low)
Status (positive or negative)	Negative	Negative
OPERATIONAL PHASE		
Probability	Probable (3)	Probable (3)
Duration	Permanent(5)	Permanent(5)
Extent	Limited to Local Area (1)	Limited to Local Area (1)
Magnitude	Minor (1)	Minor (1)
Significance	21 (Low)	21 (Low)
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	High	High
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> The contractors and workers should be notified that archaeological sites might be exposed during the construction activities. 		

- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above

Cumulative impacts:

Residual Risks: The identified risk is damage or changes to resources that are generally protected in terms of Sections 27, 28, 31, 32, 34, 35, 36 and 37 of the NHRA that may occur in the proposed project area.

Visual Impacts

With respect the potential visual impacts, the landscape character sensitivity in the study area is considered to be medium. It is predominantly a rural landscape with extensive farming activity occurring in large blocks. During the summer season it is visually pleasing and the small farm dams and pans raise the visual quality of the landscape. This is however very common in the region and not regarded as unique. The even terrain causes a high degree of inter-visibility between parts of the study area with panoramic views of the surroundings. Despite the presence of the Hendrina Power Station in the north, the study area is surprisingly free of electrical infrastructure with only one power line traversing the study area.

The only observers in the study area are residents from the dispersed farming community. Only one farmstead was identified in the Zone of Maximum Visual Exposure (ZMVE) which is located at Portion 7 of the farm Boschmanskop 154. Residents living here will be directly affected by Alternative 1 and 3 as it passes in close proximity to the farm stead. They are classified as visual receptors of high sensitivity owing to their sustained visual exposure to the proposed development as well as their attentive interest towards their living environment.

Impact assessment – Visual Impact Severity		
Nature: Severity of impacts on observers (OB) and landscape character(LC)		
CONSTRUCTION PHASE		
Rating of Impacts	Without mitigation	With mitigation
Probability	Probable (3)	improbable (3)
Duration	Very short duration(1)	Very short duration(1)
Extent	Limited to Local Area (2)	Limited to Local Area (1)
Magnitude	Minor (2)	Minor (2)
Significance	15 (Low)	8 (Low)
Status (positive or negative)	Negative	Negative
OPERATIONAL PHASE		
Probability	Probable (3)	Improbable (2)
Duration	Long term (4)	Long term (4)
Extent	Limited to Local Area (2)	Limited to Local Area (2)
Magnitude	Minor (2)	Small (0)
Significance	24 (Low)	12 (Low)
Status (positive or negative)	Negative	Negative
Reversibility	Medium	Medium
Irreplaceable loss of resources?	Low	Low
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> • Avoidance: Complete avoidance of the impacts is a function of either not proceeding with the proposed project or relocating the project to an alternative site. This is often the most effective mitigation strategies but within the constraints of economics and available land it is not necessarily possible or feasible. • Reduction: Where negative impacts cannot be avoided it should be considered how to reduce the impact as much as possible. Different projects require different solutions but scaling down or limiting disturbances are some of the options. • Remediation: Remediation mitigation relies on add-on or cosmetic measures to “soften” the impact to a degree. This is often associated with screening or camouflage treatment to avoid or limit intrusive views. • Compensation: Where a negative impact cannot be mitigated adequately, other compensatory measures may offset the residual effects. This requires a thorough understanding and 		

assessment of the environment in order to provide equivalent compensation. This may require extensive public consultation, especially if the impacts lean towards sentimental issues or personal values and perceptions.

- Enhancement: Enhancement aims to manage certain changes and impacts by enhancing the quality of the environment for local people. This requires the exploring of opportunities in the proposed project to contribute positively to the landscape and its experience. Enhancement may take many forms but could include preservation of ecosystems, proper land management, and restoration of habitats or historic landscapes.
- Keep dust levels down by regularly wetting dirt roads and exposed soil areas
- Remove rubble and other waste that is generated by the construction process as soon as possible and dispose at an appropriate dump site.
- Implement rehabilitation of disturbed areas as soon as possible to limit the duration of exposed soil surfaces. Monitor the rehabilitated areas for at least 6 months to ensure a sufficient vegetation cover is established that will prevent erosion from occurring.
- Keep the construction camp neat and tidy at all times. Remove any waste from the site or contain it in an enclosed area out of sight from sensitive viewpoints.
- Enhance screening of the construction camps by erecting a temporary fence with a 3m high shade cloth to limit the intrusive nature of such a site.

Cumulative impacts: A medium risk of cumulative impacts can be expected due to the presence of the existing power line, railway line and power station in the study area. The proposed route is considered a noticeable addition to the baseline environment and will increase the visual dominance of electrical infrastructure in the study area.

Residual Risks: Residual risks will occur as the visibility of the power line cannot be effectively reduced and therefore visual intrusion will remain an impact for the lifetime of the project, unless underground cabling is considered.

Social Impacts

The development areas of the two alternative powerline do not differ in any significant way as far as the social impacts are concerned. Therefore, there is no significant difference in the potential impacts associated with the alternatives, and the impacts for the two alternatives are not comparatively assessed in the assessment tables below.

Improved quality of life, through creation of jobs

Nature:

It is expected that contractors will bring their own workers and will be required by Eskom to employ local people. Jobs therefore will be created for locals and at a national level. Jobs are a source of livelihoods and can therefore improve the quality of life for those who work. Increased procurement during construction will largely sustain jobs. There may also be some jobs created during this time if the

levels of procurement justify them. Procurement is expected to benefit companies on a national scale, and to a lesser extent, companies locally.

Rating of Impacts	Without mitigation	With mitigation
CONSTRUCTION PHASE		
Rating of Impacts	Without mitigation	With mitigation
Probability	Probable (3)	Definite (5)
Duration	Short-term (2)	Short-term (2)
Extent	Local (2)	Regional (3)
Magnitude	Low (4)	High (8)
Significance	24 (low)	65 (High)
Status (positive or negative)	Positive	Positive
OPERATIONAL PHASE		
It is expected that there will be limited opportunities for job creation during the operations phase, including for maintenance activities, at local and national/regional scales. This impact is therefore not assessed for the operations phase.		
Reversibility	Not applicable for this impact	Not applicable for this impact
Irreplaceable loss of resources?	Not applicable for this impact	Not applicable for this impact
Can impacts be mitigated?	This is a positive impact and should be promoted. From a developmental point of view, as far as possible local communities should benefit from the impact. Management measures are directed at increasing the likelihood that more eligible locals are employed.	
Mitigation/Enhancements:		
<ul style="list-style-type: none"> Eskom contract conditions should provide for at least unskilled labour to be sourced from the local municipal area affected. Contractors can be required to assess local applicants to identify those with potential to join the skilled and semi-skilled workforce. These workers can be put onto a regional database for contractors to draw their semi-skilled and skilled labour from, in the future. Where Eskom training schemes make provisions, locals with potential can be offered training opportunities. Eskom can identify as much procurement opportunity as possible at the local level to support 		

businesses and job creation locally.

Cumulative impacts: there is a possibility that cumulative impact will be achieved at regional/national scale without management measures.

Residual Risks: None, as project work will be on a contract basis.

Improved quality of life from increased reliability of energy services (during operations)

Nature: Currently, South Africa is not meeting its electricity demand to support economic growth rates it would like to see. Security of energy supply will therefore positively contribute towards stabilizing and perhaps also stimulating economic activities in the region. This can improve livelihoods through sustaining and possibly increasing the number of jobs available.

CONSTRUCTION PHASE

Rating of Impacts	Without mitigation	With mitigation
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This impact is expected to be delivered after the construction phase.

OPERATIONAL PHASE

Probability	Probable (3)	Highly Probable (4)
Duration	Long-term (4)	Very Long-term (5)
Extent	Regional (3)	Regional (3)
Magnitude	High (8)	High (8)
Significance	45 (Medium)	72 (High)
Status (positive or negative)	Positive	Positive
Reversibility	Not applicable for this impact	Not applicable for this impact
Irreplaceable loss of resources?	Not applicable for this impact	Not applicable for this impact
Can impacts be mitigated?	This is a positive impact and should be promoted. If the development	

benefits many households, businesses and other development units within the municipal areas the infrastructure passes through, this may ease the negative impacts experienced. Management measures are therefore directed at increasing the likelihood that more people benefit from energy provision in these municipalities.

Mitigation:

- Infrastructure will have to be maintained on an ongoing basis, to provide a permanent benefit for development. Where infrastructure has to be changed in the long term, for example, if there is a switch to environmentally-friendly energy technology, this should be effected with little disruption.
- A large proportion of households in the area are unable to pay for services. For example, 12% of households in George do not have any income. While it is favourable that households move towards improving their income status so that they are able to pay for services in the long term, this outcome is very much out of the influence of Eskom. It is therefore recommended that Eskom also consider renewable energy sources especially for no and low income households. This can allow energy access at no cost for poor households and support their social and economic development activities. It can also reduce the burden on Eskom and government in the long term to maintain conventional infrastructure and provide free electricity for households unable to pay for services.

Cumulative impacts: improving security of supply will be cumulative to having access to electricity. For those who are receiving electricity for the first time and have been beneficiaries of other development measures such as the provision of water, the provision of secure electricity will be cumulative by improving their quality of life further.

Residual Risks: access to secure sources of electricity can lead to many “downstream” development benefits.