

SOCIO-ECONOMIC IMPACT ASSESSMENT
As part of the
ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
For the
PROPOSED THYSPUNT LINES INTEGRATION PROJECT

DWEA Ref. No. 12/12/20/1212: NORTHERN CORRIDOR
The construction and operation of 3x 400kV transmission power lines:
1x Thyspunt – Grassridge and 2x Thyspunt - Dedisa

DRAFT REPORT



DECEMBER 2010

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EXPERIENCE RECORD

Ms Nonka Byker compiled the social sections of this report, whereas **Mr Raoul de Villiers** compiled the economic sections. Both these consultants are from **MasterQ Research**.

Nonka holds a degree in Psychology, specialising in Adult Mental Health. She has 3 years' worth of experience as a social specialist in the undertaking of SIA studies. This includes the assessment of potential social impacts, derived from the collection and analysis of data and superimposing a proposed project on such a baseline profile to determine the potential social impacts. In total, she has spent approximately 10 years in the social development field, of which 7 years as a public participation consultant. Her membership with professional bodies includes the Health Professions Council of South Africa (HPCSA) and the International Association of Impact Assessors (IAIA) South African branch.

Raoul holds a Masters Degrees in Economics and Management and is a specialist in the manner in which large project based work is planned, with a special focus on determining the business and economic viability of projects. He is also an experienced Project Manager and has assisted large corporations and government departments with the execution of capacity building, restructuring and systems development projects. He has had a strong strategic focus, being involved in projects that have an organisation wide, or industry wide impact.

The MasterQ Research team members have been involved as social and economic specialists on several environmental teams across a variety of developments. Selected relevant project experience includes the following:

Date	Project	EAP
<i>July 2009 - ongoing</i>	Social Impact Assessment for the proposed Trekkopje Mine access road in the Arandis area, Erongo Region, Namibia	Turgis Consulting for AREVA Resources
<i>July 2009 – ongoing</i>	Social Impact Assessment and Micro Economic Impact Assessment for the proposed 140MW Open Cycle Gas Turbine (OCGT) demonstration plant and associated Underground Coal Gasification (UCG) plant in the Amersfoort area, Mpumalanga Province	Bohlweki-SSI Environmental for Eskom Generation & Transmission
<i>March 2009 – ongoing</i>	Socio-Economic Impact Assessment on the Bus Rapid Transport (BRT) system, section 6 along Oxford Road in the City of Johannesburg, Gauteng Province	Bohlweki-SSI Environmental for Eskom Generation & Transmission
<i>February 2009</i>	Socio-Economic Impact Assessment for the proposed town development with associated infrastructure and services in Steenbokpan, Limpopo Province	Enviro-Solution for the Steenbokpan Development Consortium
<i>January 2009 - ongoing</i>	Social Impact Assessment for the establishment of a Coal Fired Power Station, and its associated infrastructure (a substation and transmission power lines) in the Musina area, Limpopo Province	Arcus Gibb for Mulilo Power

Date	Project	EAP
<i>January 2009 – ongoing</i>	Social Impact Assessment for the proposed upgrading of the existing Welgedacht Water Care Works to facilitate a capacity extension of up to 100ml/d, in the Ekurhuleni Metropolitan Municipality area, Gauteng Province	Savannah Environmental for ERWAT
<i>January 2009 – ongoing</i>	Social Impact Assessment for the proposed provision of wastewater infrastructure to improve quality of effluent discharge from the Hartebeesfontein Water Care Works, in the Ekurhuleni Metropolitan Municipal area, Gauteng Province	Savannah Environmental for ERWAT
<i>November 2008 – January 2009</i>	Economic Impact Assessment for the proposed Kyalami Transmission Project	Savannah Environmental for Eskom Generation & Transmission
<i>August 2008 – ongoing</i>	Social & Economic Impact Assessment for the proposed Mokopane Integration Project.	Savannah Environmental for Eskom Transmission
<i>April 2008 – April 2009</i>	Social Impact Assessment for the proposed liquid fuels transportation infrastructure from the Milnerton refinery area to the Ankerlig power station in the Atlantis Industrial area, City of Cape Town, Western Cape	Bohlweki-SSI Environmental for Eskom Generation & Transmission
<i>October 2007 – November 2007</i>	Social Impact Assessment for the proposed Bravo Integration Project, Govan Mbeki Local and Delmas Local Municipalities, Mpumalanga Province; Kungwini Local Municipality, City of Tshwane, Ekurhuleni Metro and City of Johannesburg, Gauteng Province	Cymbian Socio-Environmental Consultants for Eskom Generation & Transmission
<i>July 2007 – July 2008</i>	Social Impact Assessment for the proposed Steelpoort Integration project	Savannah Environmental for Eskom Transmission

DETAILS OF SPECIALISTS AND DECLARATIONS OF INTEREST



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

	(For official use only)
File Reference Number:	12/12/20/1212
NEAS Reference Number:	DEAT/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

The construction and operation of 3x 400kV transmission power lines: 1x Thyspunt – Grassridge and 2x Thyspunt - Dedisa

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The **Independent Social Specialist** appointed in terms of the Regulations

I, **J.W. Nonka Byker**, declare that --

General declaration:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.



Signature of the Specialist

MasterQ Research (Pty) Ltd.

Name of company

2010-12-20

Date

The **Independent Economic Specialist** appointed in terms of the Regulations

I, **R. DE VILLIERS**, declare that –

General declaration:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.



Signature of the Specialist

MasterQ Research (Pty) Ltd.

Name of company

2010-12-20

Date

EXECUTIVE SUMMARY

Eskom Holdings Ltd is responsible for the provision of reliable and affordable power to its consumers in South Africa. They are responsible for the vertically integrated utility that generates, transports and distributes electricity. Electricity cannot be stored and therefore must be used as it is generated. It is, therefore, required that electricity be efficiently transmitted from the point of generation to the end user. It is vital that transmission capacity keeps up with both electricity generation capacity and electricity demand.

To integrate the electricity that will be generated by the proposed Thyspunt Nuclear Power Station (should an Environmental Authorisation be granted by the National Department of Environmental Affairs and Tourism (DEAT)), Eskom Transmission has appointed SiVEST to undertake the EIA for the proposed new 400kV Transmission power lines.

In accordance with the National Environmental Management Act (Act No. 107 of 1998, generally referred to as NEMA), all of the components that fall under the proposed Thyspunt Lines Integration Project (see below) are listed activities and therefore subject to an Environmental Impact Assessment (EIA) process and environmental authorisation before construction can commence. As part of the EIA process, the Environmental Assessment Practitioner (EAP), SiVEST, lodged three separate applications with the Department of Environmental Affairs (DEA). Each of the applications refers to a different set of infrastructural developments, which together form the Thyspunt Lines Integration Project. Every application requires its own set of EIA reports and as such, every one of the applications has to undergo its own EIA process. The three applications that make up the Thyspunt Lines Integration Project are as follows:

- **Thyspunt Integration Southern Corridor (DEA Ref. No. 12/12/20/1211):** The construction and operation of four (4) 400kV transmission power lines, of which:
 - 2x 400kV transmission power lines between the proposed Thyspunt nuclear power station and the proposed new Port Elizabeth substation; and
 - 2x 400kV transmission power lines between the new Port Elizabeth substation and the existing Grassridge and Dedisa substations.
- **Thyspunt Integration Northern Corridor (DEA Ref. No. 12/12/20/1212):** The construction and operation of three (3) 400kV transmission power lines, of which:
 - 1x 400kV transmission power line between the proposed Thyspunt nuclear power station and the existing Grassridge substation; and
 - 2x 400kV transmission power lines between the proposed Thyspunt nuclear power station and the existing Dedisa substation.
- **Thyspunt Integration Substations (DWEA Ref. No. 12/12/20/1213):** The construction and operation of the new Port Elizabeth substation and the upgrade of the existing Grassridge and Dedisa substations.

This particular report focuses on **Thyspunt Integration Northern Corridor (DEA Ref. No. 12/12/20/1212)** and details the results of the Social Impact Assessment (SIA) specialist study undertaken by MasterQ Research as part of the overall EIA process managed by SiVEST. Separate

SIA Reports were compiled for the Thyspunt Integration Southern Corridor and Substations applications.

The definition of a SIA as defined by Vanclay (2002) gives an understanding of the backdrop against which this SIA was conducted. According to this definition, a **social impact assessment** is *“the process of analyzing (predicting, evaluating and reflecting) and managing the intended and unintended consequences on the human environment of planned interventions (policies, programmes, plans and projects) and any social change processes invoked by those interventions so as to bring about a more sustainable and equitable biophysical and human environment.”*

The economic assessment (EA), that forms part of the SIA, in turn aims to examine all aspects that might contribute to the creation (gain) and destruction (loss) of individual, community, regional or national resources. This gain or loss in resources is most easily understood when it is quantified and expressed in monetary value and therefore the EA relied mostly on quantitative data. However, many of the underlying causes of economic effects like perception, opinion, and sentiment cannot be quantified and therefore qualitative data was used to support conclusions in the EA.

The proposed transmission power line corridor traverses the Kouga Local Municipality (EC108), which in turn forms part of the Cacadu District Municipality (DC10). It also crosses a District Management Area (DMA) known as ECDMA10 or also referred to as Aberdeen Plain, which is the area between the Kouga Local Municipality and the Nelson Mandela Bay Municipality. A DMA is defined by the Municipal Demarcation Board as a portion of a district municipality, which is not part of any local municipality and as such is governed exclusively by the district municipality, in this case the Cacadu District Municipality (CDM). The corridor further traverses the Nelson Mandela Bay Municipality (NMA), which is a metropolitan municipal area and therefore does not form part of a District Council. All of these municipal areas are located within the Eastern Cape Province (ECP).

The following section proceeds to discuss the various change processes and related impacts that could be expected because of the project. A change process is defined as a change that takes place within the receiving environment because of a direct or indirect intervention. The expected impact follows because of the change processes taking place. However, a change process can only result in an impact once it is experienced as such by an individual/community on a physical and/or cognitive level. The change processes that were assessed in this SIA included the following:

- **Geographical processes** refer to the processes that affect the land uses of the local area.
- **Demographical processes** refer to the movement and structure of the local community.
- **Economical processes** refer to the economic activities in the local society, including the peoples' way of sustaining their livelihoods, and to a lesser extent, the macro-economic factors that affected the local community as a whole.
- **Institution and Legal processes** refer to the processes that affect service delivery to the local area.
- **Socio-cultural processes** refer to the processes that affect the local culture of an affected area, i.e. the way in which the local community live (however, sometimes different cultural groups occupy the same geographical area and these groups are seldom homogenous).
- **Biophysical processes** refer to the biophysical environment that can lead to indirect social impacts.

Geographical Processes

Geographical processes relate to the land use patterns and established and planned infrastructural developments in an area, where land use is defined as "... the human modification of the natural environment or wilderness into a built environment such as fields, pastures, and settlements."¹ This section therefore focuses on current and future land use in the project area itself, as well as in the neighbouring areas, and then proceeds to assess how a change in land use might affect the social environment.

The identification and assessment of social impacts arising from geographical change processes within a social context, focuses on how the proposed development might impinge on the behaviour and/or lives of landowners and/or land users in the affected area.

Change Processes	Expected Impacts	Project Phase(s)
Geographical	A number of structures, including scattered households, towns, and centre pivots are located within the corridor. Structures should be avoided as far as possible with the alignment of the transmission power lines to prevent further impacts on the affected individuals.	Pre-Construction
	It is not likely that the physical division caused by the servitude will significantly change movement patterns.	Operation
	It is expected that construction will take place in close proximity to people movement, which can be regarded as sensitive receptors.	Construction

Demographical Processes

Demographic processes relate to the number of people and composition of a community and include an overview of the population size and the educational profile of the affected communities.

It is expected that the construction and operation of the three proposed 400kV transmission power lines will lead to a temporary change in the number and composition of the population within the affected local area during the construction period, which in turn could lead to economic, land use, and socio-cultural change processes.

Change Processes	Expected Impacts	Project Phase(s)
Demographical	The displacement and relocation of households causes social and psychological disruption to those involved	Construction, extending into operation

¹ www.wikipedia.org.za/wiki/Land_use.html

Change Processes	Expected Impacts	Project Phase(s)
	It is not expected that displacement and relocation of people will significantly change the demographic profile of the area, as displaced people will most likely be moved to a different location within the project area.	Construction, extending into operation
	Because the construction workers will most probably commute to site, it is expected that the influx of construction workers will have a negligible effect in the highly urbanised communities.	Construction
	Job seekers can become a burden to the host community, as they do not have the means to sustain themselves, thereby becoming dependent on others (usually people who themselves only have limited resources). The presence of job seekers can also lead to the creation and/or expansion of informal settlements.	Construction, extending into operation

Economical Processes

Economic processes relate to the way in which resources are created, distributed and used in the economy and how people benefit from these processes. In order to understand the full economic picture it is necessary to consider current conditions that prevail in the region and pressures that are the current agents for economic change.

Change Processes	Expected Impacts	Project Phase(s)
Economical	An impact on property values would apply to both corridors where the lines are located close (within approximately 75m to 200m depending on visual aspects such as topography) to residential settlements or lifestyle estates, or where lines cross smallholdings/agricultural properties where value is derived from a natural setting.	Operation
	There are also strong indications from previous research conducted by MasterQ Research that any property value impacts are cumulative for the construction of multiple lines in servitude, especially where smaller agricultural, smallholdings and residential properties are concerned.	Operation
	Although there is no historic evidence that transmission power lines are a residential development inhibitor it is possible that the type of developments may change as a result of the location of the power line, and any residential developments that will derive their value from a rural character, farming environment or natural	Operation

Change Processes	Expected Impacts	Project Phase(s)
	beauty may be affected.	
	Previous studies by MasterQ Research (2009b) have shown that the placing of power transmission lines on agricultural land does not usually impact farming activities. This is as both dry land agriculture and certain types of irrigated agriculture (crop cultivation and grazing) can continue underneath power lines.	Operation
	Any power line corridor that crosses both existing pivot areas as well as area with strong future potential will cause the loss thereof for central pivot irrigation purposes.	Operation
	If the corridor crosses any areas where improvements in fixed capital goods or improvements such as land rezoning, land subdivision, infrastructure, installations or buildings are found these may have to be removed or relocated. This requirement may in turn neutralise other fixed capital improvements (rezoned land, subdivided land and infrastructure).	Construction, extending into operation
	As the transmission power lines may impact on the agricultural productivity of land along the various corridor routes it may therefore also affect output of the agricultural and forestry industries and the viability of specific operations along the route, which in turn will impact on employment.	Operation
	Construction of a power transmission line is a large capital investment and suppliers of Eskom (as businesses operating in South Africa) stand to benefit from increased business opportunities as a result.	Operation
	Construction detail sheets obtained regarding the construction of power transmission lines indicate that is a moderate creator of employment, with approximately 30 to 80 unskilled workers and 5 to 10 semiskilled workers that can be sourced other than skilled teams utilised by the contractor.	Construction
	One of the most economic implications of the project and the larger distribution network is to ensure electricity security for the country as a whole. This impact is difficult to rate using the standardised rating scale due to its nationwide implications and the fact that it does not represent a manageable or impact or one that can be enhanced.	Operation

Institutional and Legal Processes

Institutional and legal processes relate to the role, efficiency and operation of government sectors and other organisations within the area in terms of service delivery. It also investigates the ability of people to engage in decision-making processes to such an extent that they have an impact on the way in which decisions are made that would concern them.

Institutional and Legal Change Processes assesses the way in which a development of this nature could change the face of service delivery in the affected area and how this change in turn could affect the quality of life of local residents.

Change Processes	Expected Impacts	Project Phase(s)
Institutional and Legal	If negotiations are not handled with the necessary sensitivity the impact of this process can be severely negative, i.e. a deadlock in negotiations resulting in an indefinite delay of the project, and/or the commencement of an expropriation process.	Pre-Construction
	Based on the information received from the project proponent (Eskom) on the number of people involved with a project of this nature across the project's lifespan, coupled with the time they spend in the area, it is unlikely that the project will cause a significant increase in demand for services.	Construction
	Physical and mental health in the context of a power line is related to Electro Magnetic Fields (EMFs), electrocution, fire and collapse.	Operation

Socio-Cultural Processes

Socio-cultural processes relate to the way in which humans behave, interact, and relate to each other and their environment, as well as the belief and value systems, which guide these interactions.

As socio-cultural processes recount the way in which humans behave, interact, and relate to each other and their environment, socio-cultural change processes in turn looks at the way in which the proposed developments can alter the interactions and relationships within the local community.

Change Processes	Expected Impacts	Project Phase(s)
Socio-Cultural	Dissimilarity in social practices is more likely to come to the fore if construction workers are housed in a construction camp and if such a camp is located close to existing formal and informal settlements.	Construction
	The introduction of a new project to the area can be viewed as a positive impact if people perceive	Construction, extending

Change Processes	Expected Impacts	Project Phase(s)
	the project as infrastructural and/or economic development that is not intrusive on their lives and do not cause them immediate danger.	into operation
	Potential negative impacts include the visual impact and the resultant intrusion on sense of place.	Construction, extending into operation

Biophysical Processes

The biophysical environment can lead to indirect social impacts, as illustrated in Figure 3.9. For example, relocation of people can have an impact on income levels, which can lead to processes of rural to urban migration, which can result in further impacts on income levels and changes in food production.

Change Processes	Expected Impacts	Project Phase(s)
Biophysical	Poor water and sanitation conditions can affect groundwater, which can lead to health impacts.	Construction, extending into operation
	Littering could also have further impacts on health and safety.	Construction
	A lack of effective sanitation services impacts on the environment, which could affect health of people.	Construction
	Physical and mental health in the context of a power line is related to Electro Magnetic Fields (EMFs), electrocution, fire and collapse.	Operation

Conclusions & Recommendations

The significance of impacts associated with the above-mentioned expected impacts can be summarised as follows:

Positive Impacts

Change Processes	Issues	Rating prior to mitigation	Average	Rating mitigation post	Average
Geographical	Change in movement patterns	n/a		n/a	
	Sterilisation of irrigated agricultural land	n/a		n/a	
	Loss of or removal of capital goods	n/a		n/a	

Change Processes	Issues	Rating prior to mitigation	Average	Rating mitigation post	Average
	and improvements				
	Forfeit of development opportunities	n/a		n/a	
	Average	n/a		n/a	
Demographical	Displacement and relocation of households	n/a		n/a	
	Influx of construction and maintenance workers	n/a		n/a	
	Increase in in-migration of job seekers	n/a		n/a	
	Average	n/a		n/a	
Economical	Impact on rural/agricultural and residential property values	n/a		n/a	
	Forfeit of development opportunities due to project activities	n/a		n/a	
	Sterilisation of irrigated agricultural land	n/a		n/a	
	Loss or removal of capital goods and improvements	n/a		n/a	
	Impact on output and employment in agriculture and forestry	n/a		n/a	
	Economic injections as a result of project activities	+48		+48	
	Employment as a result of project activities	+22		+22	
	Average	+35		+35	
Institutional and Legal	Power relationships	n/a		n/a	
	Increase in demand for services	n/a		n/a	

Change Processes	Issues	Rating prior to mitigation	Average	Rating mitigation post	Average
	Average	n/a		n/a	
Socio-Cultural	Change in socio-cultural level	n/a		n/a	
	Change in sense of place as a result of intrusion impacts	n/a		n/a	
	Average	n/a		n/a	
Biophysical	Pollution	n/a		n/a	
	Health impacts	n/a		n/a	
	Average	n/a		n/a	

Negative Impacts

Change Processes	Issues	Rating prior to mitigation	Average	Rating mitigation post	Average
Geographical	Change in movement patterns	-18		-14	
	Sterilisation of irrigated agricultural land	-28		-10	
	Loss of or removal of capital goods and improvements	-20		-18	
	Forfeit of development opportunities	-24		-22	
	Average	-22.5		-16.0	
Demographical	Displacement and relocation of households	-39		-20	
	Influx of construction and maintenance workers	-18		-6	
	Increase in in-migration of job seekers	-28		-11	
	Average	-28.33		-12.22	
Economic	Impact on rural/agricultural and residential property values	-33		-10	

Change Processes	Issues	Rating prior to mitigation	Average	Rating mitigation post	Average
	Forfeit of development opportunities due to project activities	-36		-22	
	Sterilisation of irrigated agricultural land	-28		-10	
	Loss or removal of capital goods and improvements	-30		-18	
	Impact on output and employment in agriculture and forestry	-28		-20	
	Economic injections as a result of project activities	n/a		n/a	
	Employment as a result of project activities	n/a		n/a	
	Average	-31		-16	
Institutional and Legal	Power relationships	-20		-7	
	Increase in demand for services	-20		-6	
	Average	-20.0		-6.5	
Socio-Cultural	Change in socio-cultural level	-22		-9	
	Change in sense of place as a result of intrusion impacts	-54		-30	
	Average	-38.0		-19.5	
Biophysical	Pollution	-22		-7	
	Health impacts	-30		-9	
	Average	-26.0		-8.0	

There are a number of energy related projects being investigated in the area, namely the Thyspunt power station proposed for the area with a huge raft of potential socio-economic impacts, as well as a number of wind farm developments in the area that, if approved, would significantly alter the landscape of certain parts of the study area.

From a social perspective, some of the most significant cumulative impacts relate to:

- **Change in access to resources that sustain livelihoods:** Apart from the fact that installations such as wind farms can alter the physical landscape, such installations would also require transmission power lines to export generated power to the electricity network. It is possible (although not definite) that such lines would be placed parallel to existing lines in an attempt to minimise further impacts on the area, and therefore it is possible that the presence of infrastructure such as transmission power lines can set a precedent for land use change, which could further impact on resources that sustain livelihoods.
- **Change in irrigation activities:** The same sort of cumulative impacts can be expected on irrigation activities such as those outlined by the cumulative impacts on resources that sustain livelihoods.
- **Displacement and relocation of households:** The possibility for the displacement and relocation of households increases in proportion to the number of development activities that take place in the same area. Although the current project can aim to prevent the displacement and relocation of households as far as possible, the presence of its lines might instigate relocation on other projects.
- **Influx of construction and maintenance workers:** The influx of construction and maintenance workers on other projects in the area can accelerate the presence of the expected impacts on the current project and increase the intensity of the impact across a wider spectrum.
- **Increase in in-migration of job seekers:** The presence of a number of development projects in the area can make the area seem like an optimal area of possible employment, which can greatly increase the probability of an increase in in-migration of job seekers. As with the influx of construction and maintenance workers, the presence of a greater number of job seekers can accelerate the presence of the expected impacts and increase the intensity of the impacts across a wider spectrum.
- **Increase in demand for services:** The more people there are in the area, the higher the demand for services.
- **Change in sense of place as a result of intrusion impacts:** The presence of certain installations renders an area 'spoilt' and therefore it is likely that the presence of such installations could set a precedent for further land use change, which could intensify the impact on sense of place.

The most important cumulative impacts from an economic perspective relate to ongoing development of the Cape St. Francis – Humansdorp – Port Elizabeth area and the crucial need for the development of transport corridors between development nodes and the economic hub of the Nelson Mandela bay area. This would involve the reservation of land for this purpose in the long term. It is crucial that major economic participants in the region and the South African government create long-term strategic plans for the region that will accommodate and enhance a wide range of economic activities including agriculture and tourism.

As could be expected, the construction phase is characterised by a number of negative social impacts, which is mainly due to the nature of the activities that take place during this phase. Although the expected social impacts associated with the construction phase are mostly negative across all the change processes, these impacts are for the most part only temporary in nature and as such and expected to only last over the construction period.

Even though all of the identified social impacts can be mitigated or enhanced successfully, it can only be done if Eskom, or its appointed contractor(s), commit to the responsibility of ensuring that the level of disturbance brought about to the social environment by the more negative aspects of the project, is minimised as far as possible.

The economic main features along the proposed Northern Corridor routes include some irrigated dairy farming and orchards, land subdivision for development purposes and plantations used for forestry. Due to a lower intensity of development along all routes property value and capital goods impacts, loss of agricultural and forestry land, and production and forfeit of development opportunities is expected to be moderate. All corridor routes are similar in this respect. However, several course deviations have been recommended to avoid areas of high economic importance.

It is highly recommended that Eskom investigate the general use of wide service corridors between all major power generation areas and power customers that can accommodate further development in the future in order to avoid the “spider web” effect often associated with short term focused planning of economic development. This study therefore places a strong emphasis on long-range economic planning.

In addition, the following is recommended:

- Ensure that social issues identified during the EIA phase are addressed during construction. This could be done by engaging social specialists where necessary or by ensuring that ECOs used during construction have the necessary knowledge and skills to identify social problems and address these when necessary. Guidelines on managing possible social changes and impacts could be developed for this purpose.
- Always inform neighbouring landowners beforehand of any construction activity that is going to take place in close proximity to their property. Prepare them on the number of people that will be on site and on the activities they will engage in.
- Ensure that Eskom employees are aware of their responsibility in terms of Eskom’s relationship with landowners and communities surrounding power lines. Implement an awareness drive to relevant sections to focus on respect, adequate communication and the ‘good neighbour principle.’
- Incorporate all mitigation measures in the SIA that are relevant to the construction phase in the EMP to ensure that Eskom and the contractor adhered to these.

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1. INTRODUCTION

Eskom Holdings Limited (Eskom) has commissioned various Environmental Impact Assessment (EIA) studies for their new conventional nuclear generation programme in the Greater Cape region. For safety reasons, nuclear power station installations should be located on sites with very specific geological conditions. In addition, to ensure effective emergency planning, population and infrastructure management measures should be in place at nuclear power station installations. For these reasons, Eskom procured a number of sites in the 1980s, all of which are now subject to EIA investigations:

- Thyspunt in the Eastern Cape, located west of Port Elizabeth near the town of Oyster Bay;
- Bantamsklip in the Western Cape, located south-east of Pearly Beach near the town of Gansbaai;
- Duynefontein in the Western Cape, located adjacent to the existing Koeberg Nuclear Power station;
- Brazil in the Northern Cape, located in the Kleinsee/Port Nolloth area; and
- Schulpfontein in the Northern Cape, located in the Hondeklipbaai/Kleinsee area.

The above-mentioned EIAs are managed by Arcus Gibb and focus solely on the proposed nuclear power plants. This report forms part of the EIA for the Thyspunt Lines Integration project that is managed by Sivist and which assesses the construction and operation of the required transmission power lines to integrate the Thyspunt site into Eskom's national electricity grid. Separate EIA studies are being undertaken for the Duynefontein (Koeberg) Integration project (Savannah Environmental) and for the Bantamsklip Integration project (Arcus Gibb).

In accordance with the National Environmental Management Act (Act No. 107 of 1998, generally referred to as NEMA), all of the components that fall under the proposed Thyspunt Lines Integration Project (see below) are listed activities and therefore subject to an Environmental Impact Assessment (EIA) process and environmental authorisation before construction can commence. As part of the EIA process, the Environmental Assessment Practitioner (EAP), Sivist, lodged three separate applications with the Department of Environmental Affairs (DEA). Each of the applications refers to a different set of infrastructural developments, which together form the Thyspunt Integration Project. Every application requires its own set of EIA reports and as such, every one of the applications has to undergo its own EIA process. The three applications that make up the Thyspunt Integration Project are as follows:

- **Thyspunt Integration Southern Corridor (DEA Ref. No. 12/12/20/1211):** The construction and operation of four (4) 400kV transmission power lines, of which:
 - 2x 400kV transmission power lines between the proposed Thyspunt nuclear power station and the proposed new Port Elizabeth substation; and
 - 2x 400kV transmission power lines between the new Port Elizabeth substation and the existing Grassridge and Dedisa substations.
- **Thyspunt Integration Northern Corridor (DEA Ref. No. 12/12/20/1212):** The construction and operation of three (3) 400kV transmission power lines, of which:
 - 1x 400kV transmission power line between the proposed Thyspunt nuclear power station and the existing Grassridge substation; and

- 2x 400kV transmission power lines between the proposed Thyspunt nuclear power station and the existing Dedisa substation.
- **Thyspunt Integration Substations (DWEA Ref. No. 12/12/20/1213):** The construction and operation of the new Port Elizabeth substation and the upgrade of the existing Grassridge and Dedisa substations.

This particular report focuses on **Thyspunt Integration Northern Corridor (DEA Ref. No. 12/12/20/1212)** and details the results of the Social Impact Assessment (SIA) specialist study undertaken by MasterQ Research as part of the overall EIA process managed by Sivist. Separate SIA Reports were compiled for the Thyspunt Integration Southern Corridor and Substations applications. An EIA process normally consists of the following components:

- Scoping study and Scoping report (completed in February 2009);
- Impact Assessment and Draft EIA report (current phase);
- Final EIA report and Draft Environmental Management Plan (EMP); and
- Environmental authorisation process.

The SIA documented in this report builds on the SIA Scoping Report (SIASR) that was compiled as part of the Scoping Phase of the EIA process, namely SIASR *Northern Corridor*.

This report is structured as follows:

- **Section 1 (this section): Introduction**, consisting of the following subsections:
 - 1.1 Definition of a Social Impact Assessment;
 - 1.2 Objectives of the study;
 - 1.3 Approach and Methodology;
 - 1.4 Preliminary findings of the SIA Scoping report;
 - 1.5 Summary of Issues and Concerns; and
 - 1.6 Limitations and assumptions of the study.
- **Section 2: Project Background**, consisting of the following subsections:
 - 2.1 Project overview;
 - 2.2 General overview of the study area;
 - 2.3 Negotiation process; and
 - 2.4 Construction processes.
- **Section 3: Social Change Processes and Impact Assessment**, consisting of the following subsections:
 - 3.1 Geographic Processes;
 - 3.2 Demographic Processes;
 - 3.3 Economic Processes;
 - 3.4 Institutional and Empowerment Processes;
 - 3.5 Socio-Cultural Processes; and
 - 3.6 Biophysical Processes.

- **Section 4: Mitigation Measures, and**
- **Section 5: Conclusions and Recommendations.**

1.1. Key Definitions

The definition of a SIA as defined by Vanclay (2002) gives an understanding of the backdrop against which this SIA was conducted. According to this definition, a **social impact assessment** is *“the process of analyzing (predicting, evaluating and reflecting) and managing the intended and unintended consequences on the human environment of planned interventions (policies, programmes, plans and projects) and any social change processes invoked by those interventions so as to bring about a more sustainable and equitable biophysical and human environment.”*

According to Van Schooten, Vanclay and Slootweg (2003:78-79), **“Social change processes** are set in motion by project activities or policies. They take place independently of the social context. Resettlement, for example, is a **social change process**, set in motion by, inter alia, the activity of land clearing... **social change processes** can lead to several other processes. Depending on the characteristics of the local social setting and mitigation process that are put in place, **social change process** can lead to **social impacts**.” Furthermore, *“The way in which the **social change processes** are perceived, given meaning or value depend on the social context in which various societal groups act. Some sectors of society, or groups in society, are able to adapt quickly and exploit the opportunities of a new situation. Others (for example, various vulnerable groups) are less able to adapt and will bear most of the negative consequences of change. **Social impacts**, therefore, are implicitly context-dependent.”*

The economic assessment (EA), that forms part of the SIA, in turn aims to examine all aspects that might contribute to the creation (gain) and destruction (loss) of individual, community, regional or national resources. This gain or loss in resources is most easily understood when it is quantified and expressed in monetary value and therefore the EA relied mostly on quantitative data. However, many of the underlying causes of economic effects like perception, opinion, and sentiment cannot be quantified and therefore qualitative data was used to support conclusions in the EA.

1.2. Objectives of the Study

The overall business objective of the SIA is to identify and assess the social impacts that are likely to occur in the human environment due to the construction and operation of the 400kV transmission power lines between the Thyspunt nuclear power station HV Yard and the existing Grassridge and Dedisa substations, respectively. The SIA Report will inform the EIA Report that is, after public review, submitted to the competent authority (in this case, DEA) who in turn will scrutinize the documents to decide whether or not to grant environmental authorisation, and if so, subject to which conditions.

In support of the overall business objective, a number of secondary objectives were identified, namely:

- Undertake the detailed studies that were identified during the Scoping Phase, thereby refining the assessment of the probable impacts of the project on the social environment;

- Describe the expected social change processes (see section 3) and identify and describe the associated social impacts associated with the change process;
- Rate the identified impacts along the specific significance rating scales (see section 1.3.1) to obtain an indication of the magnitude of each of the identified impacts prior to the implementation of mitigation or augmentation measures;
- Based on the magnitude of the impact, identify mitigation measures that serve to either prevent or minimise the effect of negative impacts, and augmentation measures that serve to sanction or maximise positive impacts;
- Upon completion of the study, identify and describe any shortcomings (limitations) of the study, and list any assumptions that was made during the course of the study and the reason(s) why it was necessary to make such an assumption; and
- Form conclusions based on the result of the detailed assessments, and based on these; make specific recommendations on the way forward given the social impacts associated with the various phases of the project and the project itself.

1.3. Approach and Methodology

Primary and secondary data sources were utilised to inform the study in aid of the objectives of the study. Primary data sources included the following:

- A site visit by vehicle during the week of 23-27 November 2009 during which a number of directly affected landowners were visited and consulted;
- A site visit by vehicle during the week 11-15 October 2010;
- A focus group meeting with officials from the Cacadu District Municipality on 11 October 2010;
- A focus group meeting with representatives from the Oyster Bay, Cape St Francis, St Francis and Humansdorp Community Based Organisations on 11 October 2010;
- Five separate focus group meeting with possibly affected landowners from on 11, 12 and 14 October 2010;
- A focus group meeting with Moorland Seedlings on 12 October 2010;
- A focus group meeting with representatives from the Jeffrey's Bay, Pellsrus, Thornhill and Van Stadens Community Based Organisation on 13 October 2010; and
- A focus group meeting with representatives from the Nelson Mandela Bay Metropolitan Municipality on 14 October 2010.

Secondary data collection methods mostly centred on a desktop study, in which the following documents were scrutinised:

- Locality maps;
- A desktop aerial study of the affected area through the use of Google Earth (2007);
- The Thyspunt Integration Lines Project's Comments and Responses report (Scoping phase);
- The Integrated Development Plans (IDP) of the Nelson Mandela Bay Metropolitan Municipality and the Kouga Local Municipality;
- The Spatial Development Framework (SDF) of the affected municipalities;
- The Eastern Cape Province's Growth and Development Strategy (GPGDS).

Information that was relevant to the project was identified and assessed from these sources within the context of the pre-construction, construction, operational, and decommissioning phases of the proposed project, and in the instance of this report, with a particular focus on the proposed construction and operation of the following infrastructure:

- The construction and operation of three (3) 400kV transmission power lines, of which:
 - 1x 400kV transmission power line between the proposed Thyspunt nuclear power station and the existing Grassridge substation; and
 - 2x 400kV transmission power lines between the proposed Thyspunt nuclear power station and the existing Dedisa substation.

1.3.1. Significance Rating Scales

The EIA Methodology assists in evaluating the overall effect of a proposed activity on the environment. The determination of the effect of an environmental impact on an environmental parameter is determined through a systematic analysis of the various components of the impact. This is undertaken using information that is available to the environmental practitioner through the process of the environmental impact assessment. The impact evaluation of predicted impacts was undertaken through an assessment of the significance of the impacts.

Significance is determined through a synthesis of impact characteristics that include context and intensity of an impact. Context refers to the geographical scale i.e. site, local, national or global whereas Intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the size of the area affected, the duration of the impact and the overall probability of occurrence. Significance is calculated as shown in Table 1.1. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

Impact assessment must take account of the nature, scale and duration of effects on the environment whether such effects are positive (beneficial) or negative (detrimental). Each issue / impact is also assessed according to the project stages:

- planning
- construction
- operation
- decommissioning

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance has also been included.

The rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the mitigation of the impact. Impacts have been consolidated into one rating. In assessing the significance of each issue the following criteria (including an allocated point system) is used:

Figure 1.1: Rating System Used To Classify Impacts

NATURE		
A brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity.		
GEOGRAPHICAL EXTENT		
This is defined as the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined.		
1	Site	The impact will only affect the site
2	Local/district	Will affect the local area or district
3	Province/region	Will affect the entire province or region
4	International and National	Will affect the entire country
PROBABILITY		
This describes the chance of occurrence of an impact		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
REVERSIBILITY		
This describes the degree to which an impact on an environmental parameter can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and no mitigation measures exist.

IRREPLACEABLE LOSS OF RESOURCES		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource.	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.
DURATION		
This describes the duration of the impacts on the environmental parameter. Duration indicates the lifetime of the impact as a result of the proposed activity		
1	Short term	The impact and its effects will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase (0 – 1 years), or the impact and its effects will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact and its effects will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10 – 50 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient (Indefinite).
CUMULATIVE EFFECT		
This describes the cumulative effect of the impacts on the environmental parameter. A cumulative effect/impact is an effect which in itself may not be significant but may become significant if added to other existing or potential impacts emanating from other similar or diverse activities as a result of the project activity in question.		
1	Negligible Cumulative Impact	The impact would result in negligible to no cumulative effects
2	Low Cumulative Impact	The impact would result in insignificant cumulative effects
3	Medium Cumulative impact	The impact would result in minor cumulative effects
4	High Cumulative Impact	The impact would result in significant cumulative effects

INTENSITY / MAGNITUDE		
Describes the severity of an impact		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/ component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired (system collapse). Rehabilitation and remediation often impossible. If possible rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
SIGNIFICANCE		
<p>Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. This describes the significance of the impact on the environmental parameter. The calculation of the significance of an impact uses the following formula:</p> <p>(Extent + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity.</p> <p>The summation of the different criteria will produce a non weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.</p>		
Points	Impact Significance Rating	Description
6 to 28	Negative Low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
6 to 28	Positive Low impact	The anticipated impact will have minor positive effects.
29 to 50	Negative Medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
29 to 50	Positive Medium impact	The anticipated impact will have moderate positive effects.
51 to 73	Negative High impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an

		acceptable level of impact.
51 to 73	Positive High impact	The anticipated impact will have significant positive effects.
74 to 96	Negative Very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
74 to 96	Positive Very high impact	The anticipated impact will have highly significant positive effects.

The impacts will then be summarized and a comparison made between pre and post mitigation phases as shown in Table 1.2 below. The rating of environmental issues associated with different parameters prior to and post mitigation of a proposed activity will be averaged. A comparison will then be made to determine the effectiveness of the proposed mitigation measures. The comparison will identify critical issues related to the environmental parameters.

Table 1.2: Comparison of summarised impacts on environmental parameters (EXAMPLE)

Environment al parameter	Issues	Rating prior to mitigation	Average	Rating post mitigation	Average
Surface water	Erosion	43		16	
	Oil spills	22		22	
	Alteration of aquatic biota	16		3	
			- 27		-13.67
			Low Negative Impact		Low Negative Impact

1.4. Preliminary Findings of the SIA Scoping Report

The overall business objective of the Scoping Phase (completed in February 2009) was to identify issues and concerns in order to focus the detailed assessment to follow in the Impact Assessment Phase (current phase), and to provide a framework within which the assessment is to be undertaken.

The change processes that were identified during the Scoping Phase, and the expected social impacts as a result of these change processes taking place, are as per Table 1.3 below. Please note that this table is a only intended as a summary of the expected change processes and should ideally be read within the context of the SIA Draft Scoping Report (February 2009) to gain a better understanding of these change processes and expected impacts.

Table 1.3: Summary of the SIA Scoping Report Social Change Processes

Process	Issue	Predicted Impact(s)
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Process	Issue	Predicted Impact(s)
Demographical	Displacement and relocation of households	The impacts as a result of relocation might be numerous and vary between people. The impacts of relocation on a person depends on the level of attachment to a place, which in turn is informed by variables such as age and number of years spent in that particular area, and personality. Relocation of households might have a negative impact on mental and physical health, on community cohesion, and on livelihood.
	Influx of construction and maintenance workers Increase in in-migration of job seekers	The potential impacts as a result of the influx of more people might impact on health (negative), impact on the economy of the area (positive), impact on people's perception of safety (negative), and impact on community cohesion (negative) due to cultural differences and/or the perception that jobs, resources and services are taken from them.
Geographical	Change in movement patterns	Depending on the number of trucks and extent of activities during construction, impacts on mental and physical health, and safety might be experienced.
	Change in access to resources that sustain livelihoods	<p>Temporary loss of cultivated and grazing land due to construction activities, leads to a decreased area for cultivation and grazing, resulting in an economic impact. Land will be lost permanently to accommodate the pylon.</p> <p>Loss of forestry will result in an economic impact, also potentially impacting on jobs. Lack of servitude maintenance may cause fires. Fires can destroy forests.</p> <p>Fires can be managed in citrus orchards unless the ground is covered with dry weeds, or the orchard is not well pruned and there are considerable volumes of dry wood. Fully-grown citrus would recover after fire damage but would have to prune extensively and usually takes three years to recover to full production. Smaller citrus trees under four years may die as a result of fire. The citrus itself would not burn, but it is the weeds around and under the trees that will create the problem.</p>
	Change in irrigation activities	Although it might be possible to continue with overhead irrigation practices underneath a transmission power line, it is preferable that transmission power lines avoid irrigated areas because of the potential safety risks and economic impacts involved.
Economical	Increase in economic inequities	Although it will be unlikely that jobs will be lost, the loss of a job of one person might affect a number of dependants economically, impacting on their standard of living.

Process	Issue	Predicted Impact(s)
	Reduction in economic inequities	Increase in employment opportunities will have a positive economic impact, although employment opportunities during construction are short term. Increase in electricity supply will lead to an increase in development opportunities, which will lead to an increase in employment opportunities.
	Reduction in property prices	Economic loss as a result of decrease in property prices.
Institutional and Empowerment	Power relationships	The negotiation process might be challenging for those not used to this process. The impacts will depend on the situation and characteristics of the impacted people.
	Increase in demand for services	Health and safety impacts.
Socio-Cultural	Changes on socio-cultural level	Whether conflict will occur depends on whether community cares about cultural differences between themselves and the workers, and whether they perceive that workers took jobs from them. It is not foreseen that the impact on health and safety will be significant (HIV/Aids and Sexually Transmitted Diseases), as there are many other contributors at play.
	Change in sense of place as a result of intrusion impacts	Not enough information about the project and affected parties is available to determine whether the project will contribute significantly to a change in noise and dust levels, and therefore sense of place.
Biophysical	Impacts as a result of biophysical changes	Economic, increase in health and safety impacts.

Some of the expected social change processes that were identified during the Scoping phase (as tabled above), have been altered to some extent during the Impact Assessment phase as more detailed information was available during this phase to inform a more accurate assessment. For example, the category Institutional and Empowerment processes was re-categorised in the SIA and is now referred to as *Institutional and Legal processes*.

1.5. Summary of Issues and Concerns

Interested and Affected Parties (I&APs) are afforded the opportunity to become involved in the proposed project by means of the Public Participation Process (PPP). Generally speaking, the PPP facilitates the involvement of people who are either interested in, or who might be affected by, a certain decision (in this case the decision to proceed with, or halt, the construction and operation of the proposed transmission power lines).

The PPP commenced during the scoping phase and continues into the Impact Assessment phase (which is the current phase of the study). The process is only concluded once the competent authority has issued the Environmental Authorisation and once the authorisation has been communicated to all registered I&APs. Parties who wish to object to, or appeal against the authorisation must lodge their objections directly with the competent authority (i.e. such objections are not routed through, or addressed by the public participation consultants or the Environmental Assessment Practitioner).

As part of the PPP, registered I&APs and other stakeholders were invited to comment on the proposed project. Table 1.4 below provides a summary of the issues and/or concerns raised during the scoping phase (limited to social issues²). Also included in Table 1.4 is a cross reference to where these issues were considered in the SIA. In most cases, the issue/concern appears as it was received by the public participation office (exceptions are where the public participation practitioner at a public event, such as the public meeting, recorded a comment). A full Comments and Responses Report is included as part of the main EIA Report.

Table 1.4: Summary of Social Issues/Concerns raised during the Scoping Phase

Issue/Concern	Reference in SIA
It was commented that in their opinion the location of the Transmission Lines anywhere in Southern corridor have serious financial implications for their company; due to the inability to sell property to end users with a view of the Transmission Lines. [Mr Richard Henn, Torine Investments (Pty) Ltd]	Section 3.3
Mentioned that there are already power lines over the properties of African Dawn and Strandfontein and it would be a disaster to have any additional power lines over the properties as the property is only 500m wide and 1km long, and lies East West with the house approximately in the middle of the property. [Mr Willem Leerink, Landowner: Thornhill]	Sections 3.1 & 3.3
It was commented that some form of housing and toilet facilities will have to be erected during construction stages and this is of great concern. The project is not just the building of a small domestic house, these extra faculties tend to remain on site and just allowed to deteriorate with time. [Mrs Jeanette Nolte, Vice Chairperson: Blue Horizon Bay conservancy]	Sections 3.4 & 3.6
It was commented that it is realised that nuclear and wind farms is and will most probably be one of the solutions to the electricity problem in the country as well as in many other parts of the world, and that the whole idea of having a massive corridor running through ones farm is very unsightly, but there is also the emotional side of things of this nature which should receive some consideration. [Mrs Jeanette Nolte, Vice Chairperson: Blue Horizon Bay conservancy]	Sections 3.1, 3.3 & 3.5
It was commented that one will never get everyone to agree with the project and it is therefore believed that apart from the financial compensation for loss of land, there should be another incentive given to the farmers concerned to agree to the construction of these somewhat unsightly structures. [Mrs Jeanette Nolte, Vice Chairperson:	Sections 3.3 & 3.4

² Issues/concerns pertaining to other specialist fields are addressed by the relevant specialist for that particular topic/issue/concern.

Issue/Concern	Reference in SIA
Blue Horizon Bay conservancy]	
It was commented that the Southern Corridor will seriously affect his farm (property information provided). The farm has one of the top five Holstein dairy herds in South Africa, attracting many visitors from overseas as well as local. A new dam has been completed with view of having two pivot irrigation units below it. The proposed Eskom power lines in this area will severely affect the viability of this farming unit in the future. [Mr Clive Puttergill, Property Owner: Bluegums Trust]	Section 3.3
It was commented that a web of power lines criss-crossing highly arable agricultural land will not only have a negative impact on the value of such property but also decreases the productivity and sustainability of the agricultural land in the said Southern Corridor. [Mr Johan Rademeyer, Chairman: Van Stadens River Farmers Association]	Southern Corridor SIA Report
It was commented that they kindly appeal for a fair and reasonable compensation in the event of implementing the proposed Thyspunt Project by taking into consideration that transmission lines, as per the proposed TTLIP, is not limited to a number of farms (and more specifically in the Southern Corridor) have been acquired and maintained exclusively for lifestyle farming – by people who invest at a great expense in the rural area specifically for the purpose of enjoying healthy country living. Excessive power lines and pylons transcending on and over these properties will decrease the value of lifestyle farms significantly. [Mr Johan Rademeyer, Chairman: Van Stadens River Farmers Association]	Sections 3.3, 3.4 & 3.5
It was commented that according to the diagram of the two proposed power lines, the Southern Corridor will traverse directly over his two ostrich farms. There is no indication in the DSR as to what would this entail for his farming enterprise. It was enquired as to what need is there for the power lines to be split at Thyspunt, and why not only use the Northern Corridor which has much less impact on infra-structure and, as Eskom has frequently stated “money is no problem” why not take the cables to run below ground. [Mr Peter Rautenbach, Property Owner: Mostertshoek]	Section 3.3
<p>It was stated that the proposed Transmission power lines will traverse the Zwartbosch property and it will have the following detrimental socio-economic effect on the estate and the local community at large. With a servitude of 120m, should it traverse the property, will impact on a Billion Rand investment due to the following reasons:</p> <ul style="list-style-type: none"> • Many residential erven will fall inside the servitude area, and thus making the development uneconomical, as well as not being able to sell the erven. • Health & safety issues. The power lines will definitely pose a health risk to the residents of the estate, as well as the golf players • The power lines will make playing golf impossible as the line run across playing areas. • The aesthetics of the estate will be impaired due to the power line being an eyesore should it run over the estate. This will significantly impair the value of the investment of residents and will result in making the development not viable. 	Sections 3.1, 3.3, 3.5 & 3.6

Issue/Concern	Reference in SIA
<p>It was mentioned that the development would create over two thousand jobs during the development phase and more than 700 sustainable jobs once completed. This excludes informal jobs created due to influx of tourists. Should the development not occur then jobs would not be created.</p> <p>It was commented over and above the formal and informal job creation that the resort would provide, there will also be various community projects that will be implemented or in the process of being implemented. These include the establishment of a Nursery, a Working Wetland project on adjacent property, establishment of a Golf Caddie Academy, establishment of a Chef school to mentioned but a few.</p> <p>These community projects would be co-owned by the community and are being established for the social upliftment of the local community. These community projects are intricately linked to the Golf Estate development and would therefore not be established should the power lines run through the property. [Mr Eugene van Heerden, Director: Zwartembocsh Golf & Lifestyle Estate]</p>	
<p>Raised a concern regarding health and safety issues, mentioning that the power line will definitely pose a health risk to the residents of the estate, as well as to the golf players. [Mr Eugene van Heerden, Director: Zwartembocsh Golf & Lifestyle Estate]</p>	Section 3.6
<p>Stated that the power lines will impact negatively on the western aspect of their farm as visually it will impair the view towards the west and the mountains. It will have a negative effect on the value of my property and he objects to the power lines [Mr Lex Gutsche, Landowner: Woodlands Farm & C.O.E / Chairman Woodlands Dairy]</p>	Section 3.3
<p>Stated that the presence of a servitude which will be registered against the farm will have a negative connotation with respect to allowing access to do maintenance related to leaving gates open and stock problems associated with such an arrangement. He must object in advance to servitude being registered [Mr Elbe Strydom, Landowner: Gamtoos Valley]</p>	Section 3.4
<p>Mention that in the executive summary he is concerned that the map showing irrigated areas along the portion of the northern corridor between Thyspunt and Humansdorp shows irrigated areas within the corridor. Some of the area may be on his farm but if he reads the maps correctly the corridor will skirt his property and therefore will have no impact on his irrigated areas. Clarity is sought by him on this issue and therefore he object most strongly to the idea that any irrigated areas may be affected on my farm. Irrigated land is high value land and therefore any thought of compromising this land would be incorrigible and unacceptable. [Mr Lex Gutsche, Landowner: Woodlands Farm & CEO / Chairman Woodlands Dairy]</p>	Section 3.3
<p>Mentioned that it would be pertinent to do a study on the potential impact of the Transmission lines for property owners. Studies in other countries have showed that agricultural values are likely to decrease if a transmission line is in a location that inhibits farm operations and that the value of properties in the area can drop. [Ms Trudi Malan, Ajubaius Marine & Kromme Trust]</p>	Section 3.3
<p>Requested that she be advised as to how her queries have been dealt</p>	http://www.eskom.co.za/co

Issue/Concern	Reference in SIA
with as she has yet to receive ANY information from SiVEST about the economic impact of the Nuclear Station. It was stated that it must be assumed then that her queries have not been dealt with by either SiVEST or the team on the Transmission Lines. [Ms Carianne Freebury Retail Africa (Pty) Ltd Planning, Infrastructure and Environment]	ntent/DEIR%20AppE17%20Economic%20Assessment%20pp%200-70.pdf
Stated that she has looked at the response to her issues and mentioned that it is so vague and generic that she could not actually tell whether there was an undertaking to do an Economic Impact Assessment or not. [Ms Carianne Freebury Retail Africa (Pty) Ltd Planning, Infrastructure and Environment]	Section 3.3
Mentioned that she therefore went to the report and looked at everything and it seems that a Social Impact Study would be done as part of the EIA, enquired if that was true? She also stated that it looked as though economic impact would be assessed in the report, requested that this be confirmed. [Ms Carianne Freebury Retail Africa (Pty) Ltd Planning, Infrastructure and Environment]	Section 3.3
Stated that there are too many small holdings in Kruisrivier and so many people and animals will get affected by the construction of powerlines. Informed us that he irrigates 40Ha ground and there are about 20 families that make a living from this farm. [Mr C.A Voigt, Kruisrivier Inwoners Vereniging]	Sections 3.1, 3.2 & 3.3
<p>Informed us that the property is situated between Wincanton and Springfield. Even though there isn't any certainty as where the servitude in the corridor will be, she expressed objection to the construction of the 400Kv powerline for the following reason:</p> <ul style="list-style-type: none"> • Kruisrivier is a densely populated area • Farms are small and the servitude will take up a large area • The value of property will drop • Health • Security <p>[Mrs A.A Fitchat, Landowner, Kaastiingboom]</p>	Sections 3.1, 3.2, 3.3, 3.4 & 3.5
<p>Raise concern that of fact that the impact studies do not exclude relocation and also that it could go over the owner's property.</p> <p>Indicated that for the documents read on the website it seems that owner's property falls outside the proposed Fitchet's Corner substation but right in the middle of the southern corridor 2km grid.</p> <p>However, the studies conducted fail to address the individual owner's concerns. e.g. the property owner planning on erecting a cottage, new fences and clearing some bush. As a smallholding owner (not a business) the position of the route is of utmost importance. Queries who will make the final decision and how (when) will it known?</p> <p>[Andre van der Merwe. Brakkefontein 416 -76/3]</p>	<p>Sections 3.1 & 3.2</p> <p>Substation SIA Report</p> <p>A holistic study was done on the entire corridor study area to prevent results being "warped" (i.e. to prevent that one landowner's issues/concerns does not become more important than another's).</p>
Informed the project team that he has B&B establishment on the Oyster Bay Road (between St Francis Bay and Oyster Bay) that is 80% complete, and prefer not to continue with the development until there is	Section 3.3

Issue/Concern	Reference in SIA
<p>clarity whether or not the proposed power lines might traverse his property. Should the power lines traverse his property it could negatively impact the return on his investment.</p> <p>Informed the project team that the proposed project will have significant financial implications. Authorisation for the development (to operate an accommodation establishment) was secured. However, shortly after the property was bought, new power lines were erected on the property of which he was not informed, notified nor compensated for.</p> <p>Enquired if he decided to continue with the development on his property, as suggested, how would he be compensated if the proposed Transmission Lines becomes a factor?</p> <p>[Mr Clive Horlock, Landowner: St Francis Bay]</p>	<p>Section 3.3</p> <p>Section 2.3</p>
<p>Mentioned that he has no objection to the project, and further wished success thereof as the community needs work opportunities [Mr Andile Mei, Resident: KwaNobuhle, Uitenhage]</p>	<p>Sections 3.2 & 3.3</p>
<p>In terms of the map included in the EIA Newsletter, it is not possible to exactly determine the potential impact on the Crossway/Sunnyvale project, the neighbouring farms as well as Thornhill Townships.</p> <p>Mentioned that his observation is that the newly proposed corridor is completely running over:</p> <ul style="list-style-type: none"> • The town/Village of Thornhill which has an excess of 3000 inhabitants in a signed agreement with C&S will contribute in excess of R15 million to a Thornhill trust. • Thornhill will also benefit in terms of job opportunities with an excess of 4 900 will be created during and post construction. • The corridor runs over four more proclaimed and existing townships surrounding the proposed C&S development. <p>C&S development is situated exactly in the middle of the proclaimed and already existing townships, Woodridge College and in the middle of the cluster of the existing townships in the rural mode surrounding the proposed C&S development.</p> <p>[Dr Chris Mulder, Chairman: Crossways and Sunnyvale Development Company]</p>	<p>Section 3.1</p>
<p>Stated that it is against the law to have power lines running near schools, hospitals and old age homes. Further raised a question as to why residents in the 100km corridor should be subjected to the environmental/ health problems. [George and Sandra Hardie]</p>	<p>Sections 3.5 & 3.6</p>
<p>Referred to photo's on page 50 of section B (draft Scoping Report) Farm Syfergat is 86 hectares. 44Ha agricultural ground that is used for intensive farming. 42 Ha Swartkopsrivier where Habron Quarries is mining. Informed us that he is a bona-fide farmer and farming is his only income. There are 7 families living on Syfergat and he provide employment for 20 of those people. [Mr Maruis Petout, Syfergat, Gastepaas and Boerdery, Arcus Gibb Comment Form]</p>	<p>Section 3.3</p>
<p>Informed us that Uitenhages Flying Club practice and fly above his land every day, and wished to know what will happen if one of the planes hit the lines and crashes onto his property. Wished to find out if the value of his property will drop once the power line shave been built? [Mr M.L.]</p>	<p>Sections 3.1 and 3.3</p>

Issue/Concern	Reference in SIA
Viljoen, Farm Owner]	
Informed us that their farm borders the Groendal area. If the line will go through our farm, our property value will drop. Title deed portion is erf 62003370043 [Mr & Mrs G Human, Landowner, Brandkloof, Arcus Gibb Comment]	Section 3.3
Met verwysing na ons gesprek vanoggend, wil ek vra dat my voorlegging rakende die ekonomiese impak op my melkboerdery op plase Doringrug en Stillerus, Humansdorp, soos beïnvloed deur die moontlike konstruksie van die hoogspanningslyne en beplande roete daarvan regdeur spilpuntbesproeiingstelsels en oor Doringrug melkstal ondersoek en evalueer sal word, asook die voorgestelde rigtingverandering van die lyne om besproeiing en melkstal te mis. Dit is slegs geringe rigtingveranderings wat voorgestel word en hiermee sal die ekonomiese impak op die boerdery en sy mense en koeie dramaties minder wees. [Migo Meyer]	Sections 3.1 and 3.3

1.6. Summary of Social Impacts associated with the Proposed Nuclear Power Station

A separate EIA process is underway for the proposed construction and operation of a Nuclear Power Plant at Thyspunt. This EIA is undertaken by Arcus Gibb, who has appointed their own team of specialists to undertake the various specialist studies as part of the overall EIA. The proposed construction and operation of the transmission power lines associated with the current project is therefore dependant on the construction and operation of the Nuclear Power Plant, for which environmental authorisation still has to be obtained. In the event that both projects (i.e. the Nuclear Power Plant and the transmission power lines) receive the go-ahead from the Department of Water and Environment, this could lead to a number of cumulative impacts on the social environment. For this reason a summary of the expected social impacts associated with the proposed Nuclear Power Plant have been included in this report to provide the reader with a more holistic overview of the anticipated social impacts.

Octagonal Development cc was appointed as social specialists to the Arcus Gibb team to undertake the Social Impact Assessment (SIA) for the proposed construction and operation of the Nuclear Power Station. The SIA reported on the expected social impacts associated with the power station as it related to the three sites under investigation, i.e. Thyspunt, Bantamsklip and Duynefontein and detailed the assessment of possible social impacts, the significance of these impacts, and mitigation and/or enhancement measures.

As part of the Nuclear Power Plant SIA, the following social impacts were identified and assessed:

- Accommodation of staff and construction workers;
- Influx of job seekers;
- Increase in number of informal illegal dwellings;
- Creation of employment opportunities;
- Business opportunities;

- Impact on criminal activities;
- Risk of STDs, HIV and AIDS;
- Municipal services;
- Traffic impacts;
- Noise and dust impact;
- Loss of employment after construction;
- Visual impacts;
- Impact on social infrastructure and facilities;
- Impact on sense of place;
- Future land use planning;
- Perceived risks associated with nuclear incidents; and
- Assessment of no development option.

Table 1.5 below provides a summary of each of the above-mentioned social impacts as it was reflected in the Nuclear Power Plant SIA (i.e. the expected impacts, the associated discussion of the impacts and the mitigation/enhancement measures were taken directly (*sic*) from the SIA Report to prevent further interpretation of the impacts by the current SIA study).

Table 1.5: Summary of social impacts associated with the proposed Nuclear Power Station

Expected Impact	Discussion	Mitigation/Enhancement
Accommodation of staff and construction workers	<p>Large numbers of workers will place tremendous strain on the provision of temporary and permanent accommodation. The Vendor and Eskom staff implicates an estimated influx of 3 837 workers (peak period) and their families to the NPS project area. The total population influx is estimated at 10 500 people, to be accommodated on an area of approximately 167.2ha.</p> <p>The Construction Village will be required to accommodate approximately 3 750 people. The positioning of the Construction Village still needs to be determined, and is a sensitive issue with valuable opportunities and benefits, but also the potential for negative impacts on human well-being.</p>	Mitigation measures for the provisioning of sufficient accommodation should be implemented.
Influx of job seekers	<p>This impact deals with the influx of job seekers to the site during the construction phase.</p> <p>These job seekers, including those from areas outside the “local” area, enter the area with the hope of securing employment. When they do not secure employment, the potential exists that they will contribute to problems experienced with informal settlement, pressure on existing resources, services and infrastructure. The possibility further exists</p>	Mitigation measures are aimed at minimising the number of job seekers staying in the area.

Expected Impact	Discussion	Mitigation/Enhancement
	that they may contribute towards crime and other social problems such as alcohol abuse and prostitution.	
Informal Development and Settlements	An increase in unplanned development and informal settlements surrounding the NPS site is associated with perceived economic opportunities. If not carefully managed, this type of uncontrolled development is also likely to result in an increase in an array of social pathologies such as crime, prostitution and alcohol and drug abuse.	Mitigation measures are aimed at controlling the threat of an increase in unplanned development and the rise of informal settlements.
Creation of Employment Opportunities	The NPS offers the potential for unemployed people to gain meaningful employment during the construction phase. It is estimated that the construction phase could take up to 9 years from the commencement of construction until commissioning. During this period it is foreseen that an estimated 8 737 staff, including construction workers, will be employed on site. It is envisaged that at least 25% of the construction workers will be sourced from the local labour force.	Optimisation measures are aimed at enhancing the benefits of employment creation.
Business opportunities	A significant number of business opportunities will be created for local companies / service providers and SMME's.	The utilisation of local suppliers and service providers must be promoted through local procurement and pro-active targeting processes via an open and transparent tender process for all construction related activities.
Impact on Criminal Activities	The result of a large influx of people into the area as employees or in search of work, could result in an increase in criminal activities. It is also possible that, during the construction phase of the project, an opportunistic criminal element may take advantage of increased activities in certain areas around construction sites.	Mitigation measures are aimed at reducing the risk of crime.
Risk of STDs, HIV and AIDS	This impact refers to an increase in the risk of STDs and HIV and AIDS. It is well documented that an increase in the risk of STDs, HIV and AIDS is associated with an influx of workers, particularly migrant workers, and/or any increase in truck traffic into or through an area.	Mitigation measures are aimed at managing the risks associated with STDs, HIV and AIDS.
Municipal Services	This impact deals with the probability of the new NPS placing strain on municipal	Mitigation measures are aimed at provision of required

Expected Impact	Discussion	Mitigation/Enhancement
	services such as water, sanitation, roads, waste and refuse removal.	services.
Roads and Transport	The concern is the capacity of roads and transportation infrastructure required for the construction and operations of the NPS.	Mitigation measures are aimed at planning, funding and developing roads and transportation infrastructure as required for the construction and operations of the NPS, in addition to roads and transportation infrastructure to the residential areas to be developed to accommodate the staff and construction workers.
Waste and Refuse Removal	This concerns the capacity of Land Fill Sites and Waste Transportation required for the construction and operations of the NPS, as well as the services and infrastructure to the residential areas to be developed to accommodate the staff and construction workers.	Mitigation measures are aimed at providing sufficient Land Fill Sites and Waste Transportation for the construction and operations of the NPS, as well as refuse removal services to the residential areas to be developed to accommodate the staff and construction workers
Traffic impacts	Increased vehicular movement during the construction phase may influence daily living and movement patterns of community members in the surrounding communities.	Mitigation measures are aimed at optimising vehicular movement during the construction phase to minimize traffic congestion problems in the area, which in turn influences daily living and movement patterns of community members in the surrounding communities who make use of these roads.
Noise and Dust Impacts	Increased levels of noise and dust may impact negatively on the quality of life of people living close to the proposed NPS site.	Mitigation measures are aimed at limiting disturbance and the psychological effects of noise and dust pollution.
Loss of Employment after Construction	A number of jobs will be lost once construction of the NPS has been completed.	Mitigation measures are aimed at minimising the extent of jobs lost after construction
Visual impacts	The NPS will change the visual character and quality of the setting according to the Visual Specialist Study (September 2009).	Mitigation measures are aimed at limiting the negative effects and the disturbance on the sense of place that the NPS may impose. The solution would be the

Expected Impact	Discussion	Mitigation/Enhancement
		implementation of the mitigation measures suggested by the visual impact study.
Impact on Social Infrastructure / Facilities	This impact refers to the likelihood of the proposed NPS placing strain on existing infrastructure such as medical facilities, police, schools and sport facilities.	Mitigation measures are aimed at making provision for adequate social infrastructure and facilities for growth in number people.
Impact on sense of place	The proposed NPS will possibly result in a change to the local sense of place. This concern relates to the possibility that the NPS may contribute negatively to the current characteristics, or feeling / perception held by people. Communities experience that their place have a special and unique character.	Mitigation measures are aimed at limiting the negative effects and the disturbance on the sense of place that the project may have on the environment.
Future Land Use (Planning)	The proposed NPS will impact on future land use and planning in the area.	Mitigation measures are aimed at minimising the impact of the proposed NPS on future land use and planning.
Perceived Risks Associated with Nuclear Incidents	<p>During the process of public consultation, it was stated clearly by various participants that they fear the impact of possible risks related to nuclear incidents. These risks are related to the following:</p> <ul style="list-style-type: none"> • Design safety; • Nuclear accidents; • Potential terrorist acts; • Capacity and capability of people operating the NPS; • Strikes and labour unrest affecting daily management; and • Reliability of communication flow, especially with reference to perception on potential risks and negative impacts on good health. 	Mitigation measures are aimed at ensuring that communities receive correct and reliable information regarding the real and perceived risks of nuclear power.

1.7. Summary of Economic Impacts associated with the Proposed Nuclear Power Station

Conningarth Economists/Imani Development (SA) (Pty) Ltd was appointed as economic specialists to the Arcus Gibb team to undertake the Economic Impact Assessment (Econ IA) for the proposed construction and operation of the Nuclear Power Station. The Econ IA reported on the expected economic impacts associated with the power station as it related to the three sites under investigation,

i.e. Thyspunt, Bantamsklip and Duynefontein and detailed the assessment of possible social impacts, the significance of these impacts, and mitigation and/or enhancement measures.

As per the SIA report, the Econ IA reported on the expected economic impacts associated with the power station as it related to the three sites under investigation, i.e. Thyspunt, Bantamsklip and Duynefontein and detailed the assessment of possible economic impacts.

Apart from detailed cost factor assumptions relating to issues such as land acquisition, site preparation, transport costs, construction housing, etc., the Nuclear Power Plant Econ IA, identified and assessed the following expected impacts:

- Tourism impact during construction;
- Impact on tourism during the operational phase;
- Agriculture impact;
- Aquaculture impact;
- Fishing impact;
- Macroeconomic impacts during construction; and
- Macroeconomic impacts during operation.

Table 1.6 below provides a summary of each of the above-mentioned economic impacts as it was reflected in the Nuclear Power Plant Econ IA (i.e. the expected impacts and the associated discussion of the impacts were taken directly (*sic*) from the Econ IA Report to prevent further interpretation of the impacts by the current SIA study).

Table 1.6: Summary of economic impacts associated with the proposed Nuclear Power Station

Expected Impact	Discussion
Tourism impact (construction)	The Bantamsklip site, if selected, will experience a positive impact on tourism during construction, while for the other two sites a negative impact is predicted. Construction will have the largest negative impact on tourism in the Thyspunt area with a negligible negative impact on the Duynefontein area.
Tourism impact (operation)	According to the tourism specialist, the economic impact during the operational phase on Bantamsklip will be positive, on Thyspunt negative, and on Duynefontein zero. The results were incorporated as such into the model for the years 2017-38.
Agriculture impact	Data used were obtained from the Agricultural Impact report (Golder/Imani 2009) as part of this study for the 16 km radius around each site, and were adapted to a 30 km radius to obtain a larger turnover value. The reason for this is that, during the visit to the sites, it became apparent that farmers were not happy with the restricted radius, claiming that it would not give a true reflection of the agricultural activities in the respective area. As this is a comparative model it does not really matter as long as the same area is used for all three sites. It is estimated that the negative impact on agriculture in

Expected Impact	Discussion
	Thyspunt would be R18.7 million per annum, with no impact in the other two areas.
Aquaculture impact	Significant aquaculture activities only occur at the Gansbaai area, close to the Bantamsklip site. After discussions with aquaculture managers in Gansbaai, and with Eskom, it was determined that the size of the commercial farming sector of the industry would not be affected by Nuclear-1. The commercial “farming” segment of the aquaculture activity, namely, abalone farming, will not be affected at all as sea water is pumped to these farms. However, the future growth of the industry depends on the availability of kelp, but the area available for harvesting will not be affected as Eskom advises that it will harvest kelp on the beach inside its property and make it available to the abalone farmers.
Fishing impact	In the case of Thyspunt, only the value of squid is used as it is perceived that it is the one segment which could be negatively impacted. It is perceived that during the construction phase no negative impact would be encountered.
Macroeconomic impacts (construction)	<p>The construction phase of Nuclear-1 at the Thyspunt site will have a significant positive impact on the economy of the Eastern Cape, as well as the local economy. The macroeconomic analysis indicates that:</p> <ul style="list-style-type: none"> • An additional amount of R5.5 billion will be contributed to provincial GDP during each of the seven years of the construction phase. This annual figure is equivalent to about 3.1 % of current GDP in this province. • An additional amount of R10.2 billion will be invested in the province during each of the seven years of the construction phase. This figure represents the total amount invested by all sectors directly and indirectly influenced by the construction of a new NPS. This annual figure is equivalent to 46.4 % of total current annual investment in this province. • An additional 67,673 jobs can be sustained for the seven years of the construction phase. This figure is equivalent to about 6% of the total number of people currently employed in this province as reflected in the 2007 Labour Force Surveys. • An additional amount of R2.7 billion will be added to total household income in this province during each of the nine years of the construction phase. This annual figure is equivalent to 3% of total current household income in this province. Of this total additional annual household income: <ul style="list-style-type: none"> ○ R0.35 billion will accrue to low-income households (13 %); and ○ R2.3 billion will accrue to medium-to-high-income households (87 %), which reflect the fact that constructing a new NPS requires mostly semi-and highly skilled people.

Expected Impact	Discussion
Macroeconomic impacts (operation)	<p>The operation of Nuclear-1 at the Thyspunt site will create:</p> <ul style="list-style-type: none"> • An additional annual amount of R9.4 billion that will be contributed to GDP in this province. This will add about 5 % to current provincial GDP. Of this amount, R4.4 billion (47 %) is contributed directly by the electricity-generation activity or process. • An additional amount of R172 billion that will be added to provincial capital stock, of which R170 billion (99 %) is added directly by investing in the electricity-generation facility. The investment of this amount is now sustaining the rest of the impacts namely GDP, employment, etc., on an annual basis. • An additional 9,424 jobs that will be sustained in this province over the operational lifetime of this NPS, where only 1,340 (14 %) occur directly in the electricity-generation part with 28% being created in the sectors that are backwardly linked, and 58% of jobs being created as a result of induced impacts throughout the broader economy due to the paying of salaries and wages that, in turn, give rise to increased consumption expenditure. • An additional amount of R1.5 billion will be added to total household income in this province during each year of the operational life time of this NPS – of this total additional annual household income: <ul style="list-style-type: none"> ○ R0.3 billion will accrue to low-income households (20 %), and ○ R1.2 billion will accrue to medium-to-high-income households (8 %), which reflects the fact that operating a NPS requires mostly semi- and highly skilled people • With regard to the social indicators, this analysis suggests that, depending upon the national and provincial governments' social spending priorities in the Eastern Cape, the additional tax will be able to: <ul style="list-style-type: none"> ○ Employ and support an additional 3,157 new educators in each year during which this NPS remains operational; ○ Provide and service an additional 680 new hospital beds in each year during which this NPS remains operational; ○ Employ and support an additional 71 new doctors in each year during which this NPS remains operational; and ○ Construct an additional 2,968 new low-cost houses in each year during which this NPS remains operational. Over a ten-year period, this amounts to almost 30,000 new low-cost houses being built. <p>The above information is provided in order to indicate the magnitude of the social benefits that could flow from the operation of Nuclear-1 in the Eastern Cape, based on the</p>

Expected Impact	Discussion
	<p>additional government revenue that will be generated in the system in all spheres of government in the form of all kinds of taxes and levies. It is important to recognise that the cost of providing these social benefits includes the direct capital costs associated with buildings and equipment, plus direct salaries paid to educators and doctors, as well as all of the associated overhead costs associated with maintaining buildings and equipment, and supporting these education and health care professionals. Although it is accepted that the provision of this social infrastructure will depend on a number of practical factors like the cost of provision of the service, it is still a valid indication of what can be accomplished by the extra income to the fiscus.</p> <p>The above figures indicate that operating Nuclear-1 at Thyspunt will have a significant impact on the Eastern Cape economy. As in the case of the construction phase, the most pronounced impact will occur in the area of capital formation. However, this NPS will also have marked impacts on all of the other macroeconomic performance indicators throughout the province, particularly when one considers that this is a single but very large project, making it possible, with an assured power supply for other businesses to relocate to the province. A lot has been written about projects (which have been put on hold because of power shortages) in the Coega Industrial Development Zone. A NPS at Thyspunt would help to fast-track the development process.</p>

1.8. Relevant Legislation

The following legislation and regulatory documents are relevant to the SIA process:

- Constitution of the Republic of South Africa (Act No. 108 of 1996);
- The Occupational Health and Safety Act (Act No. 85 of 1993);
- Extension of Security of Tenure Act (Act 62 of 1997) (ESTA);
- National Environmental Management Act (NEMA), No. 107 of 1998, as amended and Environment Conservation Act, No. 73 of 1989, as amended;
- The Environmental Impact Regulations of 21 April 2006;
- Relevant Labour Relations legislation.

1.8.1. Constitution of the Republic of South Africa (Act No. 108 of 1996)

The Constitution mostly relates to human rights with the intention of establishing “a society based on democratic values, social justice and fundamental human rights”, which should be achieved through the promotion of human dignity, equality and the advancement of human rights and freedoms. Some of the human rights that are explicitly stated in the Constitution are a person’s right to equality, freedom of expression and association, political and property rights, housing, healthcare, education, access to information, and access to courts.

The Constitution is made up of a preamble, fourteen chapters each relating to a specific topic, and seven schedules. Of these fourteen chapters, chapter 2 (The Bill of Rights) is mostly applicable to the implementation and management of social mitigation measures.

The Bill of Rights outlines detailed provisions on civil, political, social and economic rights. According to the Bill of Rights, it is therefore illegal to discriminate against any person on any of the following grounds:

- Race and colour;
- Sexual orientation (be that heterosexual, homosexual or transsexual);
- Marital status (be that single, married, divorced or widowed);
- Gender in terms of social and cultural ascribed gender roles, e.g. not permitting women to work on a construction team because she is a woman;
- Sex, relating to the physical differences between men and women;
- Pregnancy;
- Age;
- Disability;
- Ethnic origin;
- Culture, e.g. traditional practices;
- Language;
- Religion, conscience, belief; and
- Birth.

1.8.2. The Occupational Health and Safety Act (Act No. 85 of 1993)

The occupational health and safety act outlines the clear responsibilities of employers and employees alike in ensuring that a safe work environment is created and maintained at all times. The creation of a safe work environment also applies to any and all work equipment that is required in carrying out assigned duties.

Noteworthy to consider is the fact that this act stipulates that a health and safety representative has to be appointed where a workforce consists of 20 or more people. A health and safety representative has to be a fulltime employee and there should be at least one such a representative per every 50 employees or part thereof, either per workplace or per section of the workplace. Where a workplace has more than one health and safety representative, a health and safety committee should be formed that meets at least once every 3 months. Health and safety representatives should carry out the following functions in terms of this act:

- Review the effectiveness of health and safety measures;
- Identify potential hazards at the workplace that could lead to potential major incidents;
- Examine the causes of incidents at the workplace, in collaboration with the employer;
- Investigate any complaints made by employees in terms of health and safety aspects at the workplace;
- Provide feedback to the health and safety committee on the aspects mentioned above;

- Provide feedback to the employer on matters relating to the health and safety of employees at the workplace; and
- Inspect all aspects relating to the safety of the workplace, including the workplace itself, any plants, machinery, articles, health and safety equipment, etc. at intervals agreed upon with the employer.

1.8.3. *Extension of Security of Tenure Act (Act 62 of 1997) (ESTA)*

This act provides for measures to facilitate the long-term security of land tenure, and also regulates the conditions of residence on certain land, the circumstances under which a person's right to reside on a particular piece of land may be terminated, and to provide for regulatory matters where persons have been evicted from a particular piece of land or land portion.

Chapter 4 of this act relates to the measures that have to be implemented when right of tenure is terminated on any lawful ground (e.g. in the case of relocation), provided that such a termination is just and has regarded the following factors:

- The fairness of the agreement on which the owner relies;
- The conduct of the parties giving rise to the termination;
- The interests of the parties involved in relation to the comparative hardship of the owner and/or occupier of the land;
- The existence of a reasonable expectation for the renewal of an agreement; and
- The fairness of the procedure leading to termination, including whether or not the owner/occupier had been granted a reasonable opportunity to make representations before termination became effective.

Section 14 under Chapter 4 outlines the procedures for the restoration of residence, the use of land, and compensation for damages. A person who was the rightful owner of the land may institute proceedings in a court of law, where after the court may make the following orders:

- The restoration of residence and land use;
- The repair, reconstruction or replacement of any building, structure or any other installations that the owner/occupier have enjoyed on his land prior to the removal and/or eviction;
- The restoration of any services that the owner/occupier has a right to;
- The payment of compensation;
- The payment of damages, including but not limited to, damages inflicted by the removal process; or
- Any other compensation the court may see fit.

1.8.4. *National Environmental Management Act (NEMA), No. 107 of 1998, as amended and Environment Conservation Act, No. 73 of 1989, as amended*

Both the National Environmental Management Act (NEMA) as well as the Environmental Conservation Act (ECA) promotes citizens' right to an environment that is not harmful to their health and well being. This right is closely linked to the Constitution where clause 32 of the Bill of Rights stipulates that current and future generations have a right to a healthy environment. NEMA defines

the environment as the natural environment as well as the physical, chemical, aesthetic and cultural properties that influences a person's health and well-being.

1.9. Limitations and Assumptions

- This study was carried out with the information available to the specialist at the time of executing the study, within the available timeframe and budget. The sources consulted are not exhaustive and additional information, which might strengthen arguments or contradict information in this report might exist.
- The specialists did endeavour to take an evidence-based approach in the compilation of this report and did not intentionally exclude scientific information relevant to the assessment.
- It was assumed that the motivation for, and the ensuing planning and feasibility studies of the project were done with integrity, and that the information provided to date by the project proponent, the independent environmental assessment practitioner and the public participation consultant was accurate.
- The summary of issues contained in Section 1.5 of this report is not complete, as the final Issues & Response Register was not yet finalised at the time of the study. Table 1.4 will therefore be updated periodically to include all issues received.
- Route alignments proposed in this report only considered the social and economic acceptability of such alignments and did not take into account the technical feasibility of such alignments or other specialist impact areas such as visual impacts, agricultural impacts, fauna and flora impacts, etc.

2. PROJECT BACKGROUND

This section provides an overview of the proposed project and the study area on a regional level. The section has been structured as follows:

- Section 2.1: Project overview;
- Section 2.2: Regional overview;
- Section 2.3: Negotiation process; and
- Section 2.4: Construction processes.

2.1. Project Overview

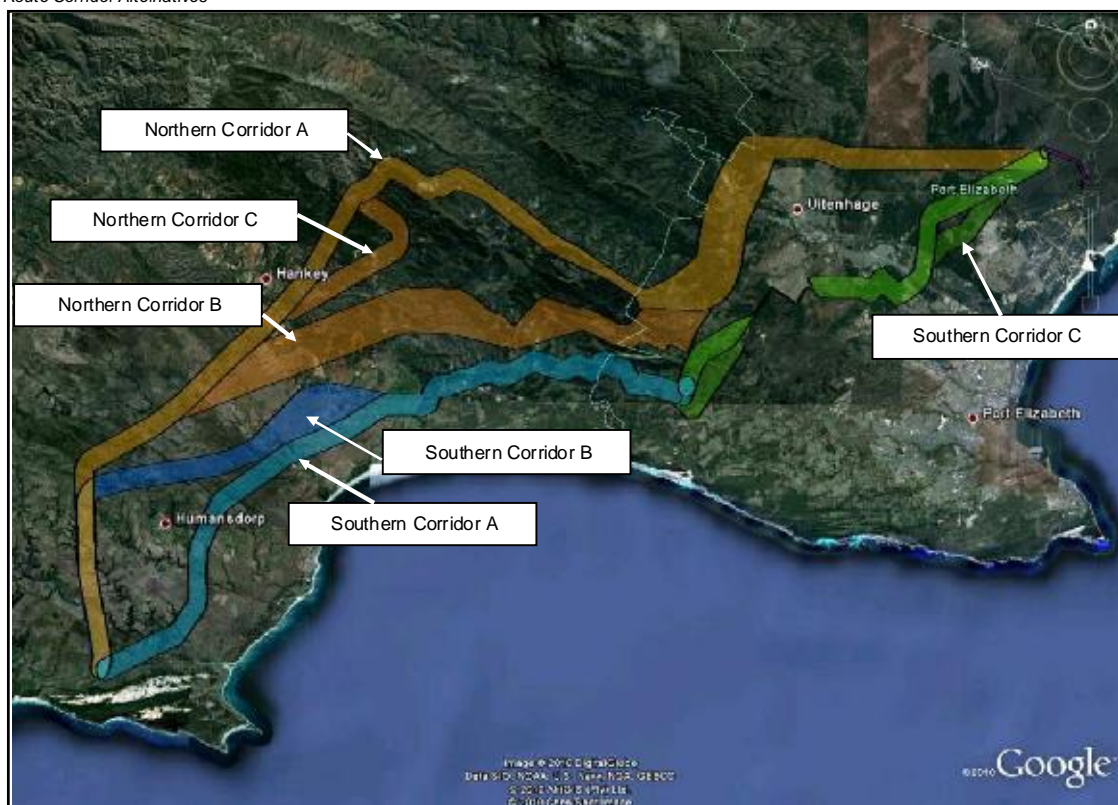
Eskom Holdings Ltd is responsible for the provision of reliable and affordable power to its consumers in South Africa. They are responsible for the vertically integrated utility that generates, transports and distributes electricity. Electricity cannot be stored and therefore must be used as it is generated. It is, therefore, required that electricity be efficiently transmitted from the point of generation to the end user. It is vital that transmission capacity keeps up with both electricity generation capacity and electricity demand.

If Eskom Transmission is to meet its mandate and commitment to supply the ever-increasing needs of end users, it has to plan, establish and expand its generation capacity and transmission power lines infrastructure on an on-going basis, in support of the generation processes.

To integrate the electricity that will be generated by the proposed Thuyspunt Nuclear Power Station (should an Environmental Authorisation be granted by the National Department of Environmental Affairs and Tourism (DEAT)), Eskom Transmission has appointed SiVEST to undertake the EIA for the proposed new 400kV Transmission power lines.

According to the EIA Regulations, as promulgated in terms of Chapter 5 of the National Environmental Management Act (NEMA) of 1998 (Act No. 107 of 1998), all linear projects need to consist of two or more alternatives to be evaluated during the EIA process. Two route alternative corridors (see Figure 2.1) are being proposed for the proposed construction of the new 400kV Transmission power lines and two technically feasible transmission substation sites (see Figure 2.2).

Figure 2.1: Route Corridor Alternatives



The proposed route alternative corridors are:

Proposed Southern Corridor: 2 x 400kV Transmission power lines

- 2 x 400kV Transmission power lines from Thuyaspunt to the newly proposed Port Elizabeth Transmission Substation;
- 2 x 400kV Transmission power lines from the newly proposed Port Elizabeth Transmission Substation to Eskom's existing Grassridge and Dedisa Transmission Substations

Proposed Northern Corridor: 3 x 400kV Transmission power lines

- 1 x 400kV Transmission power line from Thuyaspunt pass Uitenhage to Eskom's existing Grassridge Transmission Substation; and
- 2 x 400kV Transmission power lines from Thuyaspunt pass Uitenhage to Eskom's existing Dedisa Transmission Substation.

Proposed new Port Elizabeth Transmission Substation location

Two proposed sites for the new PE Substation are proposed; in the Fitches Corner Area and in the area between Despatch and KwaNobuhle.

Figure 2.2: Substation Sites



Proposed upgrade of Eskom's existing Grassridge and Dedisa Transmission Substations

The minimum size (footprint) of the proposed Port Elizabeth Transmission Substation site is 320m x 230m, which needs to accommodate:

- four (4) 400kV Transmission power lines exiting the proposed substation;
- three (3) 400/132kV transformer bays; and
- eight (8) 132kV feeder bays.

The key points regarding the proposed route alternative corridors and substation site are as follows:

- The proposed Southern Corridor will be approximately 130km in length, depending on the final route alignment.
- The proposed Northern Corridor will be approximately 180km in length, depending on the final route alignment.
- The Northern and Southern Corridors are not alternatives for one another and Eskom is proposing that both be constructed in order to reduce risks of power supply disruption from the proposed Thyspunt Power Station should power along certain of the lines be disrupted.
- The section of the proposed corridor between the proposed new Port Elizabeth Transmission Substation and Grassridge/Dedisa will be approximately 50km – 80km in length.
- All the proposed route alternative corridors are 2km wide in which a proposed route alternative (or alternatives) needs to be identified. In some parts the corridor has been widened to 5km, whereas in other places the width is only 100m, as requested by the Nelson Mandela Bay Metro to accommodate future development plans.
- Currently it is proposed that the Guyed Suspension type tower will be used. This tower is approximately 50m in height. The total footprint area required for each tower is 80m x 50m.
- The land beneath the overhead lines can be used, as normal, by the landowners. Eskom, however, require that no dwellings or vegetation/crops higher than 4m be established within the servitude.
- The proposed substation study area will be 600m x 500m and the footprint of the proposed new substation will be 320m x 230m.
- The associated infrastructures to integrate the proposed new substation into Eskom's electricity Transmission grid (including the construction of service/access roads, the construction of a communication tower at the substation site, etc).

As previously mentioned, Arcus Gibb, as the independent Environmental Consultants appointed by Eskom Generation, are currently undertaking the EIA for the three proposed Eskom Nuclear Power Station sites. Although the location of the proposed new nuclear power station is still to be confirmed through a separate EIA process, Eskom is investigating possible Transmission power line routes in terms of the maximum generating capacity that is considered practical for each of the three individual sites under investigation. EIA processes are currently being undertaken by independent consultants for the proposed Transmission power lines from each of these three sites:

- Duynefontein: Savannah Environmental (EIA Ref No's: 12/12/20/1217; 12/12/20/1218 and 12/12/20/1219)
- Bantamsklip: Arcus Gibb (EIA Ref No's: 12/12/20/1223 and 12/12/20/1224)
- Thyspunt: SiVEST (EIA Ref No's: 12/12/20/1211; 12/12/20/1212 and 12/12/20/1213)

2.1.1. Timeframe

The construction period for the various proposed 400kV Transmission power lines and proposed new substation are estimated to be 18 - 24 months in total. This includes the clearing of the servitude, construction of the towers, stringing of the conductors and switch-on of the newly proposed Transmission Substation. Currently it is proposed that construction start at Thyspunt, progressing towards Port Elizabeth / Grassridge / Dedisa, in a continuation construction period.

2.1.2. Rehabilitation of servitude after construction

As part of the EIA, a construction Environmental Management Plan (EMP) will be established which will, amongst other requirements, detail the rehabilitation of any disturbed areas resulting from construction works.

The appointed Eskom Environmental Control Officer (ECO) on site will ensure that all disturbed areas are stabilised as soon as possible after construction and the area rehabilitated as close to the original condition as possible, as per the EMP. Rehabilitated areas that are susceptible to erosion due to their position in the landscape will be adequately protected by soil conservation measures.

The ECO will monitor the re-vegetated areas until the vegetation is stabilised. This monitoring, on average, occurs at three-monthly intervals for the first twelve months, and once a year thereafter, and may only halt once the vegetation has been stabilised.

2.1.3. Employment opportunities during construction

As the construction of Transmission power lines is highly skilled, and mainly constructed by the utilisation of machinery, it is not envisaged that additional labour force will be required for this proposed project. However, as part of Eskom's Social Responsibility Programme, the appointed construction company will be required to make use of local labour as and when required.

2.1.4. Health (possible impacts of Electro-magnetic Fields – EMFs)

Eskom power lines are designed and built to comply with the Occupational Health and Safety (OHS) Act (Act 85 of 1993). As long as activities under the power line comply with the servitude conditions, they are therefore safe to undertake. EMF effects decrease as distance from the power line increases and any living quarters outside the servitude will not be affected by the power line and radiation from the power line is nil at the edge of the servitude.

2.2. Regional Overview of the Study Area

The proposed transmission power line corridor traverses the Kouga Local Municipality (EC108), which in turn forms part of the Cacadu District Municipality (DC10). It also crosses a District Management Area (DMA) known as ECDMA10 or also referred to as Aberdeen Plain, which is the area between the Kouga Local Municipality and the Nelson Mandela Bay Municipality. A DMA is defined by the Municipal Demarcation Board as a portion of a district municipality, which is not part of any local municipality and as such is governed exclusively by the district municipality, in this case the Cacadu District Municipality (CDM). The corridor further traverses the Nelson Mandela Bay Municipality (NMA), which is a metropolitan municipal area and therefore does not form part of a District Council.

All of these municipal areas are located within the Eastern Cape Province (ECP), as per figure 2.3 below.

The ECP is the second largest province in the country and is located on the southeastern seaboard of South Africa. The province has two international ports, the one located in East London and the other one in Port Elizabeth. Despite the significant role that the ECP has played in the history of South Africa, it is still regarded as one of the poorest provinces in South Africa.

A total of 6 district municipalities can be found within the ECP, which is further subdivided into 38 local municipalities. The ECP covers an area of approximately 169 952km² and, according to CS 2007, has a total population of approximately 6 527 747 people. This means that the total population in the ECP has increased by close on a quarter of a million (or 249 096) people between the years 2001 and 2007. The province has, on average, a population density of approximately 38.4 people per square kilometre. In 2007, the total number of households within the ECP was estimated at approximately 1 586 739 separate households, at an average of 4.1 persons per household.

Figure 2.3: Route corridor alternatives in relation to the affected municipal areas



The province has two Spatial Development Initiatives (SDI) with the aim to facilitate integrated planning that is environmentally sensitive. These two SDI's are the Fish River SDI and the Wild Coast SDI. The province furthermore has two industrial development zones (IDZ's), one of which can be found in East London (the West Bank IDZ) and one in Port Elizabeth (the Coega IDZ). The Coega IDZ is one of the biggest development initiatives ever undertaken in South Africa and includes the development of a deepwater port. Apart from these industrial zones, the ECP is also said to have enormous agricultural and forestry potential. In the case of forestry, extensive forestry plantations in areas such as Keiskammahoek provide employment to large numbers of the ECP population. To further enhance this industry, the Eastern Cape Provincial Government plans to develop the forestry and timber industry by creating an additional 100 000 ha of plantations over the next 10 years.³

In addition to the timber and forestry industry, the ECP is also home to deciduous fruit orchards in the Langkloof Valley, while the interior Karoo is an important sheep-farming area where angora wool is produced. The former Transkei area is mostly characterised by subsistence farming where people are, to a large extent, dependent on cattle, maize and sorghum farming.

Lastly, the ECP has been selected as the national pilot area for the development of biofuel, and the mass planting of canola has already taken place. The proposed biofuel project has the potential to create approximately 21 600 employment opportunities, both directly as well as indirectly.

The Cacadu District Municipality (CDM) is located on the western portion of the ECP and consists of 9 local municipalities. The district covers an area of 58 244km² and, according to the CS 2007, is home to a population of approximately 363 496 people. This brings the population density in the district to 6.3 persons per square kilometre, which, as is the case with the province as a whole, is indicative of the fact that the district is largely rural in nature. Of the 9 local municipalities within the CDM, only one, the Kouga Local Municipality (KLM) is relevant to this study.

Apart from the CDM and the DMA, the Nelson Mandela Bay Municipality (NMBM) has also been identified as an affected area. The NMBM is mostly landlocked by the CDM and as a metropolitan municipality, does not form part of a broader district area. As such, an overview of the NMBM has only been provided on a local level and further unpacked in more detail under the various change processes in Section 3.

The KLM can be found on the southern border of the CDM. The municipality is land-locked by the NMBM to the east, the Baviaans Local Municipality to the northwest, and the Kou-Kamma Local Municipality to the west. To the south the KLM is bordered by the Indian Ocean. The KLM covers an area of 2 419km² and consists of 10 wards. The KLM accounts for approximately 4.2% of the land surface area within the CDM and a mere 1.4% of the total land surface area of the ECP. Some of the major urban areas or towns within the KLM include Jeffrey's Bay to the southeast, Humansdorp in the central part, and Hankey and Patensie to the north.

According to MetroMediaSA⁴, ECDMA10 (also referred to as Aberdeen Plain) covers an area of approximately 13 308km². The area lies between the KLM and the NMBM (refer to figure 3b).

³ http://www.info.gov.za/aboutsa/landpeople.htm#eastern_cape

⁴ <http://www.metromediasa.com/content.asp?PageID=816&CategoryID=1&cache=8/21/2008%204:05:15%20AM>

Aberdeen Plain is an area of low population density, estimated at around 0.5 persons per square kilometre or a total population of 6 538 people (year unknown). This DMA accounts for more than one fifth (22.8%) of the total district area and includes four very distinct areas, including the Addo and Tsitsikamma National parks. The DMA might also be further expanded (or re-demarcated) to include the expansion of the Addo Elephant National Park⁵.

2.3. Negotiation Process

As per Eskom's standard operating procedure, 400kV transmission power lines are operated within a 55m-wide servitude. Important to note is that Eskom registers one servitude per power line, which means that in the case of three 400kV parallel lines the servitude width increases to 165m.

The servitude basically entails a restriction on a property by registering the servitude at the Deeds Office. The servitude permits Eskom to access that part of the property to ensure the safe operation of the power line. Important to note is the fact that the servitude conditions are transferable in the event that an affected property is sold on the open market.

Eskom's policy is to compensate the landowner for the strip of land that is required for the servitude. In order to do so, Eskom enters into a negotiation process with the affected landowner, with the aim to reach a servitude agreement. The compensation amount is calculated based on the value that the property would have reached if it was sold on an open market by a willing seller to a willing buyer (property valuations are done by independent valuers and property owners have the right to verify such valuations). In addition to the actual property value, Eskom also compensates the landowner for any actual financial loss (the value of which will be determined by a recognised independent land valuer) caused by the acquisition of the servitude. It is important to note that Eskom undertakes the negotiation process themselves once authorisation has been granted by the competent authority (i.e. the process does not form part of the EIA process nor is it undertaken by consultants).

The negotiation process is as follows:

Once the route of the transmission power line has been finalised and environmental authorisation received, Eskom negotiators will identify the affected properties and verify the information with the Survey-General, after which they will obtain the detail of the legal landowner(s) from the Deeds Office. At this stage Eskom will commission independent strip valuations on the affected properties, including pre- and post-valuations if required. As soon as Eskom has acquired all the necessary information, an Eskom negotiator will meet with the affected landowner to commence the negotiation process by presenting the landowner with a formal offer. Landowners have the right, within reason, to negotiate special conditions that, once accepted by both parties, will form part of the formal servitude agreement.

If both parties are satisfied with the terms and conditions set out in the servitude agreement (which includes aspects such as the compensation amount, the special conditions for the operation of the servitude, etc.), they sign the agreement. Once the servitude agreement has been signed, the terms

⁵ McCann, M. (undated). District & Metro Profile Eastern Cape Cacadu District (DC10) and Nelson Mandela Metropolitan Municipalities. <http://www.thinasinako.co.za/uploads/documents/290806175455.pdf>

and conditions thereof cannot be re-negotiated – landowners should thus ensure that they take cognisance of the project's pre-construction, construction, and operational phases during the negotiation process. Landowners are expected to sign a "Final Release Certificate" if they are satisfied with the condition of their land upon completion of the construction process, and until such time Eskom remains responsible for the rehabilitation of the land.

If the negotiation process reaches a deadlock, or if the parties failed to reach an agreement within 90 days after commencement of the negotiation process, Eskom may apply for the expropriation of the land required for the servitude, in accordance with the following legislation:

- The Electricity Regulation Act (Act 4 of 2006), section 27(1): (If Eskom is unable to reach an agreement with a landowner) *the State may, in order to facilitate the achievement of the objectives of this Act, expropriate land, or any right in, over or in respect of land, on behalf of a licensee in accordance with section 25 of the Constitution and section 2 of the Expropriation Act, 1975 (Act No. 63 of 1975).*
- Constitution of South Africa (Act 108 of 1996), section 25: (A property may be expropriated if such an expropriation is) for the greater good of the public at large; and subject to compensation. In this instance, compensation should be fair and should create a balance between public interest and that of the affected landowner in respect of: The current use of the property; the history of the property in terms of acquirement and use; and the current market value of the property.
- The Expropriation Act (Act 63 of 1975), subsection 12, stipulates that the compensation amount on any property, excluding properties with registered mineral rights, should be calculated as follows:
 - The amount that the property would have sold for if it was sold on an open market to a willing buyer from a willing seller;
 - An amount to compensate for any actual financial loss as a direct result of the expropriation; and
 - In the case of a registered right on or to a property, excluding registered mineral rights, an amount to compensate for the actual financial loss as a direct result of the expropriation or the obtaining of the right.

However, Eskom aims to avoid expropriation as far as possible, as this process is not only time consuming and tedious, but also damaging to Eskom's relationship with landowners.

2.4. Construction Processes

This section deals with the general information and criteria for the design, engineering, supply, fabrication, construction, testing and commissioning of the civil and structural work associated with that of a transmission power line.

There are a number of variables determining the sequence of events in the construction process, the number of people involved in each activity and the time spent on an activity. These variables include the timeframes for completion of the line, the natural environment, and other local conditions. Some activities can take place simultaneously.

When the construction of the line starts, each activity will follow the previous one, so that a chain of events, with different teams involved, will happen over time. On average, there are some 35 active days of construction at any point, but given the time lapses between certain events, the process itself normally takes place over a longer period – anything from a few months to a couple of years, depending on the length of the line.

The construction process can commence as soon as the servitude has been secured. The following activities form part of the construction process, listed more or less in the chronological order in which these activities take place:

- The selected route is surveyed to determine soil types and other conditions that have to be considered in the final selection of conductor types, towers, insulators, and foundations. This survey is undertaken by foot, but on longer lines, a fly over is often utilised in addition to the walk through.
- Once the technical walk through has been completed, the final design of the line is determined along with the tower positions. This is then followed by the environmental walk through to ensure that all the sensitive areas have been identified and considered for inclusion in the construction Environmental Management Plan (EMP).
- Eskom negotiators start negotiations with landowners to ensure unrestricted access to the servitude, which often involves that construction teams might have to cross over private land and/or make use of existing access points on the affected property. During this negotiation round, all the parties involved (e.g. Eskom, the contractor and the landowner) discuss and agree on the rehabilitation measures that have to be implemented to restore the land to its original condition upon completion of the construction process. Photographs of the applicable infrastructure or land is taken beforehand to ensure that rehabilitation is done to the agreed standards.
- Normally access roads to the construction site(s) form through the recurring use of an existing (gravel) road or track, and seldom through a more formal procedure such as blading or road scraping. However, the establishment of access road(s) are dependent on the local site conditions.
- The first step as part of the actual construction process is the pegging of the central line in the middle of the servitude. During this time, the team will also record the requirements for and locations of new gates.
- Servitude clearance commences which involves clearing vegetation along the length of the servitude. Servitude clearance across the width of the line depends on the vegetation and landscape of the area, as well as on the respective landowners' requirements. During vegetation clearance, protected fauna and flora species are relocated while alien species are removed. If required, the installation of new gates also takes place during this activity. The size of the servitude/vegetation clearance team depends on the size of the clearance area(s), but on average consists of 10-20 individuals. Apart from the management of protected species, which requires specialist services, a large segment of this team (10-15) can consist of unskilled labour that can be sourced locally.
- A surveyor is appointed to peg the tower foundations, which involves setting out the footing of the towers. The surveyor also identifies and reports on any obstacles or potential problems associated with any of the towers' positioning, which can result in the consequent moving of a tower.

- Once the final locations of the tower foundations have been pegged, the contractor will establish foundation nominations. At this stage, the various soil types are examined to enable the contractor to comply with the necessary foundation requirements that will ensure the stability of the tower. Trial foundations are then excavated at the main foundation points through the use mechanical back-actors and/or augers. Under certain conditions the use of manual labour might also be required, and if so, unskilled workers might again be employed. A foundation normally represents a square pit of 4m x 4m and under normal soil conditions, is usually also 4m deep. Once the foundation pit has been excavated, it is fenced-off to secure the area until such time that the foundation is cast.
- The foundation steelwork is fitted into the foundation pit not too long after it was excavated. This is done to reinforce the foundations. Although the steelwork is made up at base camp and brought to site by truck, all the actual fitting, and wiring is done on site.
- The concrete for the foundations are poured after the steelwork has been fitted. Shuttering is done and a standard concrete truck is used to cast the concrete. A 28-day period is required after the concrete was laid to allow it to set. During this stage access or service roads will be used extensively.
- The steelwork for the towers is delivered in sections and assembled on site. The steelwork is transported on a long haul truck, and is delivered directly to the respective foundation pits along the line's route. To ensure that the correct tower is delivered to the correct site, the access road is clearly marked to indicate the routes to the various sites.
- The tower is then assembled on site by the assembly team (which is the case for every tower site). The tower's steelwork is fitted and assembled on the ground at the site, and therefore site clearance is required around the foundation pit. Once the tower has been assembled, it is painted with a non-corrosive paint and then erected with a crane and placed in the foundation pit.
- Once all the towers have been put up, the stringing team will commence with stringing the cables between the towers. Cable drums are placed next to each other and stringing takes place in both directions from these drum stations. The working area at each drum station can be as long as 130m but will be confined to the servitude width. Intensive vehicle movement may take place within this working area. A pilot tractor places the pilot cable on the ground, which is pulled up through the use of a pulley. When all the lines have been strung, the line is tensioned from each cable station to ensure that minimum ground clearance heights are achieved. The stringing team consists of skilled people, so it is unlikely that they will be sourced from within the local area.
- Rehabilitation of the construction site and construction servitude commences once the lines have been strung and tensioned. Quotations are sourced and a proposal is prepared to reimburse all the respective landowners for damages to their properties. As soon as the rehabilitation process has been completed, the affected landowner must sign a release certificate to indicate that they are satisfied with the condition of the land post rehabilitation.
- A final inspection of the line and servitude is done, and if all the parties involved are satisfied, it marks the end of the construction period.

3. SOCIAL CHANGE PROCESSES AND IMPACT ASSESSMENT

The following section proceeds to discuss the various change processes and related impacts that could be expected because of the project. A change process is defined as a change that takes place within the receiving environment because of a direct or indirect intervention. The expected impact follows because of the change processes taking place. However, a change process can only result in an impact once it is experienced as such by an individual/community on a physical and/or cognitive level. The change processes that were assessed in this SIA included the following:

- **Geographic processes** refer to the processes that affect the land uses of the local area.
- **Demographic processes** refer to the movement and structure of the local community.
- **Economic processes** refer to the economic activities in the local society, including the peoples' way of sustaining their livelihoods, and to a lesser extent, the macro-economic factors that affected the local community as a whole.
- **Institution and Legal processes** refer to the processes that affect service delivery to the local area.
- **Socio-cultural processes** refer to the processes that affect the local culture of an affected area, i.e. the way in which the local community live (however, sometimes different cultural groups occupy the same geographical area and these groups are seldom homogenous).
- **Biophysical processes** refer to the biophysical environment that can lead to indirect social impacts.

This section has been structured as follows:

- A summary of the baseline profile per change process as mentioned above, i.e. the status quo of the area without project intervention;
- A detailed discussion of the expected change processes that might occur as a result of introducing the project to the area, including a brief discussion on the circumstances that might lead to such change process taking place; and
- An assessment table to determine the significance rating of an impact pre- and post-mitigation as per the criteria listed in section 1.3.1.

3.1. Geographical Processes

Geographical processes relate to the land use patterns and established and planned infrastructural developments in an area, where land use is defined as "... the human modification of the natural environment or wilderness into a built environment such as fields, pastures, and settlements."⁶ This section therefore focuses on current and future land use in the project area itself, as well as in the neighbouring areas, and then proceeds to assess how a change in land use might affect the social environment.

⁶ www.wikipedia.org.za/wiki/Land_use.html

3.1.1. Baseline Geographical Profile

The CDM is characterised by, what they call in their IDP, a 'web' of settlements of various sizes across an area of approximately 60 000km². Most of these settlements are located on average about 250km from Port Elizabeth, which in turn impacts on the service delivery in these remote areas as most of the suppliers are said to reside in the Port Elizabeth area.

- **Settlement Patterns**

The KLM is made up of various nodes and urban areas, of which Humansdorp is said to act as the regional service centre, offering commodities and services to the surrounding agricultural and coastal communities. The most important tourist destinations in the area include the coastal towns of Jeffrey's Bay, St. Francis Bay, Cape St. Francis and Oyster Bay. Other urban areas such as Hankey and Patensie also provide important services to the surrounding high density agricultural industry. Although the settlement patterns of these towns differ from town to town, most of them are characterised by the former separate development policies according to the then Group Areas Act. A result of such segregation is a lack of social integration within areas, coupled with high costs in terms of infrastructure and service delivery to such areas.

The ECDMA10 is dominated by scattered farm dwellings. The largest urban settlement within the DMA is Rietbron, with a total of 439 households (CDM IDP 2007-2012). Apart from Rietbron, most of the settlements in the DMA are railway stations, which was historically also the catalyst for economic growth in the area when rail was still the preferred mode of transport.

- **Agriculture**

The agricultural sector within the CDM is mostly characterised by privately owned commercial farms ranging from sheep farming in the semi-Karoo to cultivation and dairy farming in the southern coastal belt. The Sunday's River Valley in turn is mostly characterised by citrus farming.

In the KLM, the strong citrus and chokka industries are viewed as the major drivers in terms of agricultural output, which in turn contributes heavily to the overall KLM economy, both in terms of its economic value as well as job creation. However, according to the KLM IDP, agriculture's commercial primary production has reached its capacity, which is further compounded by the fact that the overall agricultural output of the ECP as a whole has also slowed down over the past five years. It is believed that the current state of affairs will affect the expansion potential of the citrus industry, which could be exacerbated even further by an irrigation scheme that is at full capacity and other challenges relating to land access.

The Department of Agriculture has identified the areas outside the urban edge within the NMBM as prime agricultural land. As such, the NMBM IDP states that these areas should be protected for extensive agricultural use and that other services, such as health, education and retail, should also be provided in this area.

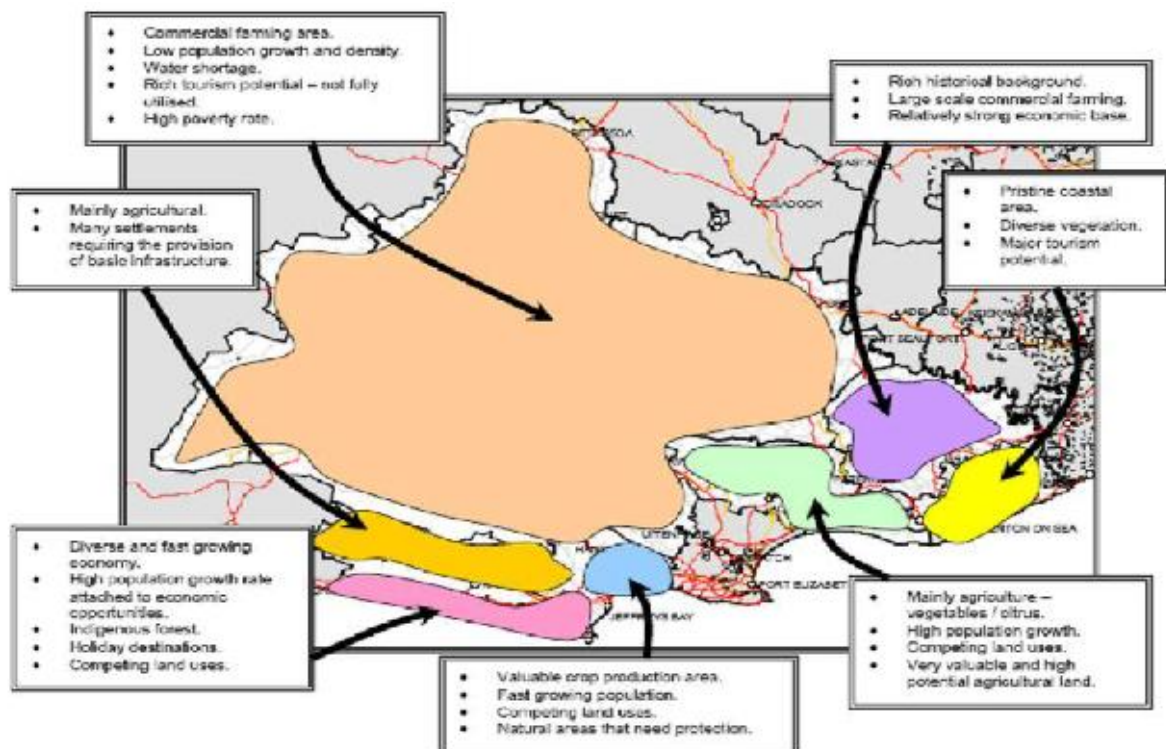
- **Mining**

Minimal mining activities take place within the CDM and where it does, it is mainly excavation for construction material. River sand mining takes place in both the Sunday's River Valley as well as in the KLM. Currently studies are underway to determine the feasibility of limestone mining in the Makana area, as well as for uranium mining in the Camdeboo area. However, one of the main obstacles is a lack of adequate infrastructure services, including water provision and the conditions of the roads within the CDM.

- **Development Trends**

The CDM is mostly characterised by scattered settlements with low population growth. Apart from the agricultural and tourism industries, there is limited economic stimulus within the CDM. Therefore the CDM is shaped into areas of specific functionality, as per figure 3.1 below.

Figure 3.1: Areas of functionality within the CDM



Source: CDM SDF 2007

The future planning within the NMBM will be contained within a Metropolitan Spatial Development Framework (MSDF), which is currently being developed. Some of the key points of the MSDF have been highlighted in their IDP (2008-2012) and include aspects such as:

- **Implementation of an urban edge:** The main aim of such an urban edge is to redirect the current growth patterns and looks at land uses within the urban edge as well as land uses outside the urban edge. Within the urban edge, only land uses that are in line with the land use management plan, town planning scheme or SDF will be permitted, whereas more peri-urban land uses will be permitted outside the urban edge.

- **Extensive agriculture:** As previously mentioned, the areas outside the urban edge have been identified by the Department of Agriculture as prime agricultural land, earmarked for extensive agricultural activities.
- **Activity nodes:** Four main areas have been identified as activity nodes and include the towns of Port Elizabeth, Uitenhage, and Despatch, as well as the Coega Industrial Development Zone (IDZ). The Central Business Districts (CBD) of Port Elizabeth, Uitenhage and Despatch will be protected and strengthened through the implementation of Business Improvement Districts.
- **Infill Development Areas:** Fairview and Salisbury Park have been identified as the two infill development priority areas. Subdivision is currently taking place in these areas. Apart from these two areas, social housing projects are said to take place within so called Restructuring Zones within specific locations characterised by the conglomeration of the poor.
- **Strategic Development Areas:** Future residential expansion is said to take place in the following areas: Zanemvula, Walmer Gqebera, KwaNobuhle South, Uitenhage East, Motherwell, Wells Estate and Hunters Retreat.
- **Metropolitan Open Space System:** The Metropolitan Open Space System (MOSS) is currently being revisited and will be guided by a Strategic Environmental Assessment.

So What?

- To ensure the health and safety of people in the area, the placement of the transmission power lines should avoid human settlement;
- To allow for future development plans, it is preferable that the route alignment of the transmission power lines take cognisance of such plans to avoid interfering with such plans as far as possible;
- The most preferred alignment is an alignment that passes over grazing land as animals can still freely move around towers and underneath the transmission power lines, which implies minimal land loss;
- Where the transmission power lines cannot avoid crossing over cultivated land, it is preferable that the alignment follows farm boundaries as far as possible to minimise the potential impact of land loss.

3.1.2. Geographical Change Processes and Resultant Impacts

The identification and assessment of social impacts arising from geographical change processes within a social context, focuses on how the proposed development might impinge on the behaviour and/or lives of landowners and/or land users in the affected area.

For the purposes of the SIA, the northern corridor was divided into sections, as reflected in figure 3.2 below. The sections were considered separately in more detail by considering households, structures and irrigation practices in an attempt to find a suitable route alignment. As noted previously, route alignments proposed in this report only considered the social acceptability of such alignments in terms of avoiding relocation and did not take into account the technical feasibility of such alignments or other specialist impact areas such as visual impacts, agricultural impacts, fauna and flora impacts, etc. An overview of possible route alignments from a social perspective is reflected in figure 3.3, after which each of the sections is discussed in more detail.

Figure 3.2: Northern Corridor Sections

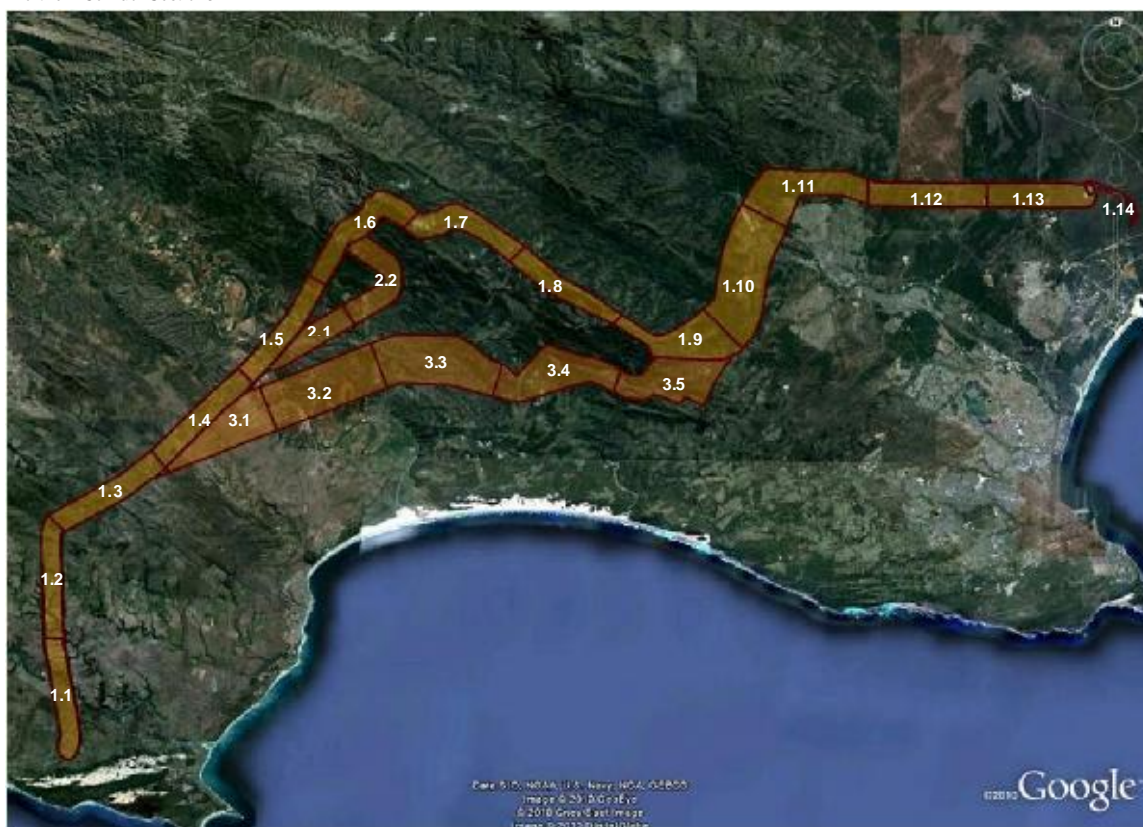
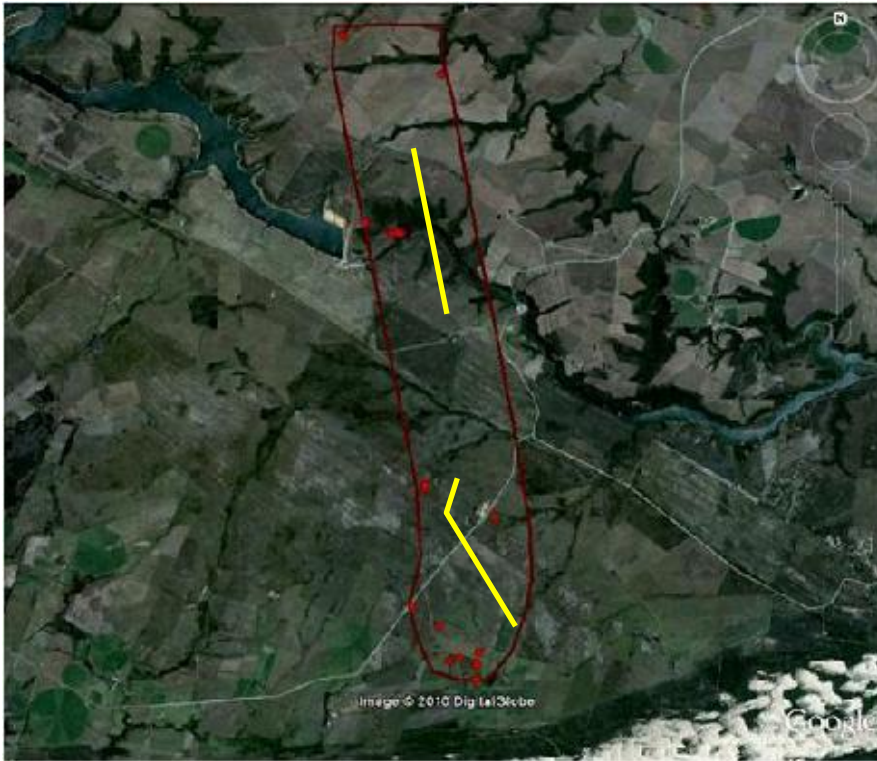


Figure 3.3: Overview of Possible Route Alignments from a Social Perspective



Northern Alternative 1 Sections



Section 1.1

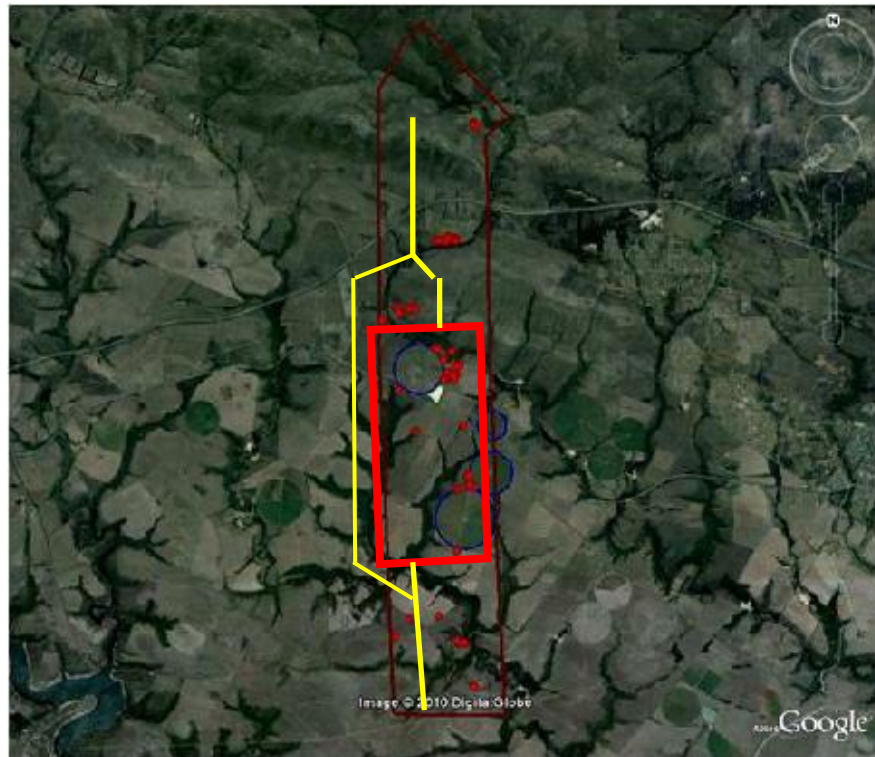
This section is characterised by a number of scattered households, as indicated.

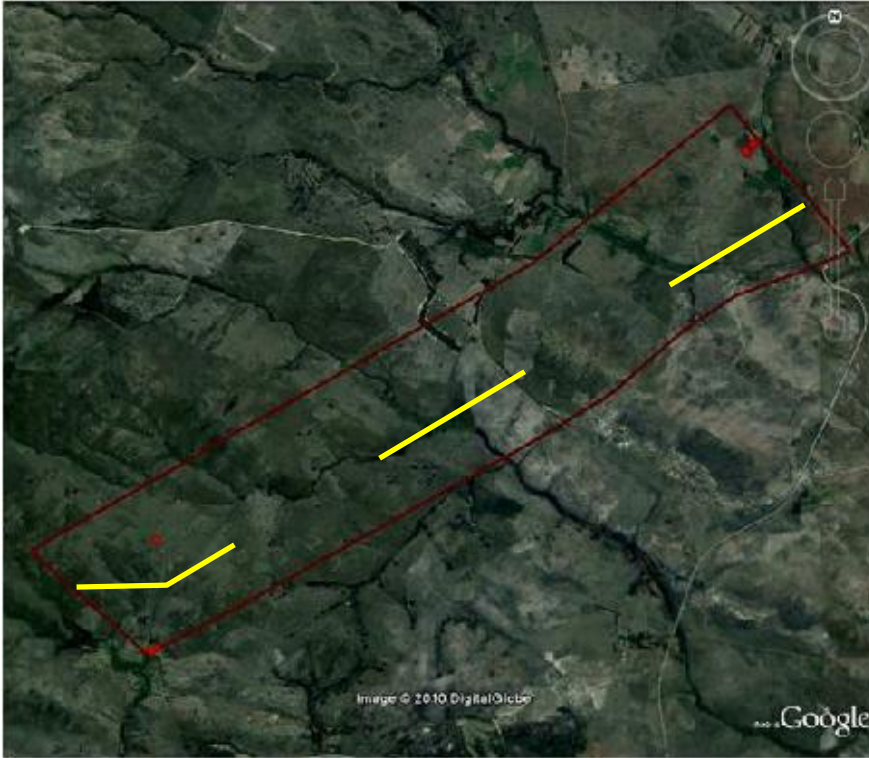
To avoid households and structures, the 165m wide servitude would have to follow a zigzag approach, as indicated. This approach does not follow the ideal of following farm boundaries.

Section 1.2

This section follows on from Section 1.1.

Apart from scattered households and other structures, there are four centre pivots located in this section, as indicated. Centre pivots are placed after careful planning to obtain maximal irrigation. Often centre pivots cannot be moved without great financial loss to the affected landowner. This portion has therefore been red flagged (red flag 1). To avoid this area, the alignment would have to run outside the corridor, as indicated by the long dashed line.





Section 1.3

This section follows on from Section 1.2.

This section is mostly devoid of structures, apart from a few scattered households, as indicated.

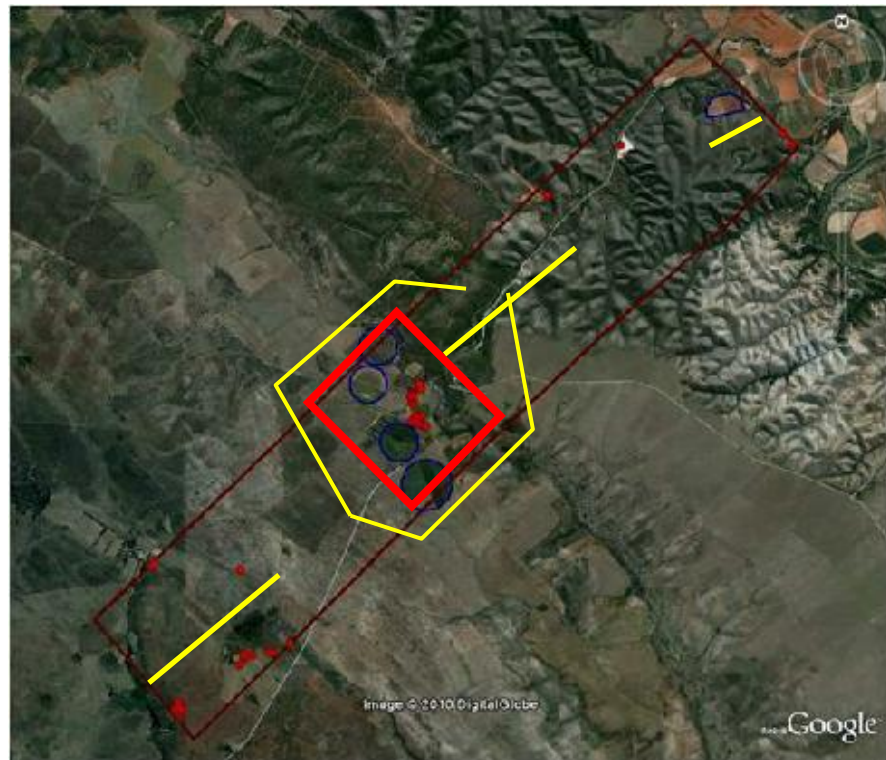
In this section the northern and southern corridor would have split, which implies that the servitude would be narrower at 165m to accommodate three (3) 400kV transmission power lines.

Here the servitude can follow a mostly straight line, as indicated.

Section 1.4

This section follows on from Section 1.3.

Apart from scattered households and other structures, there are four centre pivots located in this section, as indicated. Centre pivots are placed after careful planning to obtain maximal irrigation. Often centre pivots cannot be moved without great financial loss to the affected landowner. This portion has therefore been red flagged (red flag 2). To avoid this area, the alignment would have to run outside the corridor (on either side of the corridor), as indicated by the long dashed line.

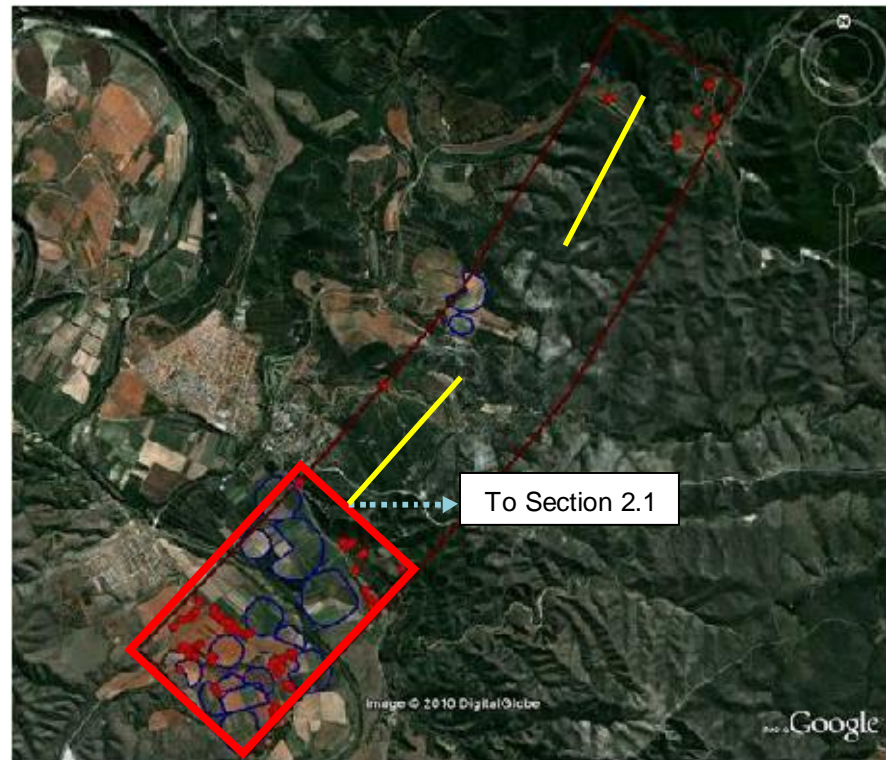


Section 1.5

This section follows on from Section 1.4.

This section contains a total of 16 centre pivots. Scattered households are found around most of the centre pivots, as indicated.

Relocation in the first part of this section will be unavoidable, the area has therefore been marked as a high risk area (red flag 3) from a social point of view.



Section 1.5 (alternative)

To avoid Red Flag 3, the alignment would have to run outside the corridor, as indicated by the dashed line. Even if this approach is followed, relocation might be unavoidable and the line will still have to traverse irrigated farmland.

For this reason, it is preferable to avoid using this alternative in an attempt to avoid the numerous centre pivots and related structures.





Section 1.6

This section follows on from Section 1.5.

This section also only contains a few scattered households, as indicated.

Even though the servitude can follow a more or less straight line through this section, as indicated, the use of this alternative is not preferred as it implies that the servitude would first have to pass through the red flagged area in section 1.5.

Section 1.7

This section follows on from Section 1.6.

No structures were observed within this section.

Even though the servitude can pass through this section unhindered, the use of this alternative is not preferred as it implies that the servitude would first have to pass through the red flagged area in section 1.5.



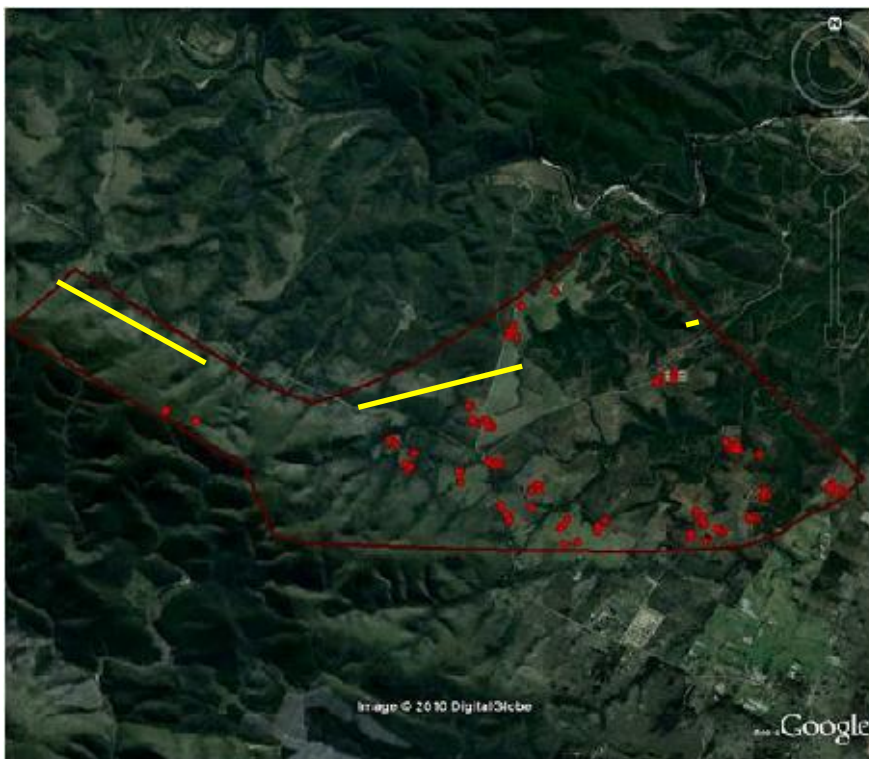


Section 1.8

This section follows on from Section 1.7.

No structures were observed within this section.

Even though the servitude can pass through this section unhindered, the use of this alternative is not preferred as it implies that the servitude would first have to pass through the red flagged area in section 1.5.

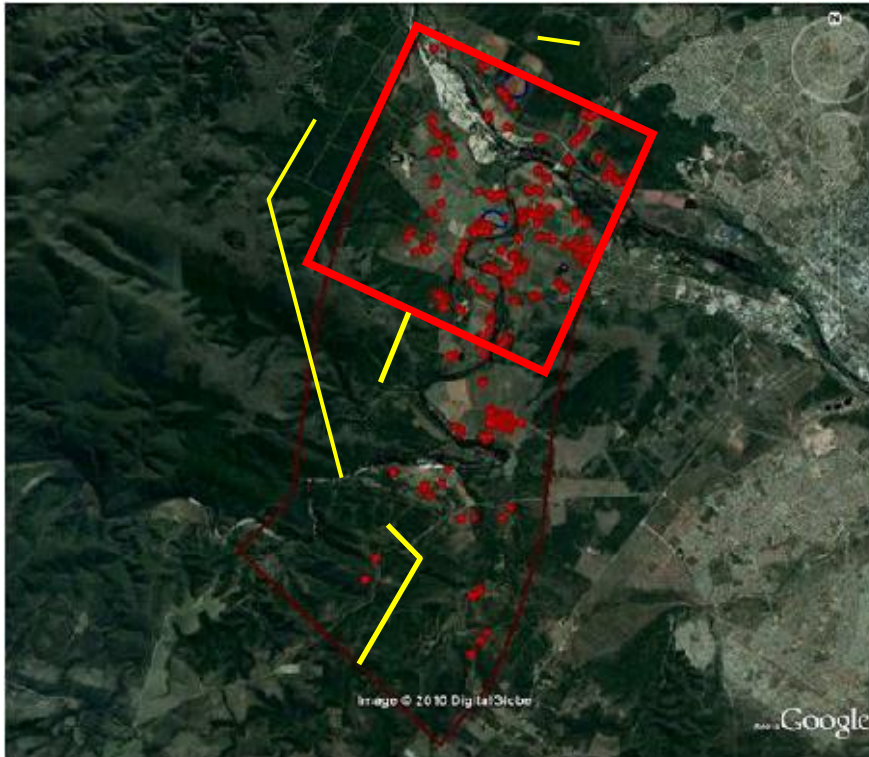


Section 1.9

This section follows on from Section 1.8.

This section contains a number of scattered households and structures, as indicated.

Even though the servitude can follow a more or less straight line through this section, as indicated, the use of this alternative is not preferred as it implies that the servitude would first have to pass through the red flagged area in section 1.5.



Section 1.10

This section follows on from Section 1.9.

This section contains a number of scattered households and structures, as well as two centre pivots, as indicated. This section is also characterised by a vast number of subdivided erven, which might necessitate relocating the transmission lines outside the existing corridor, as indicated by the long dashed line.

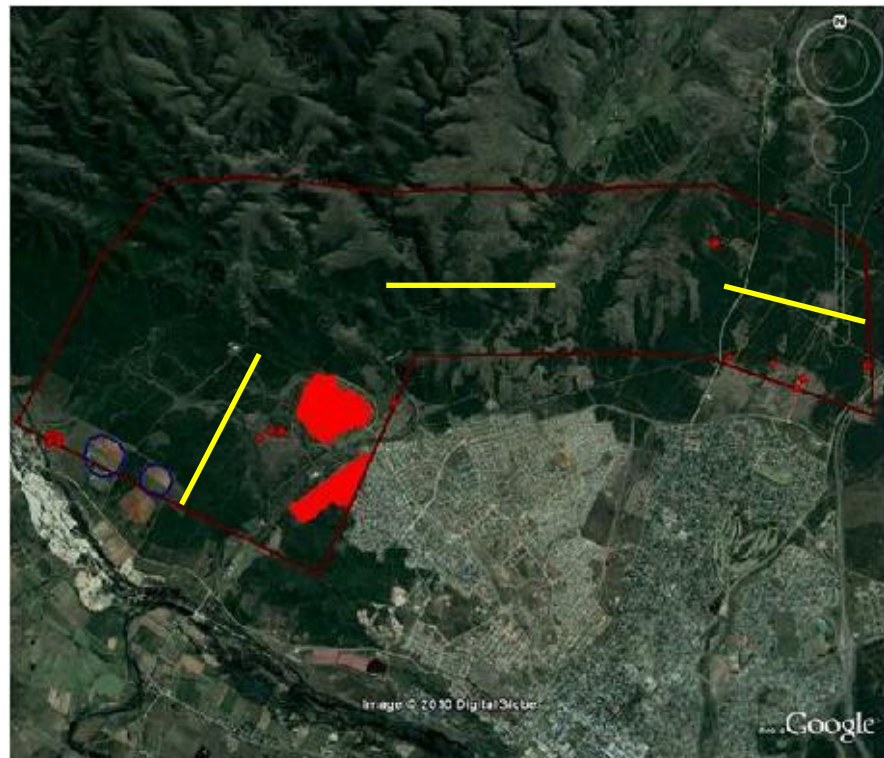
This portion has therefore been red flagged (red flag 4) from a social point of view.

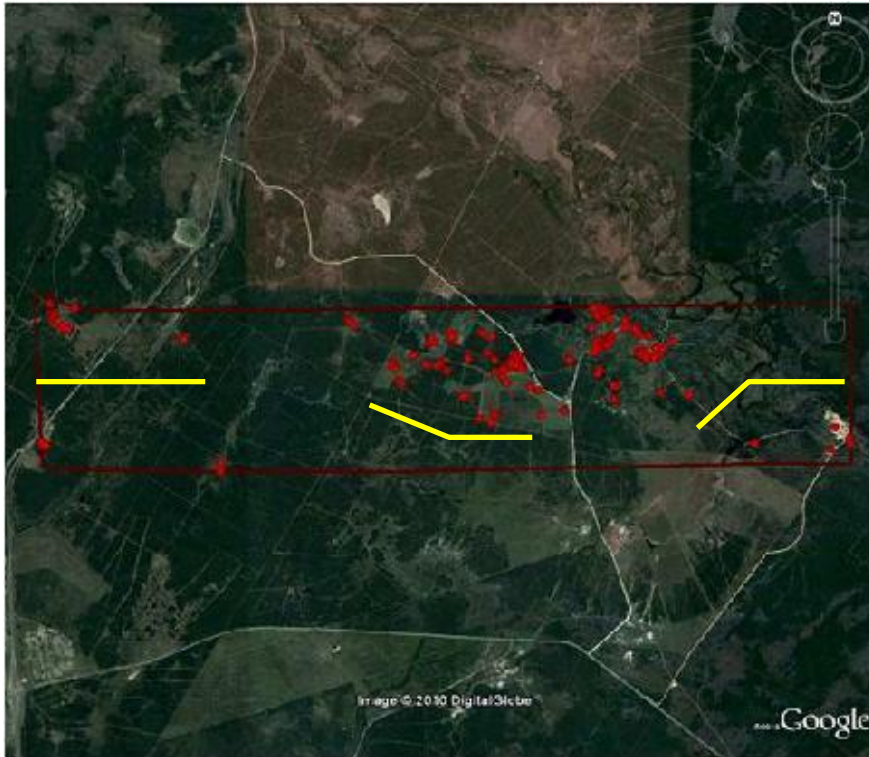
Section 1.11

This section follows on from Section 1.10.

This section contains two centre pivots, a few scattered households, and segments of Uitenhage (Mountain View), Kahmes, and Tirryville, as indicated.

To avoid these structures, the 165m wide servitude can follow a fairly straight line, as indicated.





Section 1.12

This section follows on from Section 1.11.

This section contains a number of scattered households, as indicated.

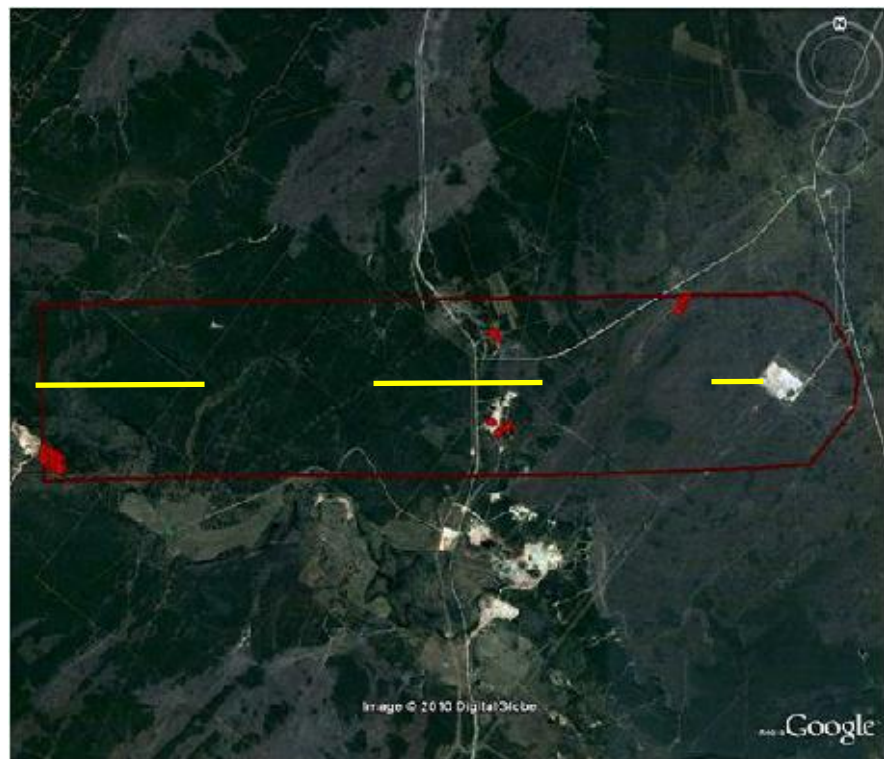
To avoid these structures, the 165m wide servitude should follow a fairly zigzag approach, as indicated.

Section 1.13

This section follows on from Section 1.12.

This section contains a few scattered households, as indicated.

To avoid these structures, the 165m wide servitude can follow a fairly straight line, as indicated.





Section 1.14

This section follows on from Section 1.13.

Within this section the transmission lines will run within an existing proclaimed servitude that was approved as part of another EIA study.

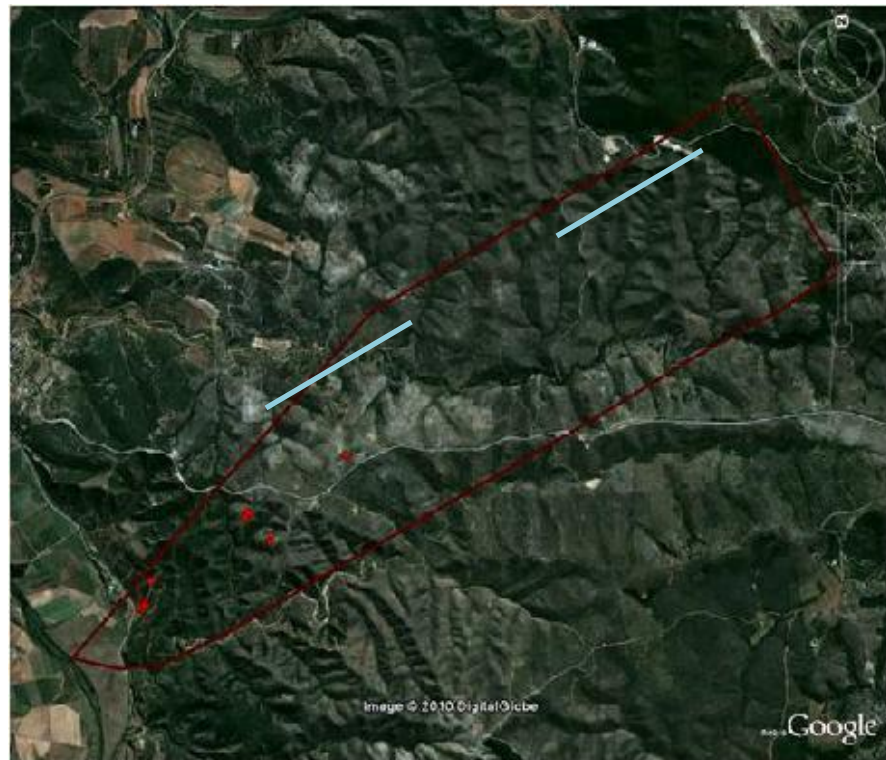
Northern Alternative 2 Sections

Section 2.1

This section follows on from Section 1.5.

This section contains a few scattered households, as indicated.

Even though the servitude can follow a more or less straight line through this section, as indicated, the use of this alternative is not preferred as it implies that the servitude would first have to pass through the red flagged area in section 1.5.





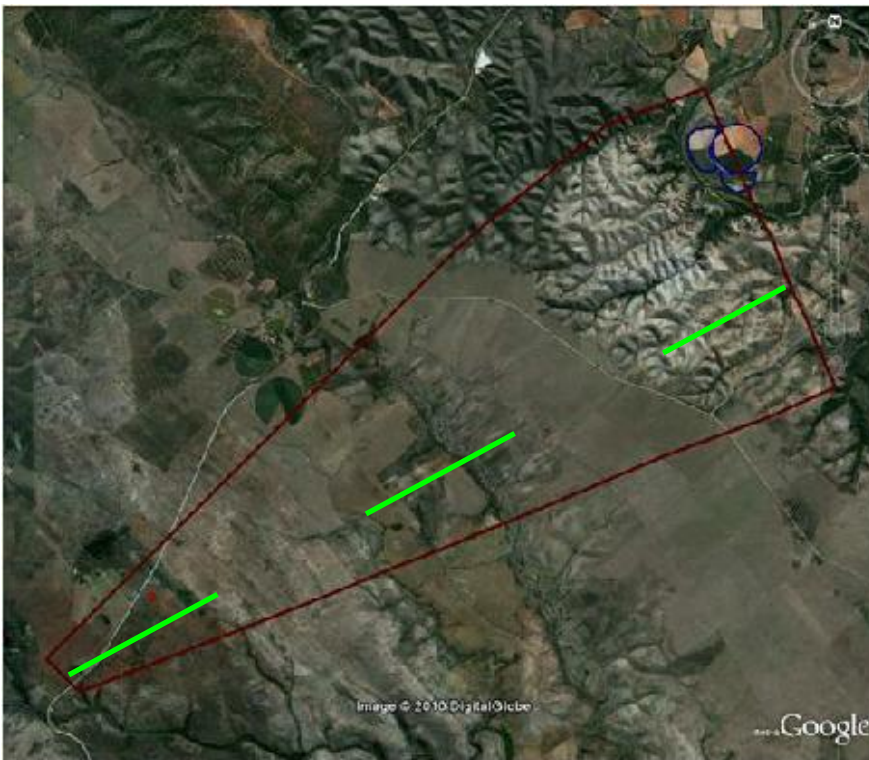
Section 2.2

This section follows on from Section 2.1.

This section contains a number of scattered households, as indicated.

Even though the servitude pass through this section in a zigzag fashion, as indicated, the use of this alternative is not preferred as it implies that the servitude would first have to pass through the red flagged area in section 1.5.

Northern Alternative 3 Sections



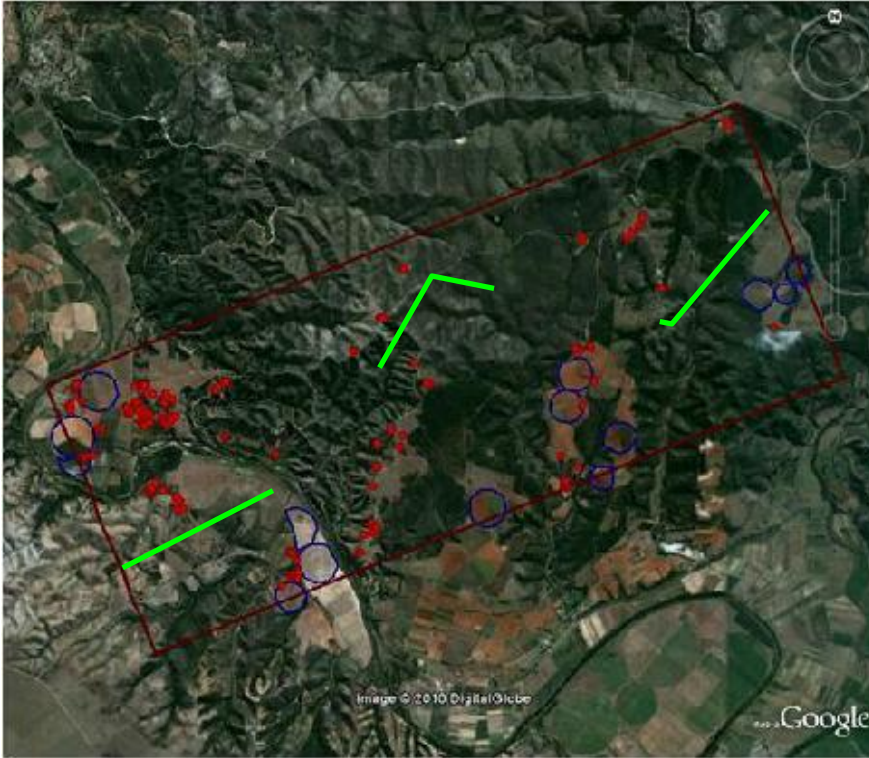
Section 3.1

This section follows on from Section 1.3.

Two centre pivots are located in this section, as indicated.

The servitude can pass more or less in a straight line through this section, as indicated.

This section is preferred to Section 1.4, as it will avoid the possibility of relocation as found in section 1.4.



Section 3.2

This section follows on from Section 3.1.

This section contains a total of 13 centre pivots and numerous scattered households, as indicated.

To avoid these structures, the 165m wide servitude would have to follow a zigzag approach, as indicated.

Section 3.3

This section follows on from Section 3.2.

This section contains two centre pivots and a number of scattered households, as indicated.

To avoid these structures, the 165m wide servitude can follow a fairly straight line through this section, as indicated.

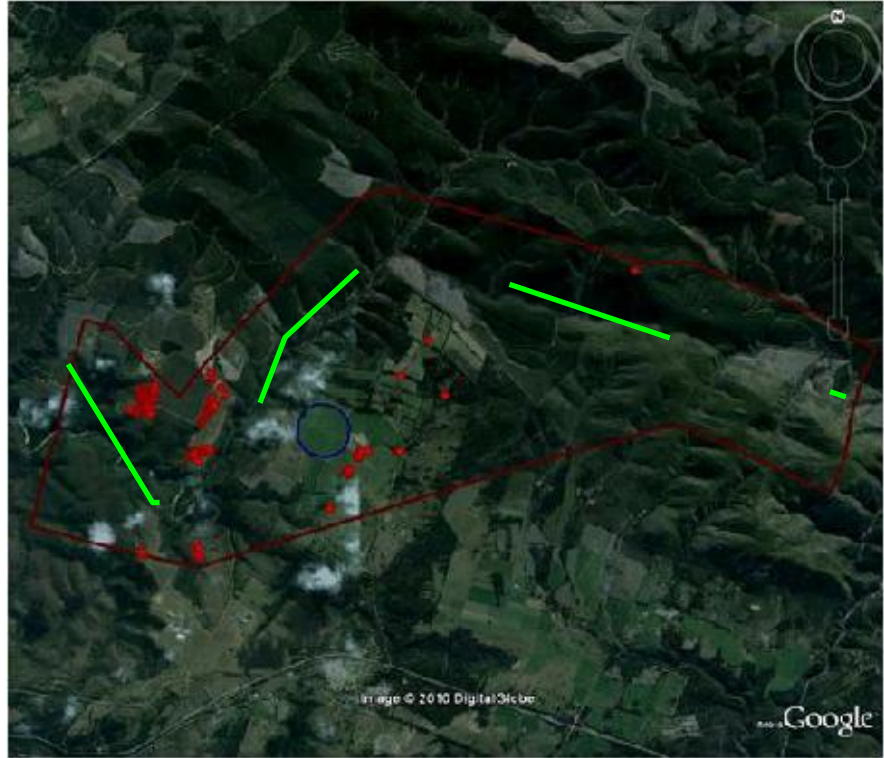


Section 3.4

This section follows on from Section 3.3.

This section contains one centre pivot and a number of scattered households, as indicated.

To avoid these structures, the 165m wide servitude would have to follow a zigzag approach, as indicated.

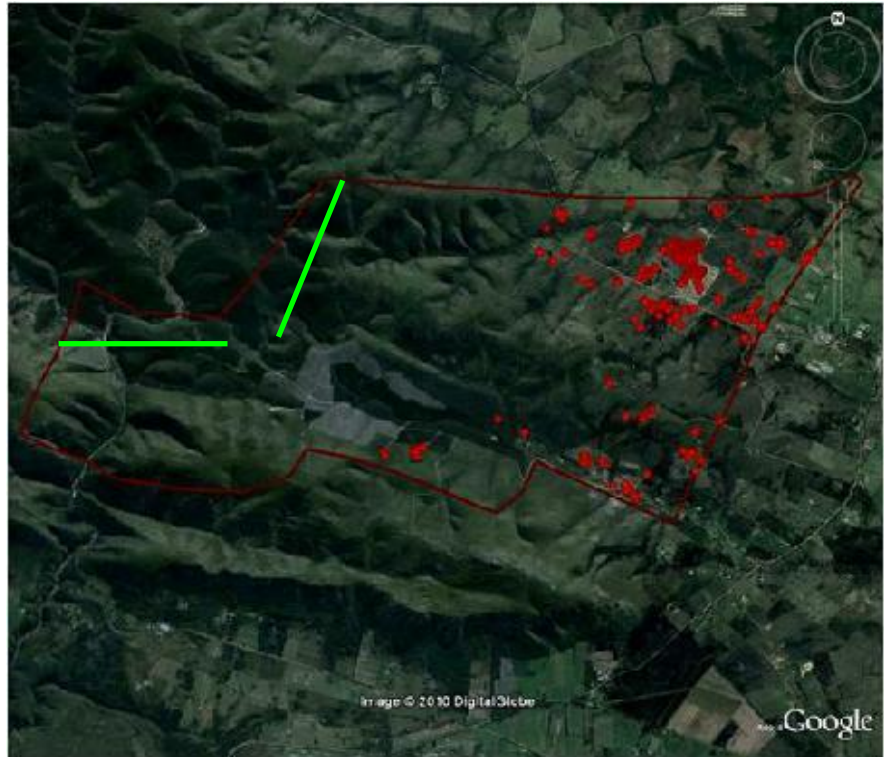


Section 3.5

This section follows on from Section 3.4.

This section contains a number of scattered households and structures, as indicated.

These structures will all be avoided as the transmission lines will turn northwards to link up with Northern Alternative 1's section 1.9.



As per the results of the Scoping study, the following geographic change processes are expected:

- Change in movement patterns;
- Change in access to resources that sustain livelihoods; and
- Change in irrigation activities.

Change in Movement Patterns

Because movement across a servitude is not prohibited, it is not likely that the physical division caused by a servitude will significantly change movement patterns and impact on the maintenance of relationships. Where roads are constructed for access to the servitude, movement patterns may be affected.

However, due to the inhabited nature of large segments of the corridor, it is expected that construction will take place in close proximity to people movement, which can be regarded as sensitive receptors. Therefore, a level of disruption in daily living patterns can be expected because of the activities taking place within the construction area.

The issue has been assessed in detail in Table 3.1 below.

Table 3.1: Change in Movement Patterns Impact Assessment

	Northern Alternative 1				Northern Alternative 2				Northern Alternative 3			
	Pre-Mitigation		Post-Mitigation		Pre-Mitigation		Post-Mitigation		Pre-Mitigation		Post-Mitigation	
Geographical extent	Local	2	Site	1	Local	2	Site	1	Site	1	Site	1
Probability	Possible	2	Unlikely	1	Possible	2	Unlikely	1	Unlikely	1	Unlikely	1
Reversibility	Completely reversible			1	Completely reversible			1	Completely reversible			1
Loss of Resources	Marginal loss	2	No loss	1	Marginal loss	2	No loss	1	No loss	1	No loss	1
Duration	Short term	1	Short term	1	Short term	1	Short term	1	Short term	1	Short term	1
Cumulative Effect	Medium	3	Low	2	Low	2	Negligible	1	Negligible	1	Negligible	1
Magnitude/Intensity	Medium	2	Low	1	Medium	2	Low	1	Low	1	Low	1
Significance	Negative Low	-22	Negative Low	-7	Negative Low	-20	Negative Low	-7	Negative Low	-7	Negative Low	-7
Preferred Alignment									X			

Change in access to resources that sustain livelihoods

This issue has been assessed in detail in Section 3.3.

Change in irrigation activities

This issue has been assessed in detail in Section 3.3.

Summary of Impacts

- A number of structures, including scattered households, towns, and centre pivots are located within the corridor. Structures should be avoided as far as possible with the alignment of the transmission power lines to prevent further impacts on the affected individuals.
- It is not likely that the physical division caused by the servitude will significantly change movement patterns.
- It is expected that construction will take place in close proximity to people movement, which can be regarded as sensitive receptors.
- Change in access to resources that sustain livelihoods and change in irrigation activities has been assessed in Section 3.3.

3.2. Demographical Processes

Demographic processes relate to the number of people and composition of a community and include an overview of the population size and the educational profile of the affected communities.

Unless otherwise stated, the baseline social profile was compiled based on data obtained from Census 2001 and the Community Survey (CS) 2007. It is important for readers to note that CS data does not replace Census data, but that the CS is merely an attempt to adjust measurements to a best estimate. In this regards, Statistics South Africa has stated the following: *“Any adjustment done [in CS 2007] has maintained the profiling of the community in terms of the people and households while compensating and correcting the undercounted bias by different projections on national, provincial and municipalities.”*⁷

Therefore, please bear in mind that the following data should only be viewed as indicative of the broad trends within the area and not as a rigid representation of the area.

3.2.1. Baseline Demographical Profile

• Population

The KLM covers an area of approximately 2 419 km² and in 2007 had a total population of 73 274 people. Compared to the population size of 2001, when the population stood at approximately 70 695 people, this means that the population within the KLM grew at an average rate of 430 people per annum or a total of 2 580 over the 6-year period between 2001 and 2007. This population growth did

⁷ Statistics South Africa: Community Survey 2007: Key Municipal Data: ix.

not have a significant impact on the population density of the area, increasing it by an average of 1.1 persons from 29.2 persons per km² in 2001 to 30.3 persons per km² in 2007.

Aberdeen Plain (ECDMA10) is an area of low population density, estimated at around 0.5 persons per square kilometre or a total population of 6 538 people (year unknown). This DMA accounts for more than one fifth (22.8%) of the total district area and extends over 13 308km².

The NMBM has a slightly smaller land surface area than that of the KLM and extends over 1 959km². Despite the fact that the NMBM has a smaller land surface area than the KLM, the total population size within the NMBM is more than 10 times that of the KLM and in 2007 stood at approximately 1 050 930 people. This is indicative of the fact that the NMBM is much more urbanised than the KLM, serving as a pull factor for people to move to the city in search of better economic and living conditions. The population within the NMBM therefore also increased on average at approximately 7 525 people per annum, thereby also increasing the population density rate on average at approximately 3.9 persons per km² per annum. However, such a population density is still regarded as fairly low when compared to an urban area such as Johannesburg where the population density in 2007 stood at approximately 2 364 people per km².

In 2001, the KLM had a total of 19 255 households (where a household is defined as: *“One or more people occupying a housing unit as their usual place of residence. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated people who share living arrangements”*⁸), which decreased at a rate of 29 households per annum to a total of 19 083 households in 2007. However, this decrease in households was still on par with the population growth rate so that there has only been an average increase of 0.1 persons per household over the 6-year period between 2001 (when the average number of persons per household was estimated at 3.7) and 2007 (an average of 3.8 persons per household). According to the Municipal Demarcation Board⁹, the ECDMA10 had a total of 1 787 households in 2003, at an average of 3.7 persons per household.

As could be expected where there is an influx of people to an area, the number of households in the NMBM increased steadily at an average of 7 525 households per annum to a total of 276 881 households in 2007. The average number of people per household in 2007 stood at 3.8 persons per household, which represents a slight decrease from 2001 when the average number of persons per household stood at 3.9.

The predominant population groups in both the KLM as well as the NMBM remained the same between 2001 and 2007, which was Coloured (43.1%) followed by Black African (31.5%) for the KLM, with the inverse in the NMBM where the predominant population group was Black African (60.4%), followed by Coloured (22.6%). However, the population growth rate amongst the Coloured population groups in both areas has decreased proportionally when measured against their Black African counterparts. Therefore, although Coloured is still the predominant population group in for example the KLM, representatively this population group has decreased by approximately 4.6% in the area. No information could be obtained for the population group composition of the ECDMA10.

⁸ jhr.ua.edu/blackbelt/glossary.html

⁹ Municipal Demarcation Board (2003). Draft Report: District Municipal Areas in South Africa.

The same sort of phenomenon can be found amongst the gender distribution in the KLM. In 2001, there was an almost equal split between the male and female ratio (with females dominating slightly at 51.4%, which increased slightly to 51.6% in 2007). Within the NMBM, the gender ratio between 2001 and 2007 returned to more of an equilibrium with females dominating only slightly at 51.1% in 2007. A declining male population in the KLM with an increasing male population in the NMBM might also be ascribed to the migrant labour patterns in South Africa where the male moves from a rural to an urban area (in this case from the KLM to the NMBM) in search of work in order to support his family.

More than two thirds (66.4% for the KLM and 69.5% for the NMBM, unknown for the ECDMA10) of the total population in these areas fall within the working age category, which Statistics South Africa define as the ages between 15 and 64.

Table 3.2 below provides an overview of the population demographics of the study area in relation to South Africa as a whole, the province and the district. From this table it is evident that there are more females than males in the study area, which, as mentioned above, might be ascribed to the migrant labour patterns in South Africa where the male moves to a different area in search of work. If this is the case, it can very well be assumed that these males are employed elsewhere and would therefore not be seeking work at the proposed project. It is therefore necessary to take cognisance of the fact that the majority of work seekers might be female.

Table 3.2: Summary of Population Characteristics

	South Africa	ECP	CDM	KLM		ECDMA10	NMBM	
	2007			2001	2007	(Year unknown)	2001	2007
Area size (km²)	1 219 912	169 952 (13.9% of SA)	58 244 (34.3% of ECP)	2 419 (4.2% of CDM)		13 308 (22.8% of the CDM)	1 959 (1.2% of ECP)	
Total population	48 502 063	6 527 747 (13.5% of SA)	363 496 (5.6% of ECP)	70 695	73 274 (20.2% of CDM)	6 538	1 005 779	1 050 930 (16.1% of ECP)
				Average increase of 430 persons per annum			Average increase of 7 525 persons per annum	
Population density (people per km²)	39.8	38.4	6.2	29.2	30.3	0.5	513.4	536.5
				Average increase of 0.2 persons per km ² per annum			Average increase of 3.9 persons per km ² per annum	
Total households	12 500 610	1 586 739	99 832	19 255	19 083	1 787	260 799	276 881
				Average decrease of 29 households per annum			Average increase of 2 680 households per annum	
Avg. persons per household	3.9	4.1	3.6	3.7	3.8	3.7	3.9	3.8
Predominant Population Groups	Black African (79.5%) ⁴	Black African (87.6%) Coloured (7.5%)	Black African (46.2%) Coloured (40.2%)	Coloured (47.7%) Black African (33.4%)	Coloured (43.1%) Black African (31.5%)	Unknown	Black African (58.9%) Coloured (23.5%)	Black African (60.4%) Coloured (22.6%)
				Average decrease of 357 Coloured people p.a., resulting in a decrease of 4.6% in relation to total population.			Average increase of 7 073 Black African people p.a. and an increase of 1.5% in relation to total population.	

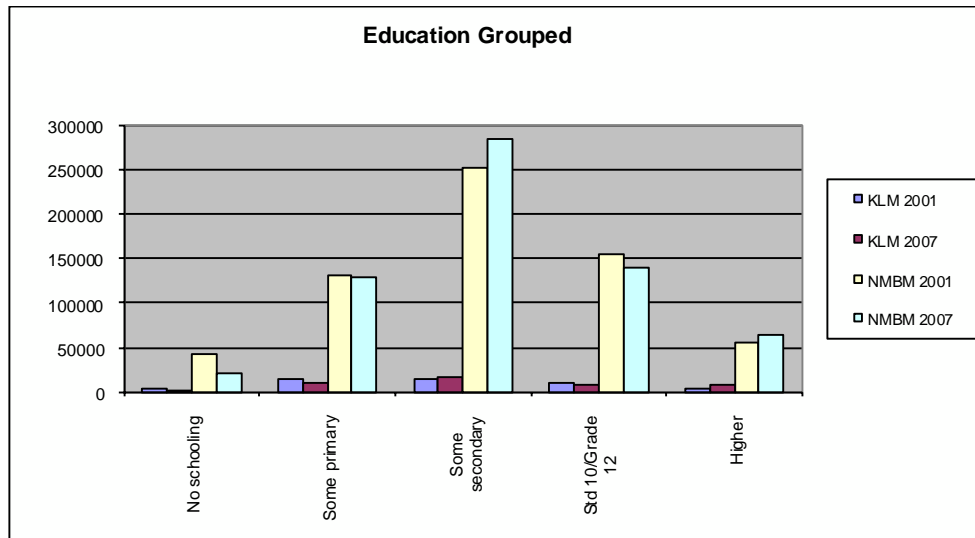
	South Africa	ECP	CDM	KLM		ECDMA10	NMBM	
	2007			2001	2007	(Year unknown)	2001	2007
				Also, average decrease of 96 Black African people p.a., and decrease of 1.9% relation to total population.			Average increase of 149 Coloured people p.a., but decrease of 0.9% in relation to total population.	
Predominant Gender	Female (50.8%) ¹⁰	Female (52.9%)	Female (52.2%)	Female (51.4%)	Female (51.6%)	Unknown	Female (52.2%)	Female (51.1%)
				Average increase of 561 females p.a., with an increase of 0.2% in relation to total population. Average increase of 494 males p.a., but a decrease of 0.2% in relation to total population.			Average increase of 7 110 females p.a., but decrease of 1.1% in relation to total population. Average increase of 10 245 males p.a., with an increase of 1.1% in relation to total population.	
Predominant Age Group	Working age (% unknown)	Working age (57.4%)	Working age (64.4%)	Working age (66.1%)	Working age (66.4%)	Unknown	Working age (68.6%)	Working age (69.5%)
				Working age population increased by an average of 321 persons p.a.			Working age population increased by an average of 7 372 persons p.a.	

¹⁰ Census 2001 data (2007 data not readily available)

- **Education**

An overview of the educational profile for the study area on local municipal level is provided in Figure 3.3. No information could be obtained for the educational profile of the ECDMA10 and therefore the baseline educational profile is focused on the KLM and the NMBM. Overall, it would appear as if the study area is characterised by a semi-skilled to skilled population, which is reflected in the fact that only a small minority (only 4.9% in the KLM and 3.4% in the NMBM, unknown for the ECDMA10) of the population has had no form of formal education.

Figure 3.3: Educational profile (Grouped) for the affected local municipalities



When considering the educational levels reported for the total population of the study area between 2001 and 2007, the number of people who attended and/or completed a primary level education, decreased in the KLM, whereas it remained the same for the NMBM. On the upside, the number of people who have had no schooling decreased in both municipal areas, while at the same time the number of people who completed some form of secondary education increased. The amount of people who have completed Grade 12 remained more or less the same for the KLM, but decreased in the NMBM.

The number of people who obtained a higher (post-Grade 12) qualification also increased in both municipal areas. The increase in the secondary and tertiary educational levels could be as a result of a need to get out of the poverty cycle by joining the labour force, realising that some form of education might be beneficial.

One of the driving forces behind social change is educational attainment, which in turn is linked to poverty levels, as there appears to be a correlation between the level of educational attainment and income levels. People with higher educational levels tend to be economically better off, and therefore contribute more to the reduction of the unemployment rate. Educational attainment is also linked to poverty in the sense that funds are required to further studies, therefore people living in less favourable economic conditions tend to be unable to further their education, which in turn holds them in a downward poverty spiral.

So What?

- The baseline demographic profile provides an overview of the local area that will be affected to ensure proper planning that will affect the least amount of people during both construction and operation; and
- The baseline educational profile provides the project proponent with an indication of the skills levels that might be available in the area in an attempt to predict whether or not it would be possible to source labour and services from the local community.

3.2.2. Demographical Change Processes

It is expected that the construction and operation of the three proposed 400kV transmission power lines will lead to a temporary change in the number and composition of the population within the affected local area during the construction period, which in turn could lead to economic, land use, and socio-cultural change processes. As per the results of the Scoping study, the following demographical change processes are expected:

- Displacement and relocation of households;
- Influx of construction and maintenance workers; and
- Increase in in-migration of job seekers.

Displacement and relocation of households

The displacement and relocation of households causes social and psychological disruption to those involved. The need for relocation implies a certain degree of responsibility on the side of the project proponent (Eskom) to ensure that the affected individuals and/or families do not endure the most of a project that will benefit others. This means that the affected individuals should enjoy the same standard of living that they have enjoyed before the project.

Apart from formal settlement, the presence of informal settlement poses different problems. National legislation normally only recognises formal, registered title land ownership, but the mere presence of squatters signifies their need for special attention. There are other forms of informal or unregistered title, such as usufruct rights (permanent or temporary), seasonal use rights, and right of access to commons. This means that a lack of legal tenure should not be a criterion for withholding financial compensation or assistance in relocation. It is, however, important to distinguish between households that have settled in the area prior to the project commencing and those who settle in the area simply to benefit from relocation.

The impacts as a result of relocation might be numerous and vary between people. The impacts of relocation on a person depends on the level of attachment to a place, which in turn is informed by variables such as age and number of years spent in that particular area, and personality. Relocation of households might have a negative impact on mental and physical health, on community cohesion, and on livelihood.

Table 3.3 was taken from a World Bank document entitled *Impacts arising from land acquisition and resettlement* (undated) and reflects the categories of affected people and the proposed actions required to assist these individuals.

Table 3.3: *Categories of affected people and proposed action*

Category of person by affect	Action required
Owner: loses house and all land	Replace house and lands in new area
Owner: loses house and some land (land not left viable)	Replace house and all lands in new area
Owner: loses house and some land (land not left viable)	Replace house, as proprietor wishes; either on remaining land, with compensation for land lost, or on new plot
Owner: loses house but no land lost	Replace house either on remaining land or on new plot
Landless owner: loses house	Replace house on new plot in original or new area, as proprietor wishes
Tenant: loses house	Assist with housing in old or new area, depending on tenant's wishes
Squatter: loses house	Assist with housing in old or new area, depending on squatter's wishes
Owner: loses all land but not house	Either replace land within a reasonable distance of house, or replace house and lands in new area, as proprietor wishes
Owner: loses some land (land not left viable) but not house	Either replace land within a reasonable distance of house, or replace house and lands in new area, as proprietor wishes
Owner: loses some land (land not left viable) but not house	Compensate for loss of land
Owner: loses home-based business income (temporary), but not home	Compensate for loss of income
Owner: loses home-based business and home	Replace house in original or new area, as proprietor wishes, and compensate for loss of income during relocation processes
Tenant, squatter or street vendor: loses effective use of business site	Provide alternative location with equal or better access, services and business potential
All categories: loses neither land nor house	No action
Host community / area	Strengthen resource base and social services stressed by influx of resettled people

The International Financing Corporation (IFC) states that relocation should be avoided as far as possible. Based on the social sensitivity mapping (refer to Section 3.1), a detailed assessment of this issue is contained in table 3.4 below. This assessment was done on the assumption that the proposed alignment from a social perspective was not followed (worst case scenario).

Table 3.4: Relocation of Households Impact Assessment

	Northern Alternative 1				Northern Alternative 2				Northern Alternative 3			
	Pre-Mitigation		Post-Mitigation		Pre-Mitigation		Post-Mitigation		Pre-Mitigation		Post-Mitigation	
Geographical extent	Local	2	Site	1	Site	1	Site	1	Site	1	Site	1
Probability	Definite	4	Probable	3	Possible	2	Unlikely	1	Possible	2	Unlikely	1
Reversibility	Partly reversible			2	Partly reversible			2				
Loss of Resources	Significant	3	Marginal	2	Significant	3	Marginal	2	Significant	3	Marginal	2
Duration	Long term	3	Medium term	2	Long term	3	Medium term	2	Long term	3	Medium term	2
Cumulative Effect	Medium	2	Low	1	Medium	2	Low	2	Medium	2	Low	2
Magnitude/Intensity	High	3	Medium	2	High	3	Medium	2	High	3	Medium	2
Significance	Negative High	-51	Negative Low	-22	Negative Medium	-45	Negative Medium	-20	Negative Medium	-45	Negative Medium	-20
Preferred Alignment									X			

Influx of construction and maintenance workers

Table 3.5 below provides an overview of the estimated number of people who will be on site at any given time during the various construction phases, i.e. pre-construction, construction, and post-construction. Not all of the people are present on site all day every day. Due to the location of the project area and the project size, it is not foreseen that construction team members will be housed on site in a construction village. The total size of the construction team is estimated to be in the order of 548 people across the lifespan of the construction phase. However, bear in mind that the construction processes follow a phased approach so that the full construction team component will never be on site simultaneously. The most people that will be on site at the same time are during the peak of construction, when approximately 210 construction team members will be active on the project.

The size of the team should not be confused with employment opportunities, as it is expected that the bulk of these positions will be filled by skilled employees from either the contractor or Eskom itself. Where unskilled work is required these positions might be filled by people from the local area, but these opportunities are mostly restricted to activities such as vegetation clearance, gate erection and rehabilitation of the natural environment post construction, i.e. an estimated 90 positions across the lifespan of the project. However, often vegetation clearance pre-construction is done by a specialised firm to ensure that sensitive plant species are preserved and/or relocated correctly.

Table 3.5: Estimated number of people on site per project component per project phase

On Site Activities	ESTIMATED NUMBER OF PEOPLE PER SITE ACTIVITY														
	Pre-Construction Phase				Construction Phase								Post-Construction Phase		
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Technical survey	10														
Environmental survey		15													
Access negotiations		3													
Pegging central line			10												
Bush clearance				30											
Gate erection				15											
Foundation team					90	90	90								
Assembly team							90	90							
Erection team								90	90	90					
Stringing team										90	90	90			
Commissioning team													30	30	30
Rehabilitation team													45	45	45
Management team	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
TOTAL	40	48	40	75	120	120	210	210	120	210	120	120	105	105	105

The construction of the transmission power lines requires skilled workers. In all probability the contractor will bring in his own workforce – people who have the required skills, but who are normally also not from the local area. However, a construction team consists of a certain number of people (the size of the team depends largely on the type of construction required) and they enter the area with a very specific purpose. The time they spend in the area is clearly defined and often controlled as such (e.g. construction workers arrive on site in the morning and depart from the area in the evening), and due the nature of their work, their contact with the local community is limited.

Once the project has been completed, construction workers who form part of a contractor's permanent workforce will move on to a next project and will seldom stay in the area. At the peak of construction, the number of construction workers on site is estimated to be around 210 people (spread out across the length of the transmission power lines). Because the construction workers will most probably commute to site, it is expected that the influx of construction workers will have a negligible effect in the highly urbanised communities.

It is expected that this impact will occur regardless of which alternative is implemented within the corridor, and therefore the impact assessment as per table 3.6 below did not make a distinction between alternatives.

Table 3.6: *Influx of Construction Workers Impact Assessment*

	Pre-Mitigation		Post-Mitigation	
Geographical extent	Local	2	Site	1
Probability	Possible	2	Unlikely	1
Reversibility	Completely reversible			1
Loss of Resources	No loss	1	No loss	1
Duration	Short term	1	Short term	1
Cumulative Effect	Low	2	Negligible	1
Intensity/Magnitude	Medium	2	Low	1
Significance	Negative Low	18	Negative Low	6

Increase in in-migration of job seekers

Unlike the regulated circumstances surrounding a construction team, the influx of job seekers is unregulated and often very difficult to control. It is also very difficult to predict how many job seekers could be expected and the extent to which they can change the size and composition of the local population, as the intensity of the effect will be influenced by the actual number of job seekers.

Given the skills required for the respective construction processes, it is highly unlikely that a job seeker will find formal employment by loitering at the construction camp or site. Job seekers then become a burden to the host community, as they do not have the means to sustain themselves,

thereby becoming dependent on others (usually people who themselves only have limited resources). The presence of job seekers can also lead to the creation and/or expansion of informal settlements.

The following quote was taken from *People and Places: An overview of Urban Renewal* by Carien Engelbrecht, and describes the poor socio-economic conditions in informal settlements, how these conditions give rise to further degradation of its residents' quality of life and social well-being, and how it affects neighbouring areas.

*"Informal settlements are often located on marginal land subject to environmental degradation and hazard. The unplanned nature, poor design and incremental growth of informal settlements complicates conventional service provision. Residents often lack basic educational qualifications, and are typically dislocated from the surrounding labour market... The informal nature of settlements, and particularly the absence of formal, demarcated roads and access points creates opportunities for the operation of illegal activities by criminal syndicates, whilst the youthful, unemployed and male demographic profile of informal settlements leads to the emergence of gangs and high levels of violent crime. The extreme social conditions, high unemployment and the absence of social amenities exacerbates social stress, which often manifests in domestic violence, rape and child abuse. The explosion of crime within informal settlements is exacerbated by the institutional vacuum created by the lack of political will and absence of sufficient, effective, and credible policing within informal settlements areas. Exclusion, unemployment, and poverty have created environments in which residents have lost their self-esteem, pride, and human dignity."*¹¹

The more an informal settlement continues to grow, the more socio-economic conditions will continue to deteriorate (with more people trying to access the same amount of limited resources), and the more the quality of life of other local (neighbouring) residents will be affected. However, restricting the influx of job seekers and the associated expansion of existing informal settlements is a mammoth task and often beyond the contractors' control.

The issue is mentioned here to illustrate the impact that poor living conditions have on an individual's life - job seekers often find themselves in this position when they are lured to the urban life under the impression that the city offers everyone employment irrespective of skills or education. It is therefore vital that local communities are informed upfront that mostly skilled work will be required and that it is highly unlikely that large numbers will be employed from the local community.

It is expected that this impact will occur regardless of which alternative is implemented within the corridor, and therefore the impact assessment as per table 3.7 below did not make a distinction between alternatives.

Table 3.7: Increase in In-migration of Job Seekers Impact Assessment

	Pre-Mitigation		Post-Mitigation	
Geographical extent	Local	2	Local	2
Probability	Probable	3	Possible	2

¹¹ <http://www.sacities.net/2004/UrbanRenewalPart2.pdf>

	Pre-Mitigation		Post-Mitigation	
Reversibility	Partly reversible			2
Loss of Resources	Marginal	2	Marginal	2
Duration	Medium term	2	Short term	1
Cumulative Effect	Medium	3	Low	2
Intensity/Magnitude	Medium	2	Low	1
Significance	Negative Low	28	Negative Low	11

Summary of Impacts

- The displacement and relocation of households causes social and psychological disruption to those involved.
- It is not expected that displacement and relocation of people will significantly change the demographic profile of the area, as displaced people will most likely be moved to a different location within the project area.
- Because the construction workers will most probably commute to site, it is expected that the influx of construction workers will have a negligible effect in the highly urbanised communities.
- Job seekers can become a burden to the host community, as they do not have the means to sustain themselves, thereby becoming dependent on others (usually people who themselves only have limited resources). The presence of job seekers can also lead to the creation and/or expansion of informal settlements.

3.3. Economic Processes

Economic processes relate to the way in which resources are created, distributed and used in the economy and how people benefit from these processes. In order to understand the full economic picture it is necessary to consider current conditions that prevail in the region and pressures that are the current agents for economic change.

3.3.1. Baseline Economic Profile

The following baseline features and trends are considered to be of importance in the project area:

The motor industry manufacturing sector

The largest car manufacturer in the country, Volkswagen South Africa, a wholly owned subsidiary of Volkswagen AG, is situated in Uitenhage. General Motor's SA is a locally owned organization, while Ford SA is another Port Elizabeth based Original Equipment Manufacturer. The Struadale Ford engine plant manufactures and exports the Rocam engine used in a number of different Ford models. Nelson Mandela Bay is also home to automotive component manufactures that are well positioned to serve top Eastern Cape exporters Volkswagen South Africa, General Motor SA and Daimler Chrysler SA in East London. (Eastern Cape Development Corporation, 2009).

The Coega IDZ

Industrial Development Zones (IDZs) are purpose-built industrial estates geared for duty-free production for exports, and they play an important role in South Africa's economic planning and development. They provide transport, logistics and business services tailored for export-oriented industries. The Coega IDZ is a combination of 11 000 ha of sector specific zoned land with purpose built infrastructure. Positioned alongside is the Port of Ngqura – South Africa and Africa's largest deepwater port, developed to expand South Africa's harbour and shipping freight handling capacity. Coega will host several large-scale industrial and trade facilities, as well as purpose designed power generation facilities. The aim is to enable growth in the manufacturing, transport, resource and energy sectors (Coega Development Corporation, 2009).

Agriculture

The historically strong coastal dairy industry is growing rapidly as more farmers in the high rainfall coastal zone change to dairy farming. The province currently provides some 20% of South Africa's milk from farms along the coastal belt, including those in the Kouga Local Municipality (Kouga LM) and the Nelson Mandela Bay Metro Municipality (Nelson Mandela Metro). There are several initiatives being considered to expand processing from a plentiful raw milk base to UHT milk, milk powder, and speciality cheeses. There is further potential in high-quality competitive dairy exports to new international markets (Eastern Cape Development Corporation, 2009).

Tourism

The coastal area from Oyster Bay to Jeffreys Bay is a popular coastal tourist destination during holiday periods for South Africans living elsewhere in the country. A significant percentage of homes found in the towns of Oyster Bay, St. Francis Bay, Aston Bay and Jeffreys Bay are seasonal holiday homes utilised by non-resident owners. The trend of holiday home ownership along the Southern coastline has been a major driver of property price increases and is responsible for supporting a number of industries such as construction. It has also increased development pressure by increasing incentives for owners of agricultural land to convert these to new rural developments, new residential areas or intensive tourist venues.

Major nature tourist draws in the area are the Addo National Elephant Park and the Shamwari Game Reserve. The Addo Elephant Park was proclaimed in 1931, when only eleven elephants remained in the area. Currently the park is home to over 450 elephants, Cape buffalo, black rhino, a variety of antelope species, as well as the unique flightless dung beetle, found almost exclusively in Addo. There are currently plans being considered to expand the 164 000 ha Addo National Elephant Park, which is already the largest National Park in South Africa, into a 360 000 ha mega-park including a marine reserve. (South African National Parks, 2009)

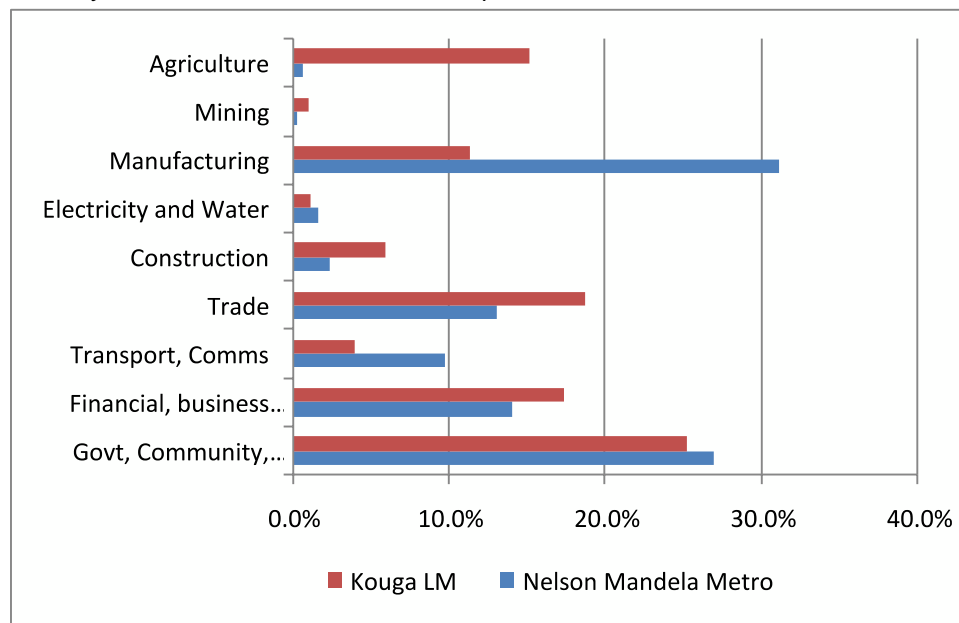
Shamwari Private Game Reserve is a private big 5 game reserve of 25 000 hectares located on the Bushmans River, halfway between Port Elizabeth and Grahamstown with a strong focus on up-market and international tourists.

Regional Industry Size

The proposed project is located in two main regions namely the Kouga Local Municipality (LM) which is located in the Cacadu District Municipality (DM) and the Mandela Bay Metropolitan Municipality (NMBMM). Industry size indicators for the Kouga LM area and the NMBMM indicate a clear difference in economic contributions and productive activities in each area:

- Agriculture contributes just over 15% of the Gross Geographic Product (GGP) of the Kouga LM but contributes minimally to that of the NMBMM;
- More than 30% of local GGP of the NMBMM is contributed by manufacturing, whereas the figure is substantially lower for the Kouga LM (12%);
- Construction and trade represents a bigger portion of the Kouga LM GGP than of NMBMM. A relatively large contribution by trade related businesses to local GGP is often a feature of smaller, less industrialised economy.

Figure 3.4: Industry contributions of the different municipal areas



(Source: Urban-Econ, 2009; NMBMM, 2006)

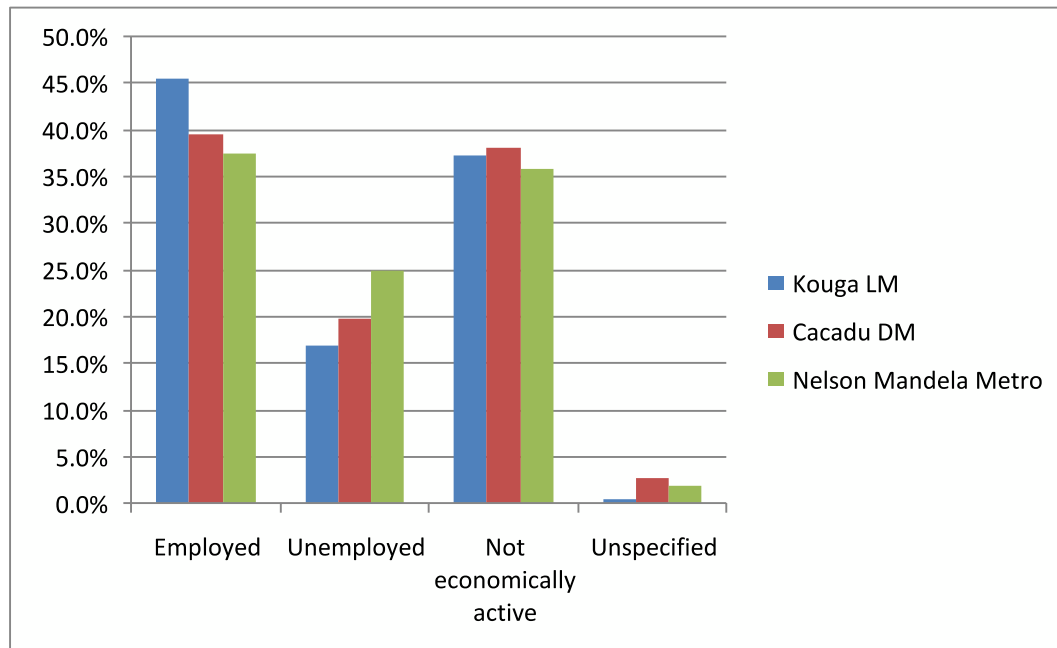
Regional Employment

The Kouga LM area displays significantly higher employment than both the district and the Nelson Mandela Bay area. This may indicate that:

- The local economy is able to generate a higher level of employment relative to the total population when compared to NMBMM and the Cacadu DM;
- Unemployed job seekers may be exported to bigger urban areas such as the NMBMM area as the location of businesses and industries creates the expectation of jobs there;
- Considering the level of development currently being planned in the area (see Figure 3.5 below), employment in the area may improve further if local population figures remain stable.

The level of economic labour participation is similar at a local and regional level, varying between 36% for the NMBMM area and 38% for the Cacadu district as a whole.

Figure 3.5: *Employment levels in the different municipal areas*



(Source: StatsSA, 2007)

Regional Property Values

This study focuses on agricultural, smallholding and lifestyle estate land values as these are most likely to experience loss of value due to overhead power lines. Residential suburbs within the urban zone are not generally affected, under the condition that lines run inside carefully planned servitudes with visual mitigation, do not cross existing properties and are located at least 75m-200m from residential property boundaries (depending on visual impact).

Rural land experienced strong growth of average of 25% per year between 2005 and 2007 in the Eastern Cape, in a similar trend to other property types. However, recent price increases may have been tempered by the global financial crisis most likely due to a lack of available credit. Agricultural properties are currently for sale in the Humansdorp area at between R8000 and R50 000 per hectare (Ha) depending on:

- Size – Smaller farms have higher prices per Ha
- Rainfall – Farms with rainfall figures above 750mm per year tend to be more expensive due to general higher land productivity
- Irrigation rights – These increase the land productivity and thus the price
- Capital investments – Dairy farming and poultry tend to increase firm prices due to the cost of the installations and machinery required.

It is expected that these prices may not always be achieved due to the economic conditions and that actual sale prices may be lower.

A farmer interviewed for this survey indicated that similar price ranges were appropriate in close to the N2 on the border between the Kouga LM and the Nelson Mandela Bay metro areas, with a dairy farm reported to be recently sold for R30 000 per Ha. An area of unusually high property values was found on the banks of the Gamtoos river (explained below) which represents a convergence of land with irrigation rights (therefore high productivity) and intensive capital investments (central-pivot irrigation and dairy facilities).

Selected Site Economic Features of Importance

During the economic baseline study of the Northern Corridor, a number of sites of economic importance were identified. These serve as examples to give a general indication of activity along the route and other economic activities not featured here may exist. In general, it was found that economic development is most intensive closer to the coastline due to the relatively flat terrain found on the coastal plain and adjacent river valleys. The features of importance as well as the area of intensive development has been depicted in Figure 3.6.

Figure 3.6: Location of examples of economic features of importance



Table 3.4: Examples of route features of importance

<i>Important features along the Northern Corridor alternatives</i>		
(a)	High productivity agricultural operations and land.	<p>An area of agriculture is found on two farms, namely Doringrug and Stillerus, which span almost the entire corridor in this area and is intensively irrigated. Further expansion of irrigation is also planned. The representative of these farms has supplied the following information about current activities:</p> <ul style="list-style-type: none"> • 896 ha in size with 196 ha irrigated by central pivot irrigation; • 1400 Head of cattle is kept; • R23 million turnover; • Provides employment for approximately 22 people; • BEE development trust with 27 beneficiaries dependent on farms;
(A)	Eco developments	<p>Landowners within this area are pursuing developments relating to environmentally sustainable farming and tourism/hospitality. The following information was provided by a landowner of such a development:</p> <p>Farm A</p> <ul style="list-style-type: none"> • Rights obtained for guest house as well as conference facilities; • Rights obtained to right to build five additional dwellings which will be Eco self sustainable homes; • Ground has been designated as sacred by Khoi Trust due to reburial of Khoi remains; • Agri-processing and spa facilities planned; • Plans to market property as a natural setting for art events;
(B)	High productivity agricultural operations	A number of central pivot irrigation systems and dense orchards span the majority of the corridor on the farm Zuurbron in this area.
(C)	Dense division of smallholdings	The area in the Gamtoos river valley within the northern section of the Northern corridor is characterised by a dense subdivision of agricultural holdings with buildings and other improvements. The area is also intensely farmed, often with central pivot irrigation.

<p>D</p>	<p>Extensive forestry operations</p>	<p>MTO Forestry manages the Longmore State Forest as a timber resource in this area and both the Northern and Southern firebreak routes of the Northern corridor will be mostly adjacent to the plantation. Some sections of the corridor are on productive plantation land however. Timber plantations are associated with the following approximate economic indicators:</p> <ul style="list-style-type: none"> • Production of 10.2 tons of pine per Ha • Average annual revenues of R 4400 per Ha • One job opportunity created for every 13 Ha planted
<p>E</p>	<p>Dense division of smallholdings</p>	<p>The area in the Swartkops River valley within the Northern corridor is characterised by a dense subdivision of agricultural holdings with buildings and other improvements. The area is also intensely farmed, often with central pivot irrigation.</p>

So What?

- The baseline economic profile gives an indication of how people in the area make their living and the economic activities within a given society. This is required in an attempt to minimise any potential negative impacts on people's livelihoods.
- Despite the high employment levels in the local area, unemployment is still high. The project might provide some employment relief, depending on the hiring practices used during the project and the extent to which local employment is prioritised.

3.3.2. Economical Change Processes

The possible impacts identified during the scoping phase and additional impacts identified during EIA phase project activities were investigated in terms of applicability to the project. They are discussed under the relevant headings below.

Impact on rural/agricultural and residential property values

An impact on property values would apply to both corridors where the lines are located close (within approximately 75m to 200m depending on visual aspects such as topography) to residential settlements or lifestyle estates, or where lines cross smallholdings/agricultural properties where value is derived from a natural setting.

Some evidence of the relationship between property values and transmission power lines can be found in the body of international studies on the relationship between the presence of power lines and residential property values specifically. Sims and Dent (2005) studied both qualitative information in terms of a survey of the opinion of chartered surveyors and estate agents in Britain, as well as investigating actual sale values in Scotland.

The valuation survey estimated the loss in value due to the proximity of a power line to be between 10% and 17.7% for semi-detached properties and between 6% and 13.3% for free standing houses. They did, however, find cases where a reduction of more than 50% was experienced when compared with similar properties more than 250m from a power line.

The perception survey of valuers and estate agents indicated a discount range of between 5% and 15%. Again, a portion (about 20% of the sample survey) indicated that the loss would be at least 10%.

An American survey conducted by Delaney and Timmons (1990) indicated residential property value loss due to power lines to be an average of 10.1% based on the opinions of property appraisers. They also indicated that there was a general belief amongst appraisers that the impact of power lines in proximity to a property would be to detract from property value.

Bolton and Sick (1999) conducted a legal review of American property value compensation issues caused by the presence of power lines. In the review, they cited a range of sources and studies conducted between 1990 and 1997. The range of property value impacts stated across studies was wide. Some indicated only slight value reductions of 6% average, while a California, USA-based study displayed possible value reductions of between 18% and 55.8%.

It appears that international studies are inconclusive and vary significantly based on location. Comparison between countries is also difficult as laws governing construction near a power line differ, with some using servitudes and others not. In the UK, for example, cleared servitudes are not used and the government allows construction directly under a power line in some cases, as long as applicable building regulations are met.

Interviews conducted with property valuations experts in South Africa (MasterQ Research, 2009a) indicates a wide impact range (from 10% to 90%) for residential properties based on a number of considerations. These include:

- General uses of property in the area;
- The land use rights associated with a property;
- The location of the line on the property (i.e. through the middle, along one side or cutting a corner of the property);
- Whether a supporting tower is situated on the property;
- Height of the power line;
- Whether the line is located on a slope, and the line runs higher up or lower down relative to the rest of the property thereby increasing or reducing any visual impact;
- The orientation of the main structures facing away from or onto the power line;
- The location of vegetation or topographic features that may lessen visual impact.

There are also strong indications from previous research conducted by MasterQ Research that any property value impacts are cumulative for the construction of multiple lines in servitude, especially where smaller agricultural, smallholdings and residential properties are concerned.

The impact of these considerations is illustrated in the examples below:

Figure 3.7a: Example of high likelihood and intensity of impact on residential property values (approx. 30-50%)

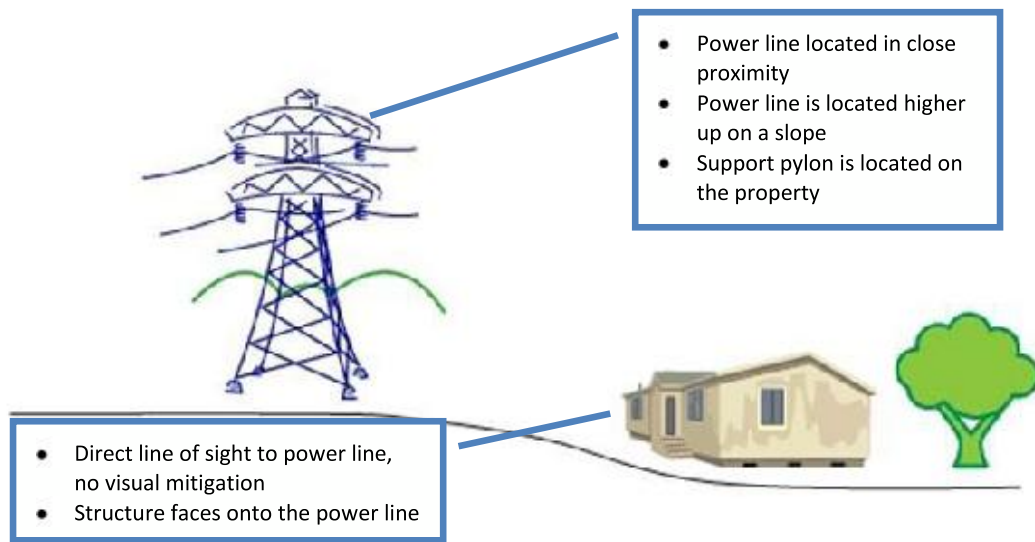


Figure 3.7b: Example of medium likelihood and intensity of impact on residential property values (approx. 15-30%)

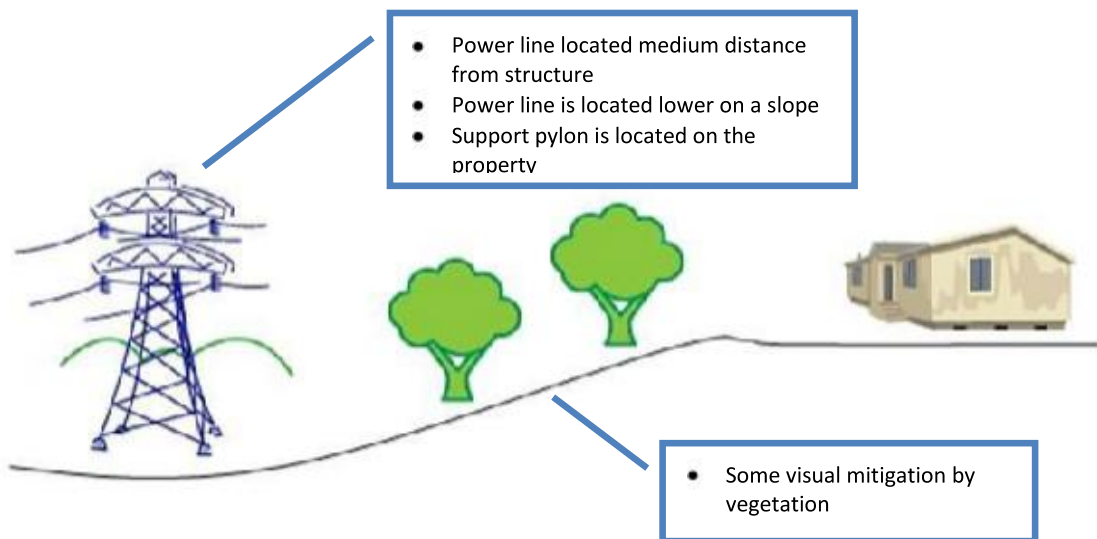
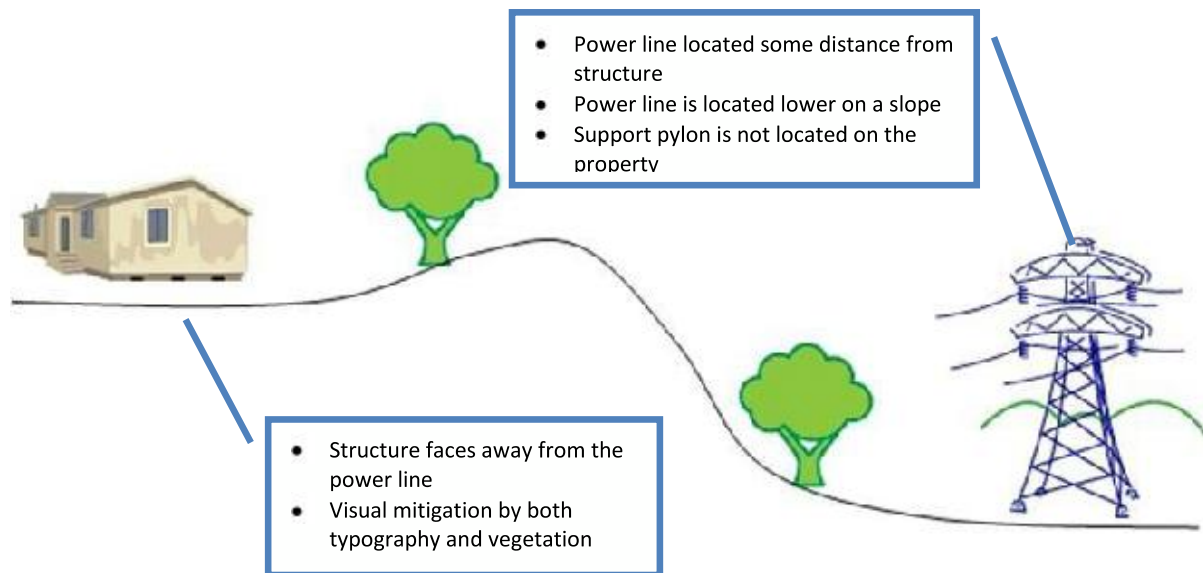


Figure 3.7c: Example of low likelihood and intensity of impact on residential property values (approx. 0-15%)



Limited research has been done on the impact of transmission power lines on large agricultural properties both in South Africa and abroad. Previous research by MasterQ Research (2007a, 2007b and 2009b) indicates that rural/agricultural property that derives its primary value from having a pristine or natural character may suffer some reduction in value when developments of an industrial nature (specifically power transmission lines) occur. Often this would most often involve properties on which conservation and nature related tourism is conducted and where a natural “sense of place” is an important characteristic. There is a growing body of evidence to suggest that pristine environments or natural landscapes are universally strongly preferred above human impacted landscapes across cultures (J. Farnum, T. Hall, Troy and L. E. Kruger, 2005). Economically this may translate into a lower desirability and therefore a lower valuation of a property.

Due to the size of agricultural properties, any impact of a power line would most often mean that a power transmission line is constructed on or bordering a property, therefore within relatively close visual range. This impact would not however, normally extend to commercial agriculture where the primary value of the property is derived from the productive capacity of the farm. Cases where power line route result in the loss of a material amount land used for central pivot irrigation systems, therefore dramatically reducing the productive capacity of the property and thus its value, would be an exception.

In order to refine ranges to exact likely values it is recommended that professional valuations are done when the route becomes more clearly defined. As the impact is determined by the exact routing relative to sensitive receptors, the wide corridors specified at this stage means that differences in property value impacts between routing options within each corridor cannot be effectively determined. (However, it is likely that the impact in either Northern corridor alternative would be moderate in nature as both corridors generally avoid the areas of more intensive development found along the coast. The exception would be the areas of high importance identified above. A new routing will be suggested to avoid sensitive areas,

As such, the following impact tables can be specified:

	Pre-Mitigation		Post-Mitigation	
Geographical extent	Site	1	Site	1
Probability	Possible	2	Unlikely	1
Reversibility	Partly reversible			2
Loss of Resources	No loss	1	No loss	1
Duration	Long term	3	Long term	3
Cumulative Effect	Low	2	Low	2
Intensity/Magnitude	High	3	Low	1
Significance	Negative Medium	33	Negative Low	10

Forfeit of development opportunities due to project activities

At several locations along the Northern route, individuals have expressed a desire to develop their properties from farmland to residential areas and/or residential estates with additional features such as gold courses, cottage industries or continued farming. It is suspected that the lucrative nature of developments of this kind means that there are additional landowners not contacted for this study whom share this desire and are in various stages of planning. The value proposition of many of these developments is related to natural beauty, rural lifestyle and proximity to the sea, and many developers interviewed believed that development opportunities could not be pursued if in close proximity to a transmission power line. However, it must be noted that residential development itself may change the character of the area and sense of place for other landowners.

As development activities have significant economic value, often for the local economy, it is necessary to model any opportunities lost due to the project. This impact must be seen as separate from the sterilisation of development land by power line servitudes (discussed under loss of capital goods).

Although there is no historic evidence that transmission power lines are a residential development inhibitor it is possible that the type of developments may change as a result of the location of the power line, and any residential developments that will derive their value from a rural character, farming environment or natural beauty may be affected. It is likely that there would be some cost implications for developers in either Northern corridor routes as a number of current development initiatives in the corridor do in fact rely on a rural character as their main selling point. A new routing will be suggested to avoid sensitive areas,

Subsequently the following impact tables can be specified:

	Pre-Mitigation		Post-Mitigation	
Geographical extent	Site	1	Site	1
Probability	Possible	2	Unlikely	1
Reversibility	Partly reversible			2
Loss of Resources	Marginal	2	Marginal	2
Duration	Long term	3	Long term	3
Cumulative Effect	Low	2	Low	2
Intensity/Magnitude	High	3	Low	2
Significance	Negative Medium	36	Negative Low	22

Sterilisation of irrigated agricultural land

Previous studies by MasterQ Research (2009b) have shown that the placing of power transmission lines on agricultural land does not usually impact farming activities. This is as both dry land agriculture and certain types of irrigated agriculture (crop cultivation and grazing) can continue underneath power lines. Some farmers did report a hassle factor associated with them if crop cultivation is done as the pylons interrupt the continuous cultivation of fields, but no loss of revenues were reported. While construction is underway all utilisation of the land will be disrupted, but as construction progresses fairly rapidly (a single tower section of power line is built in about 50 days) this will not occur for a significant period of time.

The exception to this is irrigated crops and grazing utilising moving infrastructure, most often using a central pivot system as found in figure 3.8 below.

Figure 3.8: A central pivot irrigation system



Due to the height and surface coverage of central pivot systems, such systems often cannot operate underneath power transmission lines. As can be seen in the baseline section there are a number of central pivot systems in operation along the Northern route, which dramatically increases the productivity of the land and allows large dairy farming operations to be conducted. For example, it is expected that one head of cattle per hectare (ha) is considered as good farming practice for dry land pastures in the area. This increases to between three to six head of cattle per ha for irrigated pastures.

Any power line corridor that crosses both existing pivot areas as well as area with strong future potential will cause the loss thereof for central pivot irrigation purposes. Although options may exist for other irrigation systems to be implemented, it is considered likely that dry land farming may be the only option for a significant portion of land affected as such. Although the value of power supplied by a power line for its operational life will be substantial, it is likely that to total agricultural productive loss due to a loss of irrigated land over the same period must also be considered.

Increased concerns regarding food security and the loss of agricultural land have been highlighted by the Department of Agriculture (2002) as important issues when dealing with development rural development. It is likely that there will be some impact on high productivity agricultural land (with central pivot potential) in either Northern corridor route but these can be mitigated through careful routing. A new routing will be suggested to avoid sensitive areas,

The loss or removal of the pivot equipment itself is dealt with separately under capital goods.

Based on this discussion following impact tables can be specified:

	Pre-Mitigation		Post-Mitigation	
Geographical extent	Site	1	Site	1
Probability	Possible	2	Unlikely	1
Reversibility	Partly reversible			2
Loss of Resources	Significant	3	Marginal	2
Duration	Long term	3	Long term	3
Cumulative Effect	Medium	3	Negligible	1
Intensity/Magnitude	Medium	2	Low	1
Significance	Negative Low	28	Negative Low	10

Loss or Removal of Capital Goods and Improvements

If the corridor crosses any areas where improvements in fixed capital goods or improvements such as land rezoning, land subdivision, infrastructure, installations or buildings are found these may have to be removed or relocated. This is due to the rules concerning allowed activities on power line servitudes, which does not allow fixed structures (installations or buildings) inside the servitude area. This requirement may in turn neutralise other fixed capital improvements (rezoned land, subdivided land and infrastructure). In some cases relocation may be done with moderate cost implications but will often require destruction and complete replacement at another site. The table below contains examples of capital goods often found in the project area.

Table 3.5: Infrastructure Features

Property Type	Capital goods
Farm/Agricultural	Homestead Labourers Houses Storage buildings Workshops Central pivot irrigation systems Dairies Holding Pens or Processing facilities Infrastructure (Water and Power)
Residential (Open Land)	Residential erven Infrastructure (Water, Sewage, Power, Roads, Storm Water related)
Residential (Built)	Housing

Property Type	Capital goods
	Services (Schools, Clinics, Parks) Infrastructure (Water, Sewage, Power, Roads, Storm Water related)
Commercial/Industrial (Open Land)	Industrial/Commercial erven Infrastructure (Water, Sewage, Power, Roads, Storm Water related)
Commercial/Industrial (Built)	Industrial facilities Commercial buildings Infrastructure (Water, Sewage, Power, Roads, Storm Water related)

As can be seen in from the baseline information the Northern route contains several areas with Agricultural, Residential and Commercial capital goods improvements and therefore capital goods losses may occur due to the power line route. As the impact is determined by the exact routing relative to features along the route, the wide corridors specified at this stage means that differences in capital goods value impacts between routing options within each corridor could not be effectively determined. However, it is likely that the impact in either Northern corridor would be moderate and can be effectively mitigated with careful routing.

The following impact tables are applicable:

	Pre-Mitigation		Post-Mitigation	
Geographical extent	Site	1	Site	1
Probability	Possible	2	Unlikely	1
Reversibility	Partly reversible			2
Loss of Resources	No loss	1	No loss	1
Duration	Long term	3	Long term	3
Cumulative Effect	Negligible	1	Negligible	1
Intensity/Magnitude	High	3	Medium	2
Significance	Negative Medium	30	Negative Low	18

Impact on output and employment in agriculture and forestry

As the transmission power lines may impact on the agricultural productivity of land along the various corridor routes it may therefore also affect output of the agricultural and forestry industries and the viability of specific operations along the route, which in turn will impact on employment. For high

productivity agricultural land that is currently irrigated or with irrigation potential, the losses can be specified as follows:

Table 3.6: *Production Loss in the agriculture industry*

Economic Implications of a 1 Ha loss of high potential agricultural land	All Phases
Loss in annual revenues (milk and associated)	R25 000 to R80 000 per annum
Loss in capital investments	R30 000 to R50 000
Loss in job opportunities	0.06 Opportunities (15 Ha per opportunity)

Some farmers in the area have stated that the viability their operations depend on maximum current or future utilisation of available land for irrigation purposes, and any significant reduction in ability to irrigate land may make the entire farming operation unfeasible. It is likely that the impact on agricultural output and employment in either Northern corridor would be moderate as all routing options cross intensively farmed areas. A routing will be suggested to avoid sensitive areas,

A similar impact applies to the reduction in output of in forestry in the Longmore State Forest as a result of the use of productive land for cleared servitudes, which cannot then be used for further forestry activities. Due to the homogeneous product (pine) associated with forestry activity in the area the impact of any loss of land can be estimated with some degree of accuracy. Every hectare of actively used forestry land lost will result in:

Table 3.7: *Production Loss in the forestry industry*

Economic Implications of a 1 Ha loss of forestry land	All Phases
Loss in annual revenues (timber)	R3 000 per annum
Loss in annual revenues (milling)	R2 790 per annum
Loss in capital investments	R21 017
Loss in job opportunities	0.02 Opportunities (37 Ha per opportunity)

Based on this description the following tables can be specified.

	Pre-Mitigation		Post-Mitigation	
Geographical extent	Site	1	Site	1
Probability	Probable	3	Unlikely	1
Reversibility	Partly reversible			2
Loss of Resources	Significant	3	No loss	1

	Pre-Mitigation		Post-Mitigation	
Duration	Long term	3	Long term	3
Cumulative Effect	Low	2	Low	2
Intensity/Magnitude	Medium	2	Medium	2
Significance	Negative Low	28	Negative Low	20

Economic injections result of project activities

Construction of a power transmission line is a large capital investment and suppliers of Eskom (as businesses operating in South Africa) stand to benefit from increased business opportunities as a result. The exact expenditure is R1.3 billion in the construction phase of the project, which a significant portion will be spent on South African operations. Based on information received from the proponent the economic benefit looks as follows:

Table 3.8: Route Features

Measure	Construction Phase
Direct Project Expenditure (R mil)	R1 300 000 000
Total New Business Sales(R mil)	R4 033 033 122
Total Contribution to GDP(R mil)	R1 981 536 714
<i>Likely International/National Split - Transmission</i>	80%/20%

When considering the projected contribution to new business sales and GDP, it is apparent that South African businesses will benefit from a substantial injection due to the project, which in turn results in secondary spending and employment as well as household spending. As such, the following impact tables can be specified:

	Pre-Enhancement		Post-Enhancement	
Geographical extent	Province/region	3	Province/region	3
Probability	Probable	3	Probable	3
Reversibility	Barely reversible			3
Loss of Resources	No loss	1	No loss	1
Duration	Long term	3	Long term	3
Cumulative Effect	Medium	3	Medium	3
Intensity/Magnitude	High	3	High	3

	Pre-Enhancement		Post-Enhancement	
Significance	Positive Medium	48	Positive Medium	48

Employment as a result of project activities

Construction detail sheets obtained regarding the construction of power transmission lines indicate that is a moderate creator of employment, with approximately 30 to 80 unskilled workers and 5 to 10 semiskilled workers that can be sourced other than skilled teams utilised by the contractor. The moving nature of power transmission line construction means that this employment will be temporary in nature for any person residing in a specific area. During operation employment creation will be minimal and maintenance will utilise existing manpower. As such, the following impact tables can be specified:

	Pre-Enhancement		Post-Enhancement	
Geographical extent	Local	2	Local	2
Probability	Probable	3	Probable	3
Reversibility	Partly reversible			2
Loss of Resources	No loss	1	No loss	1
Duration	Short term	1	Short term	1
Cumulative Effect	Low	2	Low	2
Intensity/Magnitude	Medium	2	Medium	2
Significance	Positive Low	22	Positive Low	22

National economic security or dependency due to project activities

One of the economic implications of the project and the larger distribution network is to ensure electricity security for the country as a whole. As was demonstrated at the beginning of 2008 electricity is a strategic economic issue, and the project will contribute to a more stable energy supply situation. There are several aspects to this:

- Lack of electricity supply is an inhibitor that hampers economic growth;
- A surplus of electricity capacity presents an opportunity for revenue in the short term and further economic growth in the future;
- Fully utilised electricity capacity represents a dependency, meaning that its removal will create a reduction in the economic activity for which is an enabler.

This impact is difficult to rate using the standardised rating scale due to its nationwide implications and the fact that it does not represent a manageable or impact or one that can be enhanced.

Summary of Impacts

- An impact on property values would apply to both corridors where the lines are located close (within approximately 75m to 200m depending on visual aspects such as topography) to residential settlements or lifestyle estates, or where lines cross smallholdings/agricultural properties where value is derived from a natural setting. There is some probability of impacts within the current Northern corridor.
- There are also strong indications from previous research conducted by MasterQ Research that any property value impacts are cumulative for the construction of multiple lines in servitude, especially where smaller agricultural, smallholdings and residential properties are concerned.
- Although there is no historic evidence that transmission power lines are a residential development inhibitor it is possible that the type of developments may change as a result of the location of the power line, and any residential developments that will derive their value from a rural character, farming environment or natural beauty may be affected. It is likely that there would be some cost implications for developers in either Northern corridor routes as current development initiatives in the corridor do in fact rely on a rural character as their main selling point.
- An impact on high productivity agricultural land (with central pivot potential) in either Northern corridor route would be significant due the areas of importance found the current Northern corridor routes. .
- If the corridor crosses any areas where improvements in fixed capital goods or improvements such as land rezoning, land subdivision, infrastructure, installations or buildings are found these may have to be removed or relocated. This requirement may in turn neutralise other fixed capital improvements (rezoned land, subdivided land and infrastructure).
- As the transmission power lines may impact on the agricultural productivity of land along the various corridor routes it may therefore also affect output of the agricultural and forestry industries and the viability of specific operations along the route, which in turn will impact on employment. It is likely that the impact on agricultural output and employment in either Northern corridor would be moderate as all routing options cross intensively farmed areas. A routing will be suggested to avoid sensitive areas,
- Construction of a power transmission line is a large capital investment and suppliers of Eskom (as businesses operating in South Africa) stand to benefit from increased business opportunities as a result.
- Construction detail sheets obtained regarding the construction of power transmission lines indicate that is a moderate creator of employment, with approximately 30 to 80 unskilled workers and 5 to 10 semiskilled workers that can be sourced other than skilled teams utilised by the contractor.
- One of the most economic implications of the project and the larger distribution network is to ensure electricity security for the country as a whole. This impact is difficult to rate using the standardised rating scale due to its nationwide implications and the fact that it does not represent a manageable or impact or one that can be enhanced.

3.4. Institutional and Legal Processes

Institutional and legal processes relate to the role, efficiency and operation of government sectors and other organisations within the area in terms of service delivery. It also investigates the ability of people

to engage in decision-making processes to such an extent that they have an impact on the way in which decisions are made that would concern them.

3.4.1. Baseline Institutional and Legal Processes

Municipal Services

The years between 2001 and 2007 saw a steady increase in the delivery of municipal services to the households within the study area. Municipal infrastructure backlogs are mostly confined to the previously disadvantaged township areas, and, as could be expected, in informal settlement areas. The outlying rural areas rely almost exclusively on water and sanitation services that are below RDP standard. In terms of water services, RDP standard is defined as piped water either within a dwelling or within 200m of such a dwelling. Sanitation services on par or above RDP standard is defined as any waterborne sanitation services that are connected to a municipal sewerage system or a ventilated pit latrine (VIP) system.

Table 3.7 below provides an overview of the municipal services of the affected area in relation to the province and the district as a whole. No data could be obtained for the overall municipal service delivery in South Africa. Based on the steady increase and expansion of municipal service delivery in the area, it would appear that, in general, these services are not lacking within the area and that the municipal network would be able to sustain additional connections to the network.

Table 3.9: Overview of Municipal Service Delivery to the Affected Areas

	South Africa ¹²	ECP	CDM	KLM		ECDM10 ¹³	NMBM	
		2007		2001 N = 19 255	2007 N = 19 083	2006 N unknown	2001 N = 260 779	2007 N = 276 881
Energy cooking		Electricity (45.3%)	Electricity (74.6%)	Electricity (66.9%)	Electricity (86.0%)	Unknown	Electricity (65.3%)	Electricity (85.3%)
Energy heating		Wood (36.1%)	Electricity (66.1%)	Electricity (63.0%)	Electricity (80.7%)	Unknown	Electricity (59.8%)	Electricity (74.3%)
Energy lighting		Electricity (65.9%)	Electricity (84.5%)	Electricity (76.1%)	Electricity (88.0%)	Electricity (42.0%)	Electricity (75.2%)	Electricity (90.1%)
Refuse		Own refuse removal (44.2%)	Removed once a week (84.0%)	Removed once a week (77.9%)	Removed once a week (87.4%)	Removed once a week (12.0%)	Removed once a week (86.1%)	Removed once a week (76.7%)
Sanitation		Above RDP standard (51.9%)	Above RDP standard (78.8%)	Above RDP standard (66.0%)	Above RDP standard (84.5%)	Above RDP standard (38.0%)	Above RDP standard (80.1%)	Above RDP standard (88.5%)
Water		Above RDP standard (71.9%)	Above RDP standard (96.4%)	Above RDP standard (93.3%)	Above RDP standard (99.5%)	Above RDP standard (78.2%)	Above RDP standard (98.6%)	Above RDP standard (99.0%)

¹² Information not available

¹³ The Fort Harare Institute of Social and Economic Research, University of Fort Harare (2006). Rapid Eastern Cape Provincial Assessment of Service Delivery and Socio-Economic Survey.

So What?

- The baseline institutional and empowerment profile gives an indication of the municipal services available, the local municipalities' ability to provide for additional connections if required (e.g. removing waste from site), and the capability of the area to provide in health and other emergency services.
- This information enables the project proponent and its appointed contractors to plan ahead by ensuring that they include key aspects such as emergency management plans in their planning process and costing.

3.4.2. Institutional and Legal Change Processes

Institutional and Legal Change Processes assesses the way in which a development of this nature could change the face of service delivery in the affected area and how this change in turn could affect the quality of life of local residents.

As per the results of the Scoping study, the following institutional and legal change processes are expected:

- Power relationships; and
- Increase in demands for services.

Power relationships

The negotiation process is undertaken directly by Eskom and is independent of the EIA process. Eskom should determine in consultation with the landowners who should form part of this process and then ensure that all the relevant parties are present. Important points relating to the negotiation process were discussed in Section 2.3.

A transparent negotiation process that leads to a positive outcome (i.e. both parties are satisfied with the agreement) will have a positive impact. A breakdown in negotiations would lead to a negative impact in terms of a lengthy legal process that can either lead to an alternative route for the Transmission power lines or the expropriation of land for the servitude, which means that the project can be severely delayed. If there were a breakdown in the negotiation process, the potential impact would be high levels of frustration as a result of the litigation process and the resultant delay in construction, as well as the potential for a perceived economic loss for both parties.

If negotiations are not handled with the necessary sensitivity the impact of this process can be severely negative, i.e. a deadlock in negotiations resulting in an indefinite delay of the project, and/or the commencement of an expropriation process. It would normally be preferable that the negotiation process begins after the EIA has been completed as there is greater confidence in the appropriateness of the alignment, and it would be supported by environmental authorisation. Although Eskom has the right to engage with any landowner at any time, they do so at risk if environmental authorisation has not been awarded.

It is expected that this impact will occur regardless of which alternative is implemented within the corridor, and therefore the impact assessment as per table 3.8 below did not make a distinction between alternatives.

Table 3.10: Power Relationships Impact Assessment

	Pre-Mitigation		Post-Mitigation	
Geographical extent	Site	1	Site	1
Probability	Probable	3	Possible	2
Reversibility	Completely reversible			1
Loss of Resources	Marginal	2	No loss	1
Duration	Short term	1	Short term	1
Cumulative Effect	Low	2	Negligible	1
Intensity/Magnitude	Medium	2	Low	1
Significance	Negative Low	20	Negative Low	7

Increase in demands for services

The scoping study identified the possibility of a change in housing needs/demands and an increase in demands for municipal services. Based on the information received from the project proponent (Eskom) on the number of people involved with a project of this nature across the project's lifespan, coupled with the time they spend in the area, it is unlikely that the project will cause a significant increase in demand for services.

It is expected that this impact will occur regardless of which alternative is implemented within the corridor, and therefore the impact assessment as per table 3.9 below did not make a distinction between alternatives.

Table 3.11: Increase in Demand for Services Impact Assessment

	Pre-Mitigation		Post-Mitigation	
Geographical extent	Local	2	Site	1
Probability	Possible	2	Unlikely	1
Reversibility	Completely reversible			1
Loss of Resources	Marginal	2	No loss	1
Duration	Short term	1	Short term	1
Cumulative Effect	Low	2	Negligible	1

	Pre-Mitigation		Post-Mitigation	
Intensity/Magnitude	Medium	2	Low	1
Significance	Negative Low	20	Negative Low	6

Summary of Impacts

- If negotiations are not handled with the necessary sensitivity the impact of this process can be severely negative, i.e. a deadlock in negotiations resulting in an indefinite delay of the project, and/or the commencement of an expropriation process.
- Based on the information received from the project proponent (Eskom) on the number of people involved with a project of this nature across the project's lifespan, coupled with the time they spend in the area, it is unlikely that the project will cause a significant increase in demand for services.

3.5. Socio-Cultural Processes

Socio-cultural processes relate to the way in which humans behave, interact, and relate to each other and their environment, as well as the belief and value systems, which guide these interactions.

3.5.1. Baseline Socio-Cultural Profile

The following subsections describe the history of the large settlements within or close to the proposed northern corridor.

Oyster Bay¹⁴

The little town of Oyster Bay was developed on a portion of the farm "Ou Werf", which belonged to a Mr Henry Potgieter. A Mr and Mrs van Tonder approached Mr Potgieter during 1956 with the request that he sell a portion of his farm to the Van Tonders. Mr Potgieter agreed, after which the Van Tonders started with developing the farm portion into a coastal resort.

Some of the permanent residents of Oyster Bay indicated that they are dependent on emergency services from Humansdorp, due to the remote location of the town. This includes medical and police services. In addition, the only access to the town is via a gravel road of approximately 30km in length, which makes fast access to the area difficult in case of an emergency.

Cape St Francis & St Francis Bay¹⁵

Legend has it that a Portuguese explorer, Manual de Perestrelo, was tasked with mapping the coast in 1575. In his description of the coast and Bay he referred to Cape Serras (now known as Cape St Francis) when he wrote, "On the eastern side of the cape is a bay to which I gave the name Saint Francis".

¹⁴ Information obtained from http://www.obcoastalproperty.co.za/index_files/OBHistory.htm

¹⁵ Information obtained from http://www.jeffreysbay.com/other_towns_cape_st_francis.htm

In 1954, the land around this bay was bought by Leighton Hulett, who used it as a fishing camp. A small township of 51 plots was laid out in 1956 and at that stage; the town was going to be called Cape St Francis. The name changed to Sea Vista in 1960, but after a public referendum in 1979, the town was officially named St Francis Bay. During this time a number of fishing shacks and houses were built around the lighthouse point on the farm of Mr John Booysen, and this small village became known as Cape St Francis.

Humansdorp¹⁶

Humansdorp lies to the west of the Gamtoos River and at one point formed part of the Uitenhage division, when it was known as the Parish of Alexander, named after Rev Alexander Smith who was the Dutch Reformed minister of Uitenhage. Rev Smith visited the area periodically to hold services on the farm Geelhoutboom, which is now known as “Kerk Plaats”.

During the late 1840s, the farmers of the district wanted a church and district of their own as it was a great inconvenience to travel to Uitenhage to pay taxes and buy goods. As the population around Humansdorp grew, complaints to the Government in this regard became more frequent, but the Government did not heed these complaints.

In 1849, Mr Matthys Gerhardus Human of the farm Zeekoe River offered about 500 morgen of land as a gift to the Government, for the purpose of establishing a township and commonage. The Government consented to surveying the area and in 1853 the Government land surveyor, Mr Elemans, survey 300 erven. Half of these properties were sold to the Dutch Reformed Church, while the Government retained ownership over the remaining half. Soon after, two thirds of the Government's properties were sold to a Mr William Metelerkamp of Zuurbron.

The newly established town was called Humansdorp, after Mr Human who donated the initial 500 morgen of land. Building operations were commissioned as soon as the erven were sold, and amongst the first structures were the Dutch Reformed Church and the nearby parsonage.

Jeffrey's Bay¹⁷

There are numerous explanations about where the name Jeffrey's Bay comes from – some say it was derived from a Captain Jeffrey when he went shipwrecked, after which he stumbled onshore in the area that was to become Jeffrey's Bay. Other say that the town was named after a trader by the name of Jeffrey who moved to the area in 1850. Still others say that the town was named for a Mr JA Jeffrey who used the area as a harbour and trading post in 1849. Jeffrey's Bay first served as a small fishing town and gradually grew into the famous holiday town it is today.

John Whitmore, who is known as the “father of South African surfing” discovered the waves at Jeffrey's Bay in the late 1950s as he drove on the N2 on a business trip.

¹⁶ Information obtained from <http://www.metromediasa.com/content.asp?PageID=775>

¹⁷ Information obtained from <http://www.jaybay.co.za/history.htm>

Port Elizabeth¹⁸

The earliest group of people who settled in Algoa Bay was the nomadic San and Khoi tribes, after which the Xhosa and white farmers arrived by the late 1700s. The Portuguese Bartolomeu Dias rounded the “Cabo da Roca” in February 1488 and entered “Baia da Roca” – these areas are now known as Cape Recife and Algoa Bay, respectively.

By the middle of the 18th century, the number of ships that passed “The Bay” had increased. During 1799 the British constructed Fort Frederick as a military post in an attempt to prevent the French of rendering military assistance to the Graaff Reinet rebels. A total of 4,000 British settlers arrived in 1820 and became the first permanent residents of the Albany District. On 6 June 1820, the acting governor of the Cape Colony, Sir Rufane Donkin, named the sea port in memory of his late wife, Elizabeth.

Long before the interior gold and diamond rushes, Port Elizabeth was one of the major commercial cities in South Africa, trading in wool, mohair and ostrich feathers. As a result, the harbour was a bustling port as people travelled to Port Elizabeth in search of trade and labour opportunities. Modern day Port Elizabeth is known as “Ebhayi” by Xhosa people, and “Die Baai” by Afrikaans people.

Uitenhage¹⁹

In 1804, General JA Uitenhage De Mist undertook an extensive tour of the Eastern Cape for the express purpose of selecting a site for a new frontier settlement. De Mist chose the farm of one Gert Scepers on the banks of the Zwartkops River and for it, he paid the widow Scepers the equivalent of R 800. As part of the agreement, the widow Scepers retained the right to live in her cottage on the farm rent-free and was allowed to graze her cattle at no charge on the commonage.

The cottage was later demolished to make way for the development of the South African Railways workshops. Today many of Uitenhage’s residents are direct descendants of the town’s pioneer families.

Despatch²⁰

Despatch was established in 1942 and received municipal status in 1945. The town’s name was derived from the brick industry, as bricks were “dispatched” from the area at the railway siding later known as Hitler’s Halt. The brick business in Despatch is now something of the past, but the Brick Chimney built in 1882 can still be viewed standing in a field on the outskirts of town.

The Despatch Museum was brought about by the “Friends of Despatch” and today boasts a mini model of the “Sauropod” dinosaur that was discovered in the Despatch area in 1903. A number of well known sportsmen also hailed from Despatch including names such as Danie Gerber, Adri Geldenhuys, Rudi Koertzen and Charl Matthys.

¹⁸ Information obtained from <http://www.metromediasa.com/content.asp?PageID=559>

¹⁹ Information obtained from <http://www.metromediasa.com/content.asp?PageID=574>

²⁰ Information obtained from <http://www.metromediasa.com/content.asp?PageID=725>

So What?

- The history of an area serves as an indication on local residents' place attachment in terms of their collective past and the value they attach to certain areas or symbols;
- People with similar cultural backgrounds tend to gather and live together in demarcated geographical areas. Outsiders can affect the cultural dynamics of such groups; and
- Sense of place goes hand in hand with place attachment, which is the sense of connectedness a person/community feels towards certain places. Place attachment may be evident at different geographic levels, i.e. site specific (e.g. a house, burial site, or tree where religious gatherings take place), area specific (e.g. a residential area), and/or physiographic specific (e.g. an attachment to the look and feel of an area). The concept of sense of place therefore attempts to integrate the character of a particular setting with the personal emotions, memories and cultural activities associated with such a setting.

3.5.2. Socio-Cultural Change Processes

As socio-cultural processes recount the way in which humans behave, interact, and relate to each other and their environment, socio-cultural change processes in turn looks at the way in which the proposed developments can alter the interactions and relationships within the local community. As per the results of the scoping study, the following socio-cultural change processes are expected:

- Changes on socio-cultural level; and
- Change in sense of place as a result of intrusion impacts.

Changes on socio-cultural level

Dissimilarity in social practices occurs when there are different values, social standards, religious believes, etc. between a large group of newcomers to an area and that of the area's local residents. In theory the existence of two groups with different social practices living alongside each other should not in itself be the cause of problems – it is when the one group attempts to exert power over the other group or where different cultural values are not respected, that conflict situations arise. Such conflict situations can turn violent and often require third party intervention.

Dissimilarity in social practices is more likely to come to the fore if construction workers are housed in a construction camp and if such a camp is located close to existing formal and informal settlements. This is because construction workers spend part of their free time at the construction camp and therefore social and cultural practices will be more evident at the camp than on site. Some of the most common problems associated with residential construction camps, include the following:

- An increase in prostitution: disempowered and desperate local women often view construction workers as financially well-off and therefore as a source of income to the women who, quite frequently has to support her own family. Apart from the wilful act of prostitution, other women are willing to enter into sexual relationships with construction workers believing that they will gain financially, which is often not the case. This leads to an increase in pregnancies and teenage pregnancies and more often than not, both woman and child is left behind in the community without any financial support when the construction worker moves out of the area.

- An increase in casual sexual relationships has the obvious health implication of an increase in sexually transmitted infections, including HIV. Infection can work both ways – either the man infects the woman or vice versa. In any event, human beings are mobile which means that these infections are spread further when they enter a new area and engage in a new casual sexual relationship.
- Infrastructure and services (e.g. water and sanitation) that are not managed and maintained properly within a construction camp can lead to waterborne diseases such as cholera. Within concentrated living conditions, diseases are easily spread within not only the confines of the camp, but also to the surrounding community.
- Construction workers seldom spend their free time in the camp, but would rather venture into town in search of entertainment, which normally results in alcohol abuse leading to an increase in conflict and violence, as well as an increase in casual sexual relationships as outlined above.

It is expected that this impact will occur regardless of which alternative is implemented within the corridor, and therefore the impact assessment as per table 3.10 below did not make a distinction between alternatives.

Table 3.12: Changes in Socio-Cultural Level Impact Assessment

	Pre-Mitigation		Post-Mitigation	
Geographical extent	Local	2	Local	2
Probability	Possible	2	Possible	2
Reversibility	Partly reversible			2
Loss of Resources	Marginal	2	No loss	1
Duration	Short term	1	Short term	1
Cumulative Effect	Low	2	Negligible	1
Intensity/Magnitude	Medium	2	Low	1
Significance	Negative Low	22	Negative Low	9

Change in sense of place as a result of intrusion impacts

Much of what is valuable in a culture is embedded in place, which cannot be measured in monetary terms. It is because of a sense of place and belonging that some people loath to be moved from their dwelling place, despite the fact that they will be compensated for the inconvenience and impact on their lives.

The potential impact on socio-cultural behaviour and the related perception of environmental changes can have either a positive or a negative impact on sense of place (e.g. peace of mind vs. frustration/anger). The introduction of a new project to the area can be viewed as a positive impact if people perceive the project as infrastructural and/or economic development that is not intrusive on their lives and do not cause them immediate danger. Potential negative impacts include the visual impact and the resultant intrusion on sense of place.

A detailed assessment of this issue is contained in table 3.11 below. This assessment was done on the assumption that the proposed alignment from a social perspective was not followed (worst case scenario).

Table 3.13: Change in Sense of Place as a Result of Intrusion Impacts Impact Assessment

	Northern Alternative 1				Northern Alternative 2				Northern Alternative 3			
	Pre-Mitigation		Post-Mitigation		Pre-Mitigation		Post-Mitigation		Pre-Mitigation		Post-Mitigation	
Geographical extent	Local	2	Site	1	Local	2	Site	1	Local	2	Site	1
Probability	Probable	3	Possible	2	Possible	2	Unlikely	1	Probable	3	Possible	2
Reversibility	Barely reversible			3	Barely reversible			3	Barely reversible			3
Loss of Resources	Significant	3	Marginal	2	Marginal	2	No loss	1	Significant	3	Marginal	2
Duration	Long term	3	Medium term	2	Long term	3	Medium term	2	Long term	3	Medium term	2
Cumulative Effect	High	4	Medium	3	Medium	3	Low	2	Medium	3	Low	2
Magnitude/Intensity	High	3	Medium	2	High	3	Medium	2	High	3	Medium	2
Significance	Negative High	-54	Negative Medium	-26	Negative Medium	-45	Negative Low	-20	Negative High	-51	Negative Low	-24
Preferred Alternative	3 rd				1 st				2 nd			

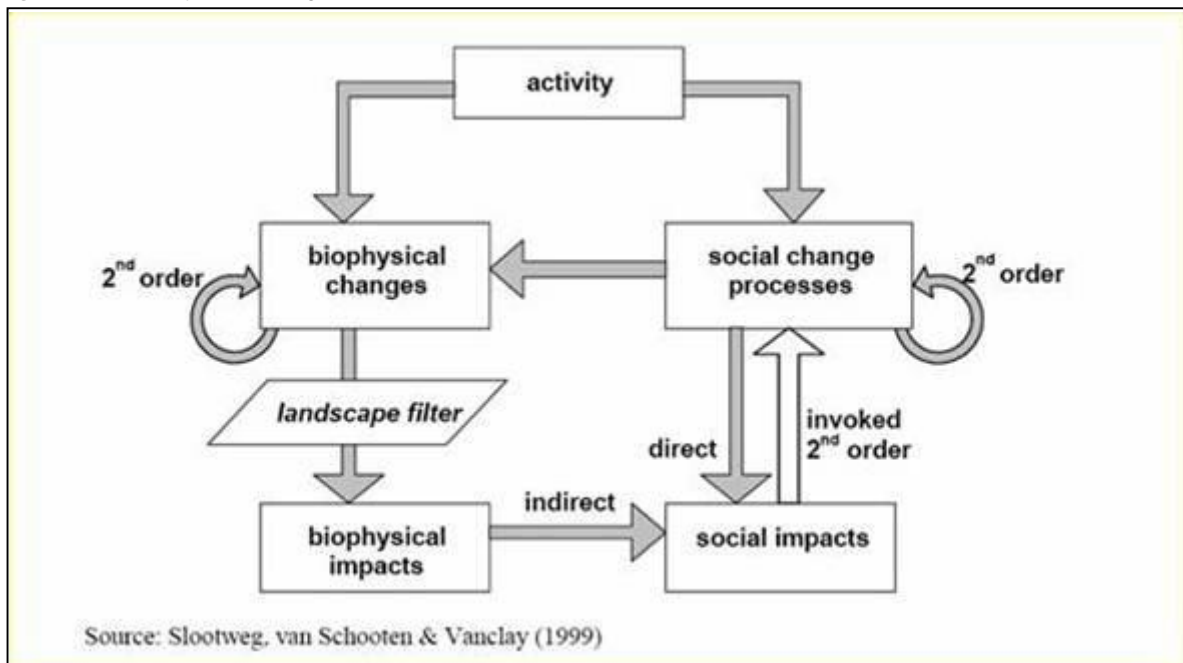
Summary of Impacts

- Dissimilarity in social practices is more likely to come to the fore if construction workers are housed in a construction camp and if such a camp is located close to existing formal and informal settlements.
- The introduction of a new project to the area can be viewed as a positive impact if people perceive the project as infrastructural and/or economic development that is not intrusive on their lives and do not cause them immediate danger.
- Potential negative impacts include the visual impact and the resultant intrusion on sense of place.

3.6. Biophysical Processes

The biophysical environment can lead to indirect social impacts, as illustrated in Figure 3.9. For example, relocation of people can have an impact on income levels, which can lead to processes of rural to urban migration, which can result in further impacts on income levels and changes in food production.

Figure 3.9: Biophysical change processes and indirect social impacts



3.6.1. Biophysical Change Processes

As per the results of the scoping study, the following biophysical change processes are expected:

- Impacts as a result of biophysical changes (construction); and
- Impacts as a result of biophysical changes (operation).

Impacts as a result of biophysical changes (construction)

The presence of construction activities and construction workers could lead to a biophysical change process within the receiving community, which can lead to indirect health and safety impacts. Poor water and sanitation conditions can affect groundwater, which can lead to health impacts.

The presence of construction workers might impact on the environment in terms of littering, which in turn will impact on the surrounding communities. Littering could also have further impacts on health and safety. Not only is littering a breeding ground for rodents and bacteria, but it could also pose a fire hazard if it contains flammable elements such as paper and plastic.

A lack of sufficient and potable water at the construction site could lead to waterborne diseases that can also spread to the local community. Similarly, a lack in sufficient and efficient sanitation and refuse removal services could lead to unhygienic conditions and related illnesses. A lack of effective sanitation services impacts on the environment, which could affect health of people. Animals that become infected and die as a result, impacts on farmers' income base (economic impact).

Air, noise and dust pollution could be experienced during the construction phase of the project. Surrounding communities are often of the opinion that migrant labours are not concerned by the long-term effects of littering or resource extraction as they are only in the area temporarily after which they move again. Apart from the pollution, such as dust and noise pollution, that stems from the actual construction activities, construction workers themselves can add to the pollution problem through littering. The potential fire risk also increases if construction workers are allowed to make fire (for cooking, heating) in uncontained areas.

It is expected that this impact will occur regardless of which alternative is implemented within the corridor, and therefore the impact assessment as per table 3.12 below did not make a distinction between alternatives.

Table 3.14: Impacts as a result of Biophysical Changes (construction) Impact Assessment

	Pre-Mitigation		Post-Mitigation	
Geographical extent	Local	2	Site	1
Probability	Probable	3	Possible	2
Reversibility	Completely reversible			1
Loss of Resources	Marginal	2	No loss	1
Duration	Short term	1	Short term	1
Cumulative Effect	Low	2	Negligible	1
Intensity/Magnitude	Medium	2	Low	1
Significance	Negative Low	22	Negative Low	7

Impacts as a result of biophysical changes (operation)

Physical and mental health in the context of a power line is related to Electro Magnetic Fields (EMFs), electrocution, fire and collapse. The reason why mental health is mentioned in relation to physical health is because the physical effect or knowledge of the potential physical effect of power lines on people could have an effect on the mental state of members of the community. For example, although utilities in South Africa that are involved in the generation and distribution of electrical energy are bound by the Occupational Health and Safety (OHS) Act to provide such services in a safe manner, and the International Commission for Non-Ionising Radiation Protection (ICNIRP) guidelines are used for assessing human exposure to EMFs, some people still fear that these guidelines are not sufficient. The public perceptions of risks sometimes differ significantly from objective risk assessments conducted by technical experts. Whereas technical assessments of risk takes into account only the probability and magnitude of events, subjective assessment of risk by the general public depends on a number of additional factors, and these factors include the degree of choice in the matter, benefits gained from the intervention, as well as whether the risks are immediate and detectable (e.g. the effect of EMFs might prove to be serious in future).

Risks, other than EMFs, are that a line could cause fatal/traumatic accidents (e.g. electrocution). This could be caused by the collapse of a pylon and/or lines due to mechanical failure, disasters and fire. Fire can be caused by electrical malfunction or human error. Fatal accidents could also be caused by electrocution, which could be caused by induced charges, which can build up on fence wires mounted on wood posts near power lines. This phenomenon is generally restricted to higher voltage lines (200 kV or greater).

It is expected that this impact will occur regardless of which alternative is implemented within the corridor, and therefore the impact assessment as per table 3.13 below did not make a distinction between alternatives.

Table 3.15: Impacts as a result of Biophysical Changes (operation) Impact Assessment

	Pre-Mitigation		Post-Mitigation	
Geographical extent	Local	2	Site	1
Probability	Probable	3	Possible	2
Reversibility	Partly reversible			2
Loss of Resources	Marginal	2	No loss	1
Duration	Long term	3	Short term	1
Cumulative Effect	Medium	3	Low	2
Intensity/Magnitude	Medium	2	Low	1
Significance	Negative Medium	30	Negative Low	9

Summary of Impacts

- Poor water and sanitation conditions can affect groundwater, which can lead to health impacts.
- Littering could also have further impacts on health and safety.
- A lack of effective sanitation services impacts on the environment, which could affect health of people.
- Physical and mental health in the context of a power line is related to Electro Magnetic Fields (EMFs), electrocution, fire and collapse.

4. MITIGATION MEASURES

This section outlines the social mitigation measures for the purpose of managing the anticipated social impacts as outlined in this report. The social mitigation measures are mostly applicable to the pre-construction and construction phases only.

The main objective of the social mitigation measures is to describe the approach and required procedures that the contractor(s) have to implement in order to manage social impacts during the pre-construction and construction phases of the project. This will also provide the contractor(s) with a tool against which they can measure the effectiveness of the intended management measures and to ensure compliance with any applicable policies and/or legal requirements.

Construction activities have the potential to impact on the social environment to a fairly large extent. Thus social mitigation measures ensure that construction activities are managed in such a manner that the positive impacts may be enhanced and the negative impacts are minimised as far as possible.

The following components have been addressed as part of the social mitigation measures:

- Temporary loss of cultivated land;
- Temporary loss of grazing land;
- Influx of construction workers;
- Influx of job seekers;
- Direct formal employment opportunities to local individuals;
- Indirect formal and/or informal employment opportunities to local individuals;
- Impact on rural/agricultural and residential property values;
- Forfeit of development opportunities due to project activities;
- Sterilisation of irrigated agricultural land;
- Loss or Removal of Capital Goods and Improvements;
- Impact on output and employment in agriculture and forestry;
- Additional demand on municipal services;
- Compensation for land acquisition;
- Integration with local communities; and
- Relocation of households and/or population segments.

A mitigation that applies to several economic impacts is a rerouting of the Northern Corridor to avoid areas of high sensitivity. This route would include sections that were not in scope for the current investigations and the viability of the route must be verified using further investigations. The route can be depicted as follows:

Figure 4. 1: Alternative routing for the Northern corridor to avoid economic impacts



4.1. Temporary loss of cultivated land

Objective

- Minimise the loss of cultivated land, thereby minimising the potential economic loss of income for the farmer.

Targets

- Curbing economic losses on cultivated land as a result of the physical space required for the construction process.
- The rehabilitation of cultivated land to its original standard before the commencement of the construction phase.

Method Statements

- The temporary loss of cultivated land should be included in the negotiation process with the landowner.
- The clearing of an area on a farmland for the construction process should take place after the harvesting season. Landowners should be compensated for the loss of cultivated land.
- The area should be rehabilitated upon completion of the construction activities to ensure that the land is returned in the same condition as prior to the construction activities.

4.2. Temporary loss of grazing land

Objective

- Minimise the loss of grazing land, thereby minimising the potential economic loss of income for the farmer.

Targets

- The rehabilitation of grazing land and/or the nutrition of livestock to its original standard before the commencement of the construction phase.

Method Statements

- Mitigation measures should be implemented to avoid any negative impact on animals (e.g. fencing off the construction area).
- Eskom or its appointed contractor(s) should assist with the temporary relocation of livestock, as well as relocating cattle back to their original grazing area upon completion of the construction phase.
- Grazing areas should be rehabilitated to its original grazing conditions to ensure that cattle can continue to graze in the area once they are returned to the area.
- Where the area cannot be rehabilitated to its original condition within a short space of time, Eskom or its appointed contractor(s) should provide alternative food sources to the farmer for the period required for natural rehabilitation to occur within the grazing area.

4.3. Influx of construction workers

Objective

- Manage the impact that the influx of construction workers might have on the composition and functioning of the local area.

Targets

- Minimise the potential for conflict between construction workers and local residents.
- Ensure sufficient services are available to sustain an additional demand on these services so that the level of services that the local community is accustomed to is still readily available.

Method Statements

- Raise awareness amongst construction workers about local traditions and practices.
- Inform local businesses that construction workers will move into the area to enable local businesses to plan for the extra demand.
- Ensure that the local communities communicate their expectations of construction workers' behaviour with them.

4.4. Influx of job seekers

Objective

- Manage the impact that the influx of job seekers might have on composition and functioning of the local community, with particular concern for the impact that these job seekers might have on the local residents' sense of safety and security.

Targets

- Establish an employment strategy that is known and communicated to potential job seekers.
- Prevent loitering of individuals at the construction site or within nearby residential areas.
- Establish clearly identifiable features between actual construction workers and job seekers.
- Prevent the formation of informal settlements in or close to the construction site or within or close to established residential areas.

Method Statements

- Ensure that employment procedures/policies are communicated to local stakeholders, especially community representative organisations and ward councillors.
- Have clear rules and regulations for access to the construction site to control loitering. Consult with the local SAPS to establish standard operating procedures for the control and/or removal of loiterers at the construction site.
- Construction workers should be clearly identifiable by wearing proper construction uniforms displaying the logo of the construction company. Construction workers could also be issued with identification tags.
- The contractor should monitor areas where people gather in the field on a regular basis as this is normally the first indication that (informal) settlement might take place in the area. These people

should be removed in co-operation with the local SAPS to prevent the formation and/or expansion of informal settlements in the area, especially if it encroaches upon the servitude.

4.5. Direct formal employment opportunities to local individuals

Objective

- Ensure that the project benefit the affected local areas during the construction phase by extending economic benefits to these community members through the creation and offering of employment opportunities.

Targets

- Employ local labour as far as possible.
- Employ a percentage of female workers.
- Offer training opportunities to ensure sustainable skills development within the community.
- Provide for alternative employment opportunities through the development of portable and other skills.
- Ensure a more sustainable economic injection into the local community that can be sustained over the longer term.

Method Statements

- Unskilled job opportunities should be afforded to local residents. Local trade unions could assist with the recruitment process to counteract the potential for social mobilisation.
- Equal opportunities for employment should be created to ensure that the local female population also has access to these opportunities. Females should be encouraged to apply for positions.
- Individuals with the potential to develop their skills should be afforded training opportunities. Eskom or its appointed contractors should be involved in this process.
- Mechanisms should be developed to provide alternative solutions for creating job security upon completion of the project. This could include formal and/or informal training on how to look for alternative employment, information on career progression, etc. to ensure that people are equipped to seek other jobs with the skills that they have gained.
- Payment should comply with applicable Labour Law legislation in terms of minimum wages.
- Where local labourers are employed on a more permanent basis, cognisance should be taken of the Labour Law in terms of registering the worker with the Unemployment Insurance Fund (UIF), Pay as You Earn (PAYE), workman's compensation and all other official bodies as required by law. This would enable the worker to claim UIF as a means of either continuous financial support when the worker's position on the construction team has become redundant or once the construction phase ends.

4.6. Indirect formal and/or informal employment opportunities to local individuals

Objective

- Ensure that indirect formal and informal employment opportunities benefit local residents and/or service providers.

Targets

- The development and implementation of a procurement policy that will regulate both formal and informal employment.
- Providing support to both formal and informal traders as a means of capacity building and sustainable development.

Method Statements

- Develop a procurement policy that is easy to understand and ensure that local subcontractors also comply with the procurement policy and any other applicable policies.
- Ensure that local subcontractors receive the necessary support in terms of resources.
- Agree on specific performance criteria prior to appointment.
- Identify the segment that might benefit from informal indirect opportunities, and assist them with skills development and subsidise initiatives that are sustainable.
- Encourage construction workers to use local services.

4.7. Impact on rural/agricultural and residential property values

Objective

Minimise the impact on rural/agricultural and residential property values.

Targets

- As far as possible prevent that the presence of the transmission power lines will lead to a reduction in property values along the corridor.

Method Statements

- Route transmission power line as far away from homesteads, buildings and irrigation system as is possible.
- Route transmission power lines close to agricultural property boundaries.
- Minimise visual profile of the transmission power line by choosing routes where topography allows for visual reduction.
- Make maximum use of undeveloped routings to place towers and avoid intensively developed properties when possible.
- Stay at least 200m away from residential areas within the urban zone whenever possible.
- Compensate at market rates for property value loss as indicated by an independent valuations expert once exact route is known.

4.8. Forfeit of development opportunities due to project activities

Objective

Ensure that the project takes cognisance of development opportunities so that the project does not lead to the forfeiting of development opportunities.

Targets

- As far as possible prevent that the presence of the transmission power lines will impact on other development opportunities along the corridors.

Method Statements

- Determine exact stage of residential development on properties where such development is planned.
- Within each corridors avoid properties according to the following criteria:
 - Highest - Properties for which rezoning and/or subdivision has been granted.
 - High – Properties for which rezoning and/or subdivision has been agreed to by the municipality and applications have been submitted.
 - Medium – Properties for which rezoning and/or subdivision are planned and preliminary work has been done by town planners.
 - Low – Properties for which rezoning and/or subdivision are planned but no work has been started.
- Amend the current Northern corridor routes as per figure 4.1 to avoid sensitive planned developments.

4.9. Sterilisation of irrigated agricultural land

Objective

Avoid the sterilisation of irrigated agricultural land.

Targets

- Minimise the loss of irrigated agricultural land, thereby minimising the potential economic loss of income for the farmer.

Method Statements

- Avoid high productivity farmland where possible to avoid inhibiting future irrigation development.
- Where farmland must be crossed, avoid current and possible future central pivots as a matter of priority.
- Where central pivots cannot be avoided, relocate central pivots where possible or compensate farmers for reduced land productivity.
- Amend the current Northern corridor routes as per figure 4.1

4.10. Loss or Removal of Capital Goods and Improvements

Objective

Avoid a great loss or the removal of capital goods and improvements on affected properties.

Targets

- Minimise the loss or removal of capital goods and improvements, thereby minimising the potential economic loss of income for the farmer.

Method Statements

- Avoid structures and fixed capital features whenever possible.
- If structures and features cannot be avoided, relocate structure where possible or compensate farmers for lost assets.

4.11. Impact on output and employment in agriculture and forestry

Objective

Avoid a detrimental impact on output and employment in the agricultural and forestry industries.

Targets

- Minimise the impact on output and employment in the agricultural and forestry industries, thereby minimising the potential economic loss of income for those affected.

Method Statements

- Avoid productive plantation land where possible or relocate firebreaks to power line routes
- Avoid high productivity farmland where possible to avoid inhibiting future irrigation development.
- Where farmland must be crossed, avoid current and potential future central pivots as a matter of high importance.
- Where central pivots cannot be avoided, relocate central pivots where possible or compensate farmers for reduced land productivity.
- Amend the current Northern corridor routes as per figure 4.1

4.12. Additional demand on municipal services

Objective

- Reducing the additional demand on municipal services so that these services are not overloaded, thereby minimising the risk for additional impacts as a result of a lack of proper services.

Targets

- Implementing and maintaining municipal services to the construction site and construction village (if applicable).
- Installing sufficient and effective sanitation services at both the construction site and the construction village (if applicable).

Method Statements

- Construction workers should be made aware of the limited capacity of the municipal services network.
- Negotiations with the affected local municipalities must be conducted and a “demand-side management” should be implemented.
- Sufficient portable chemical toilets should be provided on site and at the construction village (if applicable).
- If applicable, contractors should ensure adequate sanitation services (e.g. showers) at the construction village with effective drainage facilities to ensure that used water is carried away from the site.

4.13. Compensation for land acquisition

Objective

- Ensure fair and transparent negotiations during the land acquisition process that will result in fair compensation that satisfies both parties.

Targets

- A land acquisition process that satisfies both parties.
- A fair and transparent negotiation process.

Method Statements

- The land valuator should be experienced in valuating the land in question.
- The process should be conducted with the necessary respect, and the negotiator should be transparent about the process and expectations (do not engage in “empty promises”).
- The negotiation should be done for the servitude as a whole and not as segmented parts of the servitude.
- Contracts should be reviewed by an independent body.
- Land owners should be made aware that a pre- and post evaluation of their land value is possible.

4.14. Integration with local communities

Objective

- Minimising the potential for conflict and health risks to occur between local residents and construction workers.

Targets

- The development and implementation of an HIV/AIDS awareness campaign.
- Controlled access at the construction village (if applicable) and construction site.
- Empowering local females to reduce their vulnerability.

Method Statements

- An aggressive STI and HIV/AIDS awareness campaign should be launched, which is not only directed at construction workers but also at the community as a whole.
- Access at the construction site should be controlled to prevent sex workers from either visiting and/or loitering at the construction village or the construction sites.
- Local women should be empowered. This could be achieved by employing them to work on the project, which in turn would decrease their (financial) vulnerability.

4.15. Relocation of households and/or population segments

Objective

- To ensure the least amount of disruption possible to those households and/or population segments that has to be relocated.

Targets

- Provide households with the same or better standard of housing and/or living conditions that they have grown accustomed to.
- Provide assistance (financial and physical) to households that have to be relocated as a result of the project.

Method Statements

The relocation of households and/or population segments results in a negative social impact which is further intensified by the number of years and attachment a household and/or individuals have to a certain place. The resettlement and/or displacement of households and/or population segments should therefore be avoided as far as possible. Failing that, the following mitigation measures should be implemented:

- Residents should be sufficiently compensated and assisted with the relocation process.
- A form of compensation should also be granted to individuals who are residing in informal settlements encroaching upon the servitude.
- A formal grievance procedure should be implemented and communicated to landowners to ensure a fair and transparent process.
- The contractor should monitor areas where people gather in the field on a regular basis as this is normally the first indication that (informal) settlement might take place in the area. These people should be removed in co-operation with the local SAPS to prevent the formation and/or expansion of informal settlements in such an area, especially if it encroaches upon the servitude.

4.16. Contingencies

Provision should be made for the implementation of certain mitigation measures, e.g. a separate budget for managing social issues such as training of employees, supplying municipal services, etc.

4.17. Monitoring and Corrective Actions

The ECO should monitor the implementation of mitigation measures as outlined in this document. Corrective action should take place as soon as possible if mitigation measures are not implemented according to standard.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary of Impacts

A summary of the expected impacts are as per table 5.1 below.

Table 5.1: *Summary of Expected Impacts*

Change Processes	Expected Impacts	Project Phase(s)
Geographical	A number of structures, including scattered households, towns, and centre pivots are located within the corridor. Structures should be avoided as far as possible with the alignment of the transmission power lines to prevent further impacts on the affected individuals.	Pre-Construction
	It is not likely that the physical division caused by the servitude will significantly change movement patterns.	Operation
	It is expected that construction will take place in close proximity to people movement, which can be regarded as sensitive receptors.	Construction
Demographical	The displacement and relocation of households causes social and psychological disruption to those involved	Construction, extending into operation
	It is not expected that displacement and relocation of people will significantly change the demographic profile of the area, as displaced people will most likely be moved to a different location within the project area.	Construction, extending into operation
	Because the construction workers will most probably commute to site, it is expected that the influx of construction workers will have a negligible effect in the highly urbanised communities.	Construction
	Job seekers can become a burden to the host community, as they do not have the means to sustain themselves, thereby becoming dependent on others (usually people who themselves only have limited resources). The presence of job seekers can also lead to the creation and/or expansion of informal settlements.	Construction, extending into operation
Economic	An impact on property values would apply to both corridors where the lines are located close (within approximately 75m to 200m depending on visual aspects such as topography) to residential settlements or lifestyle estates, or where lines cross smallholdings/agricultural properties where value is derived from a natural setting.	Operation

Change Processes	Expected Impacts	Project Phase(s)
	There are also strong indications from previous research conducted by MasterQ Research that any property value impacts are cumulative for the construction of multiple lines in servitude, especially where smaller agricultural, smallholdings and residential properties are concerned.	Operation
	Although there is no historic evidence that transmission power lines are a residential development inhibitor it is possible that the type of developments may change as a result of the location of the power line, and any residential developments that will derive their value from a rural character, farming environment or natural beauty may be affected.	Operation
	Previous studies by MasterQ Research (2009b) have shown that the placing of power transmission lines on agricultural land does not usually impact farming activities. This is as both dry land agriculture and certain types of irrigated agriculture (crop cultivation and grazing) can continue underneath power lines.	Operation
	Any power line corridor that crosses both existing pivot areas as well as area with strong future potential will cause the loss thereof for central pivot irrigation purposes.	Operation
	If the corridor crosses any areas where improvements in fixed capital goods or improvements such as land rezoning, land subdivision, infrastructure, installations or buildings are found these may have to be removed or relocated. This requirement may in turn neutralise other fixed capital improvements (rezoned land, subdivided land and infrastructure).	Construction, extending into operation
	As the transmission power lines may impact on the agricultural productivity of land along the various corridor routes it may therefore also affect output of the agricultural and forestry industries and the viability of specific operations along the route, which in turn will impact on employment.	Operation
	Construction of a power transmission line is a large capital investment and suppliers of Eskom (as businesses operating in South Africa) stand to benefit from increased business opportunities as a result.	Operation
	Construction detail sheets obtained regarding the construction of power transmission lines indicate that is a moderate creator of employment, with approximately 30 to 80 unskilled workers and 5 to	Construction

Change Processes	Expected Impacts	Project Phase(s)
	10 semiskilled workers that can be sourced other than skilled teams utilised by the contractor.	
	One of the most economic implications of the project and the larger distribution network is to ensure electricity security for the country as a whole. This impact is difficult to rate using the standardised rating scale due to its nationwide implications and the fact that it does not represent a manageable or impact or one that can be enhanced.	Operation
Institutional and Legal	If negotiations are not handled with the necessary sensitivity the impact of this process can be severely negative, i.e. a deadlock in negotiations resulting in an indefinite delay of the project, and/or the commencement of an expropriation process.	Pre-Construction
	Based on the information received from the project proponent (Eskom) on the number of people involved with a project of this nature across the project's lifespan, coupled with the time they spend in the area, it is unlikely that the project will cause a significant increase in demand for services.	Construction
Socio-Cultural	Dissimilarity in social practices is more likely to come to the fore if construction workers are housed in a construction camp and if such a camp is located close to existing formal and informal settlements.	Construction
	The introduction of a new project to the area can be viewed as a positive impact if people perceive the project as infrastructural and/or economic development that is not intrusive on their lives and do not cause them immediate danger.	Construction, extending into operation
	Potential negative impacts include the visual impact and the resultant intrusion on sense of place.	Construction, extending into operation
Biophysical	Poor water and sanitation conditions can affect groundwater, which can lead to health impacts.	Construction, extending into operation
	Littering could also have further impacts on health and safety.	Construction
	A lack of effective sanitation services impacts on the environment, which could affect health of people.	Construction
	Physical and mental health in the context of a power line is related to Electro Magnetic Fields (EMFs), electrocution, fire and collapse.	Operation

The significance of impacts associated with the above-mentioned expected impacts can be summarised as follows:

Positive Impacts

Change Processes	Issues	Rating prior to mitigation	Average	Rating post mitigation	Average
Geographical	Change in movement patterns	n/a		n/a	
	Sterilisation of irrigated agricultural land	n/a		n/a	
	Loss of or removal of capital goods and improvements	n/a		n/a	
	Forfeit of development opportunities	n/a		n/a	
	Average	n/a		n/a	
Demographical	Displacement and relocation of households	n/a		n/a	
	Influx of construction and maintenance workers	n/a		n/a	
	Increase in in-migration of job seekers	n/a		n/a	
	Average	n/a		n/a	
Economical	Impact on rural/agricultural and residential property values	n/a		n/a	
	Forfeit of development opportunities due to project activities	n/a		n/a	
	Sterilisation of irrigated agricultural land	n/a		n/a	
	Loss or removal of capital goods and improvements	n/a		n/a	
	Impact on output and employment in agriculture and forestry	n/a		n/a	
	Economic	+48		+48	

Change Processes	Issues	Rating prior to mitigation	Average	Rating mitigation post	Average
	injections as a result of project activities				
	Employment as a result of project activities	+22		+22	
	Average	+35		+35	
Institutional and Legal	Power relationships	n/a		n/a	
	Increase in demand for services	n/a		n/a	
	Average	n/a		n/a	
Socio-Cultural	Change in socio-cultural level	n/a		n/a	
	Change in sense of place as a result of intrusion impacts	n/a		n/a	
	Average	n/a		n/a	
Biophysical	Pollution	n/a		n/a	
	Health impacts	n/a		n/a	
	Average	n/a		n/a	

Negative Impacts

Change Processes	Issues	Rating prior to mitigation	Average	Rating mitigation post	Average
Geographical	Change in movement patterns	-18		-14	
	Sterilisation of irrigated agricultural land	-28		-10	
	Loss of or removal of capital goods and improvements	-20		-18	
	Forfeit of development opportunities	-24		-22	
	Average	-22.5		-16.0	
Demographic	Displacement and relocation of households	-39		-20	

Change Processes	Issues	Rating prior to mitigation	Average	Rating post mitigation	Average
	Influx of construction and maintenance workers	-18		-6	
	Increase in in-migration of job seekers	-28		-11	
	Average	-28.33		-12.22	
Economical	Impact on rural/agricultural and residential property values	-33		-10	
	Forfeit of development opportunities due to project activities	-36		-22	
	Sterilisation of irrigated agricultural land	-28		-10	
	Loss or removal of capital goods and improvements	-30		-18	
	Impact on output and employment in agriculture and forestry	-28		-20	
	Economic injections as a result of project activities	n/a		n/a	
	Employment as a result of project activities	n/a		n/a	
	Average	-31		-16	
Institutional and Legal	Power relationships	-20		-7	
	Increase in demand for services	-20		-6	
	Average	-20.0		-6.5	
Socio-Cultural	Change in socio-cultural level	-22		-9	
	Change in sense of place as a result of intrusion impacts	-54		-30	
	Average	-38.0		-19.5	

Change Processes	Issues	Rating prior to mitigation	Average	Rating mitigation post	Average
Biophysical	Pollution	-22		-7	
	Health impacts	-30		-9	
	Average	-26.0		-8.0	

5.2. Cumulative Impacts

There are a number of energy related projects being investigated in the area, namely the Thyspunt power station proposed for the area with a huge raft of potential socio-economic impacts, as well as a number of wind farm developments in the area that, if approved, would significantly alter the landscape of certain parts of the study area.

From a social perspective, some of the most significant cumulative impacts relate to:

- **Change in access to resources that sustain livelihoods:** Apart from the fact that installations such as wind farms can alter the physical landscape, such installations would also require transmission power lines to export generated power to the electricity network. It is possible (although not definite) that such lines would be placed parallel to existing lines in an attempt to minimise further impacts on the area, and therefore it is possible that the presence of infrastructure such as transmission power lines can set a precedent for land use change, which could further impact on resources that sustain livelihoods.
- **Change in irrigation activities:** The same sort of cumulative impacts can be expected on irrigation activities such as those outlined by the cumulative impacts on resources that sustain livelihoods.
- **Displacement and relocation of households:** The possibility for the displacement and relocation of households increases in proportion to the number of development activities that take place in the same area. Although the current project can aim to prevent the displacement and relocation of households as far as possible, the presence of its lines might instigate relocation on other projects.
- **Influx of construction and maintenance workers:** The influx of construction and maintenance workers on other projects in the area can accelerate the presence of the expected impacts on the current project and increase the intensity of the impact across a wider spectrum.
- **Increase in in-migration of job seekers:** The presence of a number of development projects in the area can make the area seem like an optimal area of possible employment, which can greatly increase the probability of an increase in in-migration of job seekers. As with the influx of construction and maintenance workers, the presence of a greater number of job seekers can accelerate the presence of the expected impacts and increase the intensity of the impacts across a wider spectrum.
- **Increase in demand for services:** The more people there are in the area, the higher the demand for services.
- **Change in sense of place as a result of intrusion impacts:** The presence of certain installations renders an area 'spoilt' and therefore it is likely that the presence of such installations

could set a precedent for further land use change, which could intensify the impact on sense of place.

The most important cumulative impacts from an economic perspective relate to ongoing development of the Cape St. Francis – Humansdorp – Port Elizabeth area and the crucial need for the development of transport corridors between development nodes and the economic hub of the Nelson Mandela bay area. This would involve the reservation of land for this purpose in the long term. It is crucial that major economic participants in the region and the South African government create long-term strategic plans for the region that will accommodate and enhance a wide range of economic activities including agriculture and tourism.

5.3. Conclusions

As could be expected, the construction phase is characterised by a number of negative social impacts, which is mainly due to the nature of the activities that take place during this phase. Although the expected social impacts associated with the construction phase are mostly negative across all the change processes, these impacts are for the most part only temporary in nature and as such and expected to only last over the construction period.

Even though all of the identified social impacts can be mitigated or enhanced successfully, it can only be done if Eskom, or its appointed contractor(s), commit to the responsibility of ensuring that the level of disturbance brought about to the social environment by the more negative aspects of the project, is minimised as far as possible.

The economic main features along the proposed Northern Corridor routes include some irrigated dairy farming and orchards, land subdivision for development purposes and plantations used for forestry. Due to a lower intensity of development along all routes property value and capital goods impacts, loss of agricultural and forestry land, and production and forfeit of development opportunities is expected to be moderate. All corridor routes are similar in this respect. However, several course deviations have been recommended to avoid areas of high economic importance.

5.4. Recommendations

It is highly recommended that Eskom investigate the general use of wide service corridors between all major power generation areas and power customers that can accommodate further development in the future in order to avoid the “spider web” effect often associated with short term focused planning of economic development. This study therefore places a strong emphasis on long-range economic planning.

In addition, the following is recommended:

- Ensure that social issues identified during the EIA phase are addressed during construction. This could be done by engaging social specialists where necessary or by ensuring that ECOs used during construction have the necessary knowledge and skills to identify social problems and address these when necessary. Guidelines on managing possible social changes and impacts could be developed for this purpose.

- Always inform neighbouring landowners beforehand of any construction activity that is going to take place in close proximity to their property. Prepare them on the number of people that will be on site and on the activities they will engage in.
- Ensure that Eskom employees are aware of their responsibility in terms of Eskom's relationship with landowners and communities surrounding power lines. Implement an awareness drive to relevant sections to focus on respect, adequate communication and the 'good neighbour principle.'
- Incorporate all mitigation measures in the SIA that are relevant to the construction phase in the EMP to ensure that Eskom and the contractor adhered to these.

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