

STRATEGIC ENVIRONMENTAL ASSESSMENT  
FOR EXPANSION OF ELECTRICITY GRID  
INFRASTRUCTURE IN SOUTH AFRICA

# Socio-Economic Assessment Report

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# STRATEGIC ENVIRONMENTAL ASSESSMENT FOR THE EXPANSION OF ELECTRICITY GRID INFRASTRUCTURE IN SOUTH AFRICA

Draft v3 Specialist Assessment Report for Stakeholder Review

## SOCIO-ECONOMIC ASSESSMENT SPECIALIST REPORT

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# CONTENTS

1		
2		
3		
4		
5		
6		
7	TABLES	3
8	FIGURES	3
9	ABBREVIATIONS AND ACRONYMS	4
10		
11	<b>1 SUMMARY</b>	<b>5</b>
12	<b>2 INTRODUCTION</b>	<b>7</b>
13	<b>3 SCOPE OF THIS STRATEGIC ISSUE</b>	<b>9</b>
14	<b>4 APPROACH AND METHODOLOGY</b>	<b>10</b>
15	4.1 STUDY METHODOLOGY	10
16	4.2 DATA SOURCES	10
17	4.3 ASSUMPTIONS AND LIMITATIONS	10
18	4.4 RELEVANT REGULATORY INSTRUMENTS	11
19	<b>5 CORRIDORS DESCRIPTION</b>	<b>14</b>
20	5.1 EXPANSION OF THE WESTERN CORRIDOR	14
21	5.2 EXPANSION OF THE EASTERN CORRIDOR	15
22	<b>6 KEY POTENTIAL IMPACTS AND MITIGATION</b>	<b>19</b>
23	6.1 IMPACTS ON ELECTRICITY GENERATORS	20
24	6.1.1 Management and mitigation	21
25	6.2 IMPACTS ON ENERGY INTENSIVE USERS (INDUSTRY AND MINING)	22
26	6.2.1 Management and mitigation	23
27	6.3 IMPACTS ON TOURISM	23
28	6.3.1 Management and mitigation	24
29	6.4 IMPACTS ON PROPERTY VALUES	24
30	6.4.1 Management and mitigation	25
31	6.5 VISUAL IMPACTS AND INTRUSION ON SURROUNDING COMMUNITIES	25
32	6.6 RESETTLEMENT AND RELOCATION/DISPLACEMENT IMPACTS	26
33	6.6.1 Management and mitigation	26
34	6.7 IMPACTS ASSOCIATED WITH PROJECT WORKERS/WORKFORCE	27
35	6.7.1 Management and mitigation	27
36	6.8 HEALTH IMPACTS FOCUSED ON EMFS	27
37	6.8.1 Management and mitigation	28
38	6.9 SUMMARY OF THE KEY POTENTIAL IMPACTS AND MITIGATION	29

1	<b>7</b>	<b>BEST PRACTICE GUIDELINES AND MONITORING REQUIREMENTS FOR THE</b>	
2		<b>MANAGEMENT OF THE SOCIO-ECONOMIC ENVIRONMENT</b>	<b>33</b>
3	7.1	PLANNING PHASE	33
4	7.2	CONSTRUCTION PHASE	33
5	7.3	OPERATIONS PHASE	34
6	7.4	MONITORING REQUIREMENTS	34
7	<b>8</b>	<b>CONCLUSIONS AND RECOMMENDATIONS</b>	<b>35</b>
8	<b>9</b>	<b>REFERENCES</b>	<b>36</b>
9			
10			

## TABLES

12	Table 1. Data sources	10
13	Table 2. Assumptions and limitations of the study	10
14	Table 3. Regulatory instruments that guide the socio-economic assessment	11
15	Table 4. Socio-economic data and key towns - Expanded Western Corridor	15
16	Table 5. Socio-economic data and key towns - Expanded Eastern Corridor	17
17	Table 6: Areas of particular tourism sensitivity per corridor	23

## FIGURES

21	Figure 1: The five EGI corridors identified as part of the 2016 SEA (DEA, 2016)	7
22	Figure 2. The two proposed expanded EGI corridors and the five existing and gazetted EGI corridors identified as	
23	part of the 2016 EGI SEA	9
24	Figure 3: District and Local Municipalities as well as key roads and formal protected areas falling within the	
25	expanded Western Corridor.	14
26	Figure 4: District and Local Municipalities as well as key roads and formal protected areas falling within the	
27	expanded Eastern Corridor	16
28	Figure 5: Expanded EGI corridors, existing and gazetted EGI corridors overlapped with the identified and	
29	gazetted REDZs and preferred IPPs (in terms of Bidding Windows 1 to 4).	21

# ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
BA	Basic Assessment
DEA	Department of Environmental Affairs
DoE	Department of Energy
DFID	Department for International Development
DPE	Department of Public Enterprises
DTI	Department of Trade and Industry
CSIR	Council for Scientific and Industrial Research
EA	Environmental Authorisation
EGI	Electricity Grid Infrastructure
EMF	Electro-magnetic Field
EMPr	Environmental Management Programme
ERG	Expert Reference Group
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IDZ	Industrial Development Zone
IEEE	Institute of Electrical and Electronics Engineers
I&APs	Interested and Affected Parties
IIASA	International Institute for Applied Systems Analysis
IFC	International Finance Corporation
IPP	Independent Power Producers
MF	Monitoring Forum
NEMA	National Environmental Management Act
PPP	Public Participation Process
PS	Performance Standards
PSC	Project Steering Committee
RAP	Resettlement Action Plan
REDZ	Renewable Energy Development Zones
SEA	Strategic Environmental Assessment
SEZ	Special Economic Zone
SIP	Strategic Integrated Project
SANBI	South African National Biodiversity Institute
SPLUMA	Spatial Planning and Land Use Management Act
TDP	Transmission Development Plan
WHO	World Health Organisation

# 1 SUMMARY

The National Department of Environmental Affairs (DEA) has embarked on a process of identifying ways to streamline the Environmental Authorisation (EA) process for major infrastructure build programmes in South Africa. In particular, the DEA is looking to facilitate the efficient roll out of Strategic Integrated Projects (SIPs) lead by the Presidential Infrastructure Coordinating Committee and detailed in the National Infrastructure Plan and National Development Plan (2011).

As part of this initiative, in 2014 the DEA commissioned the Council for Scientific and Industrial Research (CSIR), in collaboration with the South African National Biodiversity Institute (SANBI), to undertake a Strategic Environmental Assessment (SEA) linked to SIP 10: Electricity Transmission and Distribution for all. The SEA was entitled “National Department of Environmental Affairs Electricity Grid Infrastructure (EGI) Strategic Environmental Assessment” and aimed to identify suitable routing corridors to enable the efficient and effective expansion of key strategic transmission infrastructure designed to satisfy national transmission requirements up to 2040. This SEA concluded in 2016 with the identification of five 100 km wide corridors that were gazetted in terms of the Section 24(5)(a) and (b) of the National Environmental Management Act, 1998 in Government Notice No. 113 on 16 February 2018.

The CSIR has been commissioned by the DEA in partnership with the Department of Energy (DoE), Department of Public Enterprises (DPE), iGas, Eskom and Transnet to undertake a SEA for the expansion of the extent of the gazetted Western and Eastern EGI corridors. It is largely based on a socio-economic assessment (dated 2015) that was undertaken by Dr Hugo van Zyl and Tony Barbour as part of the EGI SEA to provide an understanding of the socio-economic impacts that were likely to arise as a result of the declaration of transmission corridors and the associated EGI elements.

The majority of the expanded Western EGI Corridor passes through sparsely populated rural farm land near the coastline in the Northern Cape Province. The primary land uses along this route are linked to commercial farming activities, mostly of livestock, along with tourism and mining uses. Large parts of the corridor are associated with declining population numbers due to urbanisation.

The expanded Eastern EGI Corridor would be within the KwaZulu-Natal Province extending from the northern outskirts of eThekweni to the Mozambican border. The eastern section of this corridor passes through dense urban areas, including Durban and Richards Bay. These cities have large mixed economies and coupled with this, large population numbers. The western section of the corridor has lower population numbers but trends are showing that these areas are increasing in population and economy sizes.

As reported in the 2015 socio-economic assessment report, the key direct beneficiaries of improved planning for the roll-out of the EGI network are **electricity generators** and **the industry and mining sectors**. The need of these sectors will be access to timely and accurate information about intended development within the corridors. In addition, the establishment of the two expanded corridors will facilitate energy trading and commerce which will have a positive impact on the overall energy mix. The expanded Western Corridor will enable a connection between Namibia and South Africa to support gas power generation and transmission as well as renewable energy generation integration. The expanded Eastern Corridor will enable a connection to Mozambique. Notwithstanding the above, several other benefits between electricity development and socio-economic upliftment are noted within literature and include reduced infant mortality and illiteracy and an increased life expectancy. As such, transmission lines in the right location are necessary for the regional economy.

Although the declaration of the EGI corridors will also benefit the **tourism sector** given the enhanced planning information available, at a local level, it **may be negatively impacted** due to new **tourism investments and/or expansions** (especially eco-tourism) avoiding sections of the proposed corridors where only limited areas are available for EGI development. This would be particularly evident in the expanded Eastern Corridor. In addition, the presence of an EGI network itself (which includes power lines, substations, and associated infrastructure) may also have a negative impact on the **tourism sector**. To manage these impacts it would be important to avoid areas with high ecological and aesthetic values, including protected areas, game farms, private nature reserves, visually sensitive areas, areas of high heritage value and areas of high agricultural value (Land Capability Classes I and II).

1 The **value of properties** located within or adjacent to the final routing of the future major transmission lines  
2 may also be negatively impacted by the presence of an EGI network, although the declaration of the  
3 corridors is likely to facilitate the improved functioning of **the property market** by providing a fuller picture  
4 of where an EGI network is likely to occur. Payments to land owners for servitudes that adequately  
5 compensate for losses will be an important way of mitigating these impacts.

6  
7 Accepted international best practice requires that **relocation and involuntary resettlement** in particular be  
8 avoided, where possible, or minimised. Given the width of the EGI corridors (100 km), it is likely that  
9 suitable sub-corridors can be identified that avoid and or minimise the impacts associated with involuntary  
10 resettlement. The potential impacts are thus likely to be limited to directly affected households as opposed  
11 to villages and or larger communities. The principal mitigation measure therefore involves siting of  
12 transmission pylons so as avoid the need for resettlement. Where involuntary resettlement cannot be  
13 avoided, the relocation of affected households and or compensation for economic displacement should be  
14 guided by international best practice.

15  
16 While some temporary local employment of unskilled labour is likely to be provided during the construction  
17 phase, long term employment opportunities are limited to repairs and maintenance and will be considered  
18 at a project specific level. Benefits associated with job opportunities during both the construction and  
19 operational phases are therefore anticipated to be limited. Potential negative impacts associated with the  
20 **presence of project workers** depend on the size of the workforce, the duration of the construction or  
21 operational activity and the location of the site. Given the linear nature and the remote location of the EGI  
22 corridors, the anticipated social impacts associated the development of transmission lines within the EGI  
23 corridors are considered to be low and can be suitably managed by adhering to the proposed management  
24 actions outlined within this assessment.

25  
26 **Electro-magnetic fields (EMFs)** are created, to varying levels, with the generation and use of electricity.  
27 They are particularly strong beneath high voltage transmission lines sometimes resulting in health  
28 concerns among the public. However, based on a comprehensive World Health Organisation (WHO) study  
29 and other sources, no health consequences associated with the exposure to EMFs from transmission lines  
30 have been found. The potential health related risks associated with the establishment of high voltage  
31 transmission lines are therefore not anticipated to be significant. Nevertheless, efforts should be made to  
32 ensure that transmission lines are not located within close proximity to dwellings and settlements and that  
33 people are discouraged from living underneath them as is current Eskom practice. This would be especially  
34 applicable to the expanded Eastern Corridor that contains dense urban areas.

## 2 INTRODUCTION

The National Department of Environmental Affairs (DEA) has embarked on a process of identifying ways streamline the Environmental Authorisation (EA) process for major infrastructure build programmes in South Africa. In particular, the DEA is looking to facilitate the efficient roll out of Strategic Integrated Projects (SIPs) lead by the Presidential Infrastructure Coordinating Committee and detailed in the National Infrastructure Plan and National Development Plan (2011).

As part of this initiative, in 2014 the DEA, in collaboration with Eskom, commissioned the Council for Scientific and Industrial Research (CSIR) and South African National Biodiversity Institute (SANBI) to undertake a Strategic Environmental Assessment (SEA) linked to SIP 10: Electricity Transmission and Distribution for all. The SEA was entitled “National Department of Environmental Affairs Electricity Grid Infrastructure (EGI) Strategic Environmental Assessment” and aimed to identify suitable routing corridors to enable the efficient and effective expansion of key strategic transmission infrastructure designed to satisfy national transmission requirements up to 2040. This SEA concluded in 2016 with the identification of five 100 km wide corridors, namely (Figure 1) (DEA, 2016):

- Central Corridor;
- Northern Corridor;
- International Corridor;
- Eastern Corridor, and;
- Western Corridor.

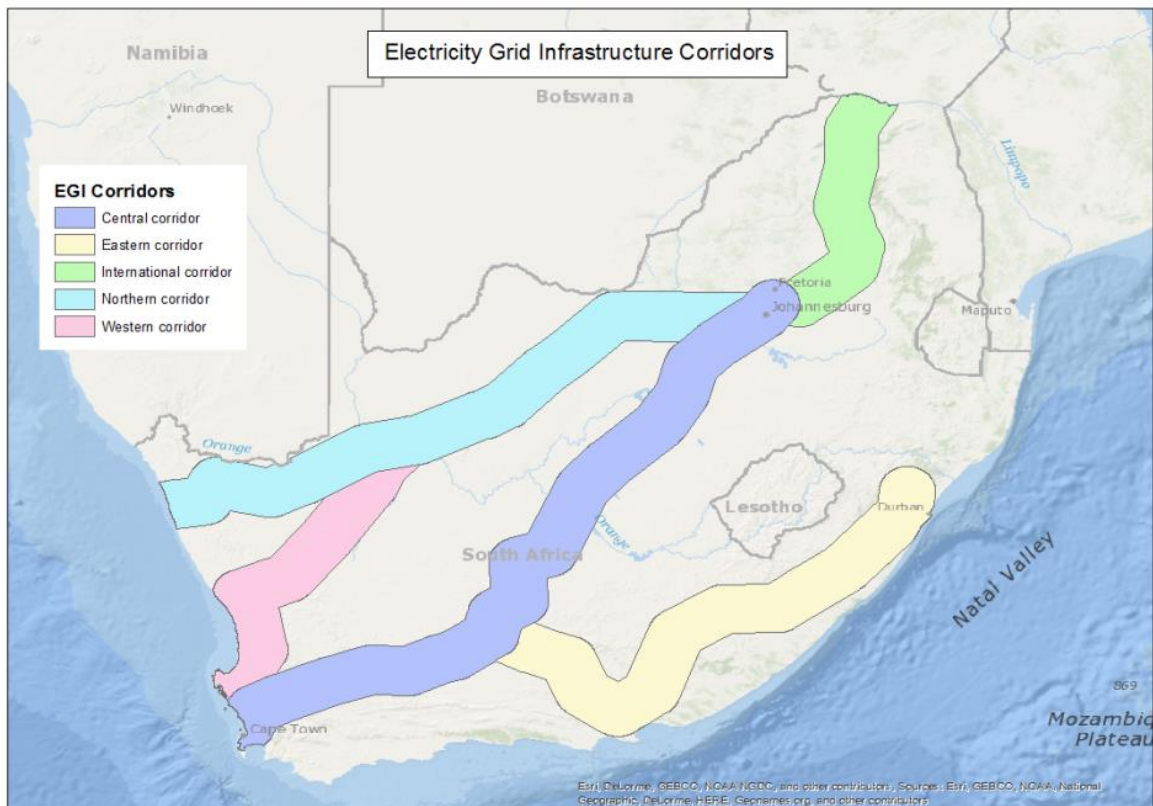


Figure 1: The five EGI corridors identified as part of the 2016 SEA (DEA, 2016)

The outcome of the 2016 EGI SEA (i.e. a streamlined EA process within the gazetted corridors) incentivises Eskom and other potential transmission and distribution infrastructure developers to plan and develop in less sensitive areas. The streamlined process consists of undertaking of a Basic Assessment (BA) instead of an Environmental Impact Assessment (EIA) and allowing a pre-negotiated route to be brought forward to



1 the DEA. The benefits of the development of an EGI network in South Africa is supported by Eskom's  
2 Transmission Development Plan (TDP) that notes that the development of new transmission lines and  
3 associated electrical infrastructure forms part of the strategy to support regional power corridors. These  
4 corridors will therefore provide connectivity between different load centres (DEA, 2016). Several other  
5 benefits between socio-economic upliftment and electricity development are noted within literature and  
6 includes but are not limited to the Department for International Development (DFID) (2002) synopsis that  
7 states that access to energy services is positively linked to a reduced infant mortality and illiteracy and an  
8 increased life expectancy. As noted in the International Institute for Applied Systems Analysis (IIASA)  
9 (2013), electricity provision can also assist in alleviating poverty through economic growth, employment  
10 opportunities and the promotion of sustainable human development. The access to energy also shows to  
11 have a positive impact on employment opportunities. The case study by Dinkelman (2010) in rural  
12 KwaZulu-Natal found that electrification was linked to an increase of 9.5% in female employment (over a  
13 five year period) that can mostly be attributed to releasing women from household work.

14  
15 The outcomes of the 2016 EGI SEA (i.e. final five EGI corridors) were gazetted in Government Notice No.  
16 113 entitled "Notice of the identification in terms of Section 24(5)(a) and (b) of the National Environmental  
17 Management Act, 1998 (NEMA), of the procedure to be followed in applying for EA for large scale electricity  
18 transmission and distribution development activities identified in terms of Section 24(2)(a) of the NEMA  
19 when occurring in geographical areas of strategic importance", dated 16 February 2018.

20  
21 The CSIR has now been commissioned by the DEA in partnership with the Department of Energy (DoE),  
22 Department of Public Enterprises (DPE), iGas, Eskom and Transnet to undertake a SEA for the  
23 identification of energy corridors as well as the assessment and management measures for the  
24 development of a gas pipeline network for South Africa (considered as part of a separate SEA Report). As  
25 part of this appointment, the expansion of the gazetted Western and Eastern EGI corridors also needs to  
26 be considered. This assessment refers to this component of the scope of work. The terms of reference  
27 specific to this assessment is outlined below:

- 28
- 29 • Assessment of the expanded EGI network; and
- 30 • Make any amendments to the generic Environmental Management Programme (EMPr) for the
- 31 development of EGI based on the additional assessment undertaken.
- 32

### 3 SCOPE OF THIS STRATEGIC ISSUE

The proposed two expanded EGI corridors and the existing EGI corridors are shown in the figure below (Figure 2).

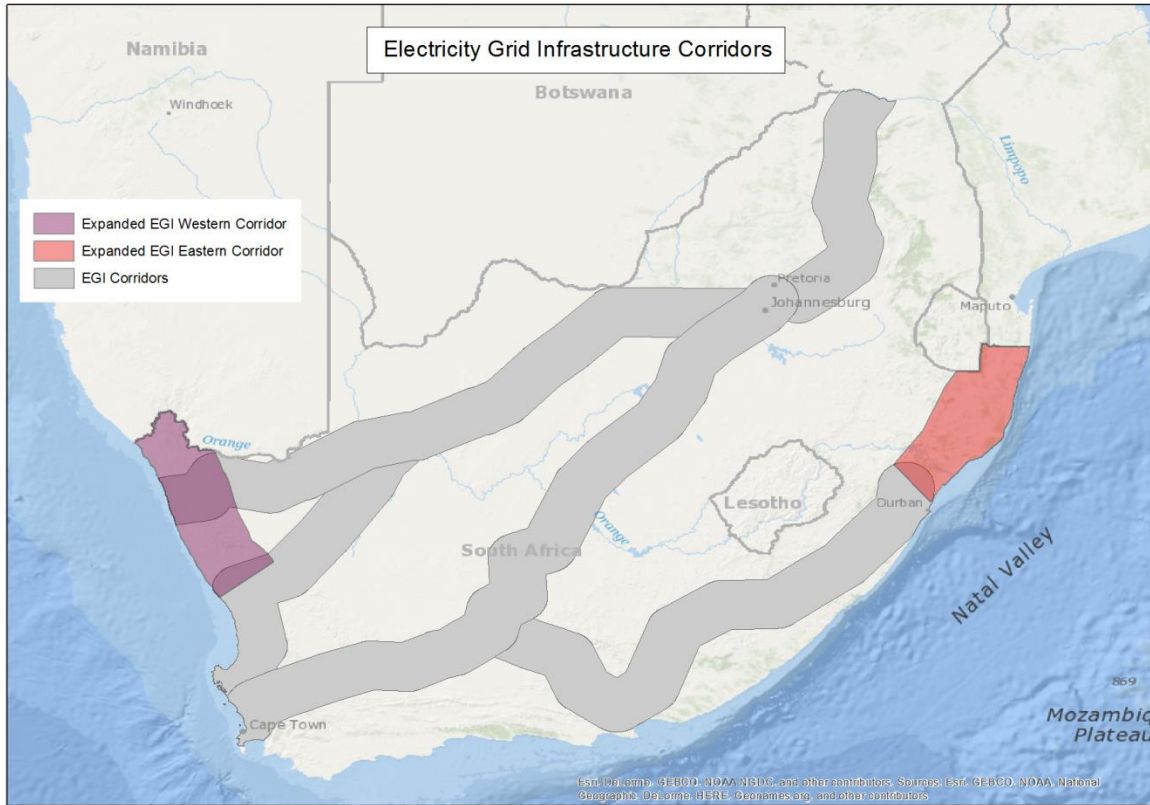


Figure 2. The two proposed expanded EGI corridors and the five existing and gazetted EGI corridors identified as part of the 2016 EGI SEA

A socio-economic assessment (dated 2015) was undertaken by Dr Hugo van Zyl and Tony Barbour as part of the 2016 EGI SEA to provide an understanding of the socio-economic impacts that were likely to arise as a result of the declaration of transmission corridors and the associated EGI elements (DEA, 2016). This assessment (i.e. for the expanded EGI corridors) will be based on the methodology undertaken by Dr Hugo van Zyl and Tony Barbour to ensure that there is an alignment of the scope of work, continuity and to allow for a comparative analysis of the assessments (if necessary). The Socio-Economic Scoping Assessment Specialist Report (2015) should therefore be used as a baseline and be read in conjunction with this assessment (DEA, 2016). This report is an addendum to the 2015 Socio-Economic Scoping Assessment Specialist Report (DEA, 2016). A copy of the EGI SEA Report (DEA, 2016) and the 2015 Socio-Economic Scoping Assessment Specialist Report (DEA, 2016) is available on the following website: [https://egi.csir.co.za/?page\\_id=1375](https://egi.csir.co.za/?page_id=1375).

## 4 APPROACH AND METHODOLOGY

### 4.1 Study Methodology

As noted within Section 3, because this assessment only considers the expansion of the EGI corridors previously assessed as part of the 2016 EGI SEA, this assessment relies heavily on the content presented in the 2015 Socio-Economic Scoping Assessment Specialist Report and included in the 2016 EGI SEA Report. The methodology undertaken within the 2015 Socio-Economic Scoping Assessment Report was used to inform the findings of this assessment.

This assessment includes basic socio-economic conditions, land uses and key towns within each of the two proposed expanded EGI corridors. The following socio-economic indicators from the 2001 and 2011 Census data have been used, as per the previous assessment:

- Population numbers;
- Population growth (2001 to 2011);
- Population density;
- Unemployment levels;
- Percentage of households with electricity; and
- Key towns and tourism location.

The findings of the socio-economic conditions of the expanded EGI corridors will then be integrated with the findings of the 2015 socio-economic assessment and additional recommendations made, if necessary.

### 4.2 Data Sources

Table 1. Data sources

Data title	Source and date of publication	Data Description
Census data	2001 and 2011 Census Data, provided by Statistics South Africa	The census data provided information on the total population, unemployment rates and main towns that fall within the two expanded EGI corridors. The data was used to provide an overview of the socio-economic environment of the corridors.

In order to conduct nationally comparable town and settlement specific analyses in the EGI Expansion SEA, the CSIR Open Settlement Footprint framework was used. Due to the fine grained nature, it enables a much better spatial accuracy in the analyses than using municipal level data. This framework has been developed by the CSIR based on spatially disaggregated Statistics South Africa data and a range of other spatial specific data set. The CSIR Open Settlement Footprint Layer is only available for 2011, as it requires the most extensive census data set for spatial accuracy.

### 4.3 Assumptions and Limitations

The assumptions and limitations applicable to this assessment have been sourced from the 2015 socio-economic assessment (DEA, 2016). These are detailed in Table 2 below.

Table 2. Assumptions and limitations of the study

Limitation	Included in the scope of this study	Excluded from the scope of this study	Assumption
Lack of detailed assessments of impacts	High level information available based on census data, desktop literature available and information sharing meetings with various stakeholders	Detailed interviews with residents, site visits to the key towns within the corridors, finer scale assessments based on the receiving socio-	Where required, additional site specific management actions will be recommended once the final EGI route has been determined

Limitation	Included in the scope of this study	Excluded from the scope of this study	Assumption
	(authorities and public)	economic environment of a specific area	
Shortcomings of literature reviewed	Available literature on specific topics	Addressing the shortcomings in gaps in knowledge highlighted in the literature reviewed	Conclusions reached based on the literature reviewed are adequate to inform the SEA

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#### 4.4 Relevant Regulatory Instruments

The relevant regulatory instruments that guide this assessment are detailed in Table 3.

Table 3. Regulatory instruments that guide the socio-economic assessment

Instrument	Key objective
<b>International Instrument</b>	
World Bank Operational Policy (4.12) on Involuntary Resettlement (Revised in 2011)	<p>Involuntary resettlement may cause severe long-term hardship, impoverishment, and environmental damage unless appropriate measures are carefully planned and carried out. For these reasons, the overall objectives of the Bank's policy on involuntary resettlement are the following:</p> <ul style="list-style-type: none"> <li>(a) Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs.</li> <li>(b) Where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits. Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs.</li> <li>(c) Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.</li> </ul>
International Finance Corporation (IFC) Performance Standards (PS) on Environmental and Social Sustainability (Revised in 2012), specifically PS 5: Land Acquisition and Involuntary Resettlement, specifically PS 5: Land Acquisition and Involuntary Resettlement	<p>PS 5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons that use this land.</p> <p>The key objectives are:</p> <ul style="list-style-type: none"> <li>• To avoid, and when avoidance is not possible, minimize displacement by exploring alternative project designs.</li> <li>• To avoid forced eviction.</li> <li>• To anticipate and avoid, or where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected.</li> <li>• To improve, or restore, the livelihoods and standards of living of displaced persons.</li> <li>• To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites.</li> </ul>
IFC PS 7: Indigenous People (2012)	<p>PS7 seeks to ensure that business activities minimize negative impacts, foster respect for human rights, dignity and culture of indigenous populations, and promote development benefits in culturally appropriate ways. Informed consultation and participation with Indigenous People throughout the project process is a core requirement and may include Free, Prior and Informed Consent under certain circumstances.</p> <p>The key objectives are:</p> <ul style="list-style-type: none"> <li>• To ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples.</li> </ul>

Instrument	Key objective
	<ul style="list-style-type: none"> <li>• To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimize and/or compensate for such impacts.</li> <li>• To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner.</li> <li>• To establish and maintain an ongoing relationship based on Informed Consultation and Participation with the Indigenous Peoples affected by a project throughout the project's life-cycle.</li> <li>• To ensure the Free, Prior, and Informed Consent of the Affected Communities of Indigenous Peoples when the circumstances described in this Performance Standard are present.</li> <li>• To respect and preserve the culture, knowledge, and practices of Indigenous Peoples.</li> </ul>
<p>IFC's Handbook for Preparing a Resettlement Action Plan (2002)</p>	<p>The purpose of this handbook is to provide guidance in the planning and execution of involuntary resettlement associated with IFC investment projects. IFC's policy on involuntary resettlement applies to any project that may result in the loss of assets, the impairment of livelihood, or the physical relocation of an individual, household, or community. The audience for this handbook includes: IFC clients; host government agencies that support private investment in development projects; nongovernmental organizations; and the people whose lives and livelihoods will be affected by projects financed by IFC.</p>
<p>African Development Bank's (AfDB) Policy on Involuntary Resettlement (2003)</p>	<p>The policy has the following key objectives:</p> <ul style="list-style-type: none"> <li>• To avoid involuntary resettlement where feasible, or minimize resettlement impacts where population displacement is unavoidable, exploring all viable project designs. Particular attention must be given to socio-cultural considerations, such as cultural or religious significance of land, the vulnerability of the affected population, or the availability of in-kind replacement for assets, especially when they have important intangible implications. When a large number of people or a significant portion of the affected population would be subject to relocation or would suffer from impacts that are difficult to quantify and to compensate, the alternative of not going ahead with the project should be given a serious consideration;</li> <li>• To ensure that displaced people receive resettlement assistance, preferably under the project, so that their standards of living, income earning capacity, and production levels are improved;</li> <li>• To provide explicit guidance to Bank staff and to the borrowers on the conditions that need to be met regarding involuntary resettlement issues in Bank operations in order to mitigate the negative impacts of displacement and resettlement and establish sustainable economy and society; and</li> <li>• To set up a mechanism for monitoring the performance of involuntary resettlement programs in Bank operations and remedying problems as they arise so as to safeguard against ill-prepared and poorly implemented resettlement plans.</li> </ul>
<p><b>National Instrument</b></p>	
<p>The Constitution of the Republic of South Africa (Act 108 of 1996)</p>	<p>Places a legal obligation on the government of South Africa to ensure the health (Personal and Environmental) and safety of its citizens. In terms of section 41 (1) (b) of the Constitution, all spheres of government are required to "<i>secure the wellbeing of the people of the Republic</i>". Section 152 (1) (d) also requires local government "<i>to promote a safe and healthy environment</i>".</p>
<p>National Environmental Management Act (Act 107 of 1998)</p>	<p>The NEMA sets out a number of principles (Chapter 1, Section 2) to give guidance to developers, private land owners, members of public and authorities. The proclamation of the NEMA gives expression to an overarching environmental law. Various mechanisms, such as cooperative environmental governance, compliance and non-compliance, enforcement, and regulating government and business impacts on the environment, underpin NEMA. NEMA also outlines the Public Participation Process to be undertaken when requiring an Environmental Authorisation for certain development applications.</p>
<p>Prevention of Illegal Eviction from and Unlawful Occupation of Land Act</p>	<p>This Act came into effect in 1998 and set out to prevent the arbitrary eviction of occupiers of a site. The Act supports the Constitution which states that "No one may be evicted from their home, or have their home demolished, without an order of court made after considering all the relevant circumstances. No legislation may permit arbitrary evictions.</p>

Instrument	Key objective
	This Act sets out the procedure to be followed in the case of such evictions.
National Housing Code (2009) Policy developed in terms of the Housing Act (1997)	<p>Chapter 4 of the Housing Code (2009) includes the provision of the National Housing Programme for Housing Assistance in Emergency Housing Circumstances. The programme's objective is to provide for temporary relief to people in urban and rural areas who find themselves in emergencies.</p> <p>National Housing Programme: Upgrading of Informal Settlements deals with the process and procedure for the in situ upgrading of informal settlements as it relates to the provision of grants to a municipality to carry out the upgrading of informal settlements within its jurisdiction in a structured manner. The grant funding provided will assist the municipality in fast tracking the provision of security of tenure, basic municipal services, social and economic amenities and the empowerment of residents in informal settlements to take control of housing development directly applicable to them. The Programme includes, as a last resort, in exceptional circumstances, the possible relocation and resettlement of people on a voluntary and co-operative basis as a result of the implementation of upgrading projects.</p>
Occupational Health and Safety Act (Act 85 of 1993)	Aims to provide and regulate health and safety at the workplace for all workers.

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## 5 CORRIDORS DESCRIPTION

For each corridor, the data and information listed in Section 4.1 is provided, focusing on the local municipal scale and drawing primarily on the 2011 Census.

### 5.1 Expansion of the Western Corridor

The expanded Western Corridor is predominantly located in the Northern Cape Province and extends from Alexander Bay in the north along the West Coast into the Western Cape Province (Figure 3). The corridor contains areas that are sparsely populated and have declining population numbers due to urbanisation. The expanded corridor mostly consists of small towns surrounded by arid and semi-arid areas. Some of the small towns, including Nababeep, Okiep and Concordia all fall within the corridor and are historical mining towns. While mines on which these towns relied have been abandoned, there are still extensive diamond diggings along the coast and some mineral sands mines. The key towns within the corridor, from north to south are Alexander Bay, Port Nolloth, Springbok, and Hondeklipbaai which all fall within the Namaqualand tourism region. The expanded Western Corridor contains the Namaqua National Park, the Goegap Nature Reserve and the Richtersveld Transfrontier Park (a World Heritage Site). The corridor is also bound in the North by the Orange River that is a key recreational attraction. The corridor contains the N7 that runs to Namibia and the N14 that is routed to Pofadder in the east.

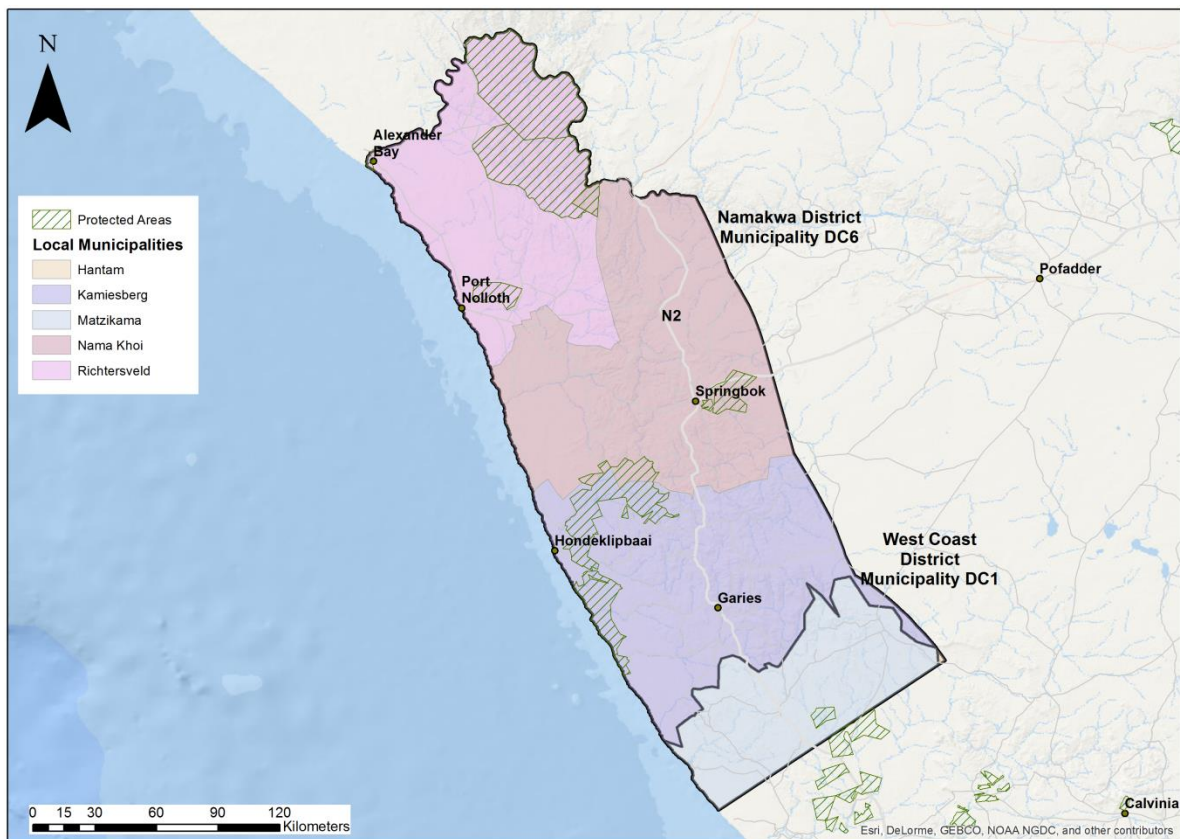


Figure 3: District and Local Municipalities as well as key roads and formal protected areas falling within the expanded Western Corridor.

The key economic sector within the corridor is government dominated. The portion of the corridor that falls within Northern Cape is increasingly being associated with the development of renewable energy (solar and wind). The Hantam and Matzikama local municipalities have the highest percentages, 16.42 % and 10.49%, respectively, of households that are without electricity (Table 4). The establishment of an EGI network in the area may therefore potentially benefit these municipalities.

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Table 4 contains a summary socio-economic data and a list of key towns/cities in the expanded Western Corridor. It is important to note that unemployment rate noted in Tables 4 and 5 below is a percentage of the total population of the province/local municipality, and not a percentage of the total employable population of the province/local municipality.

Table 4. Socio-economic data and key towns - Expanded Western Corridor

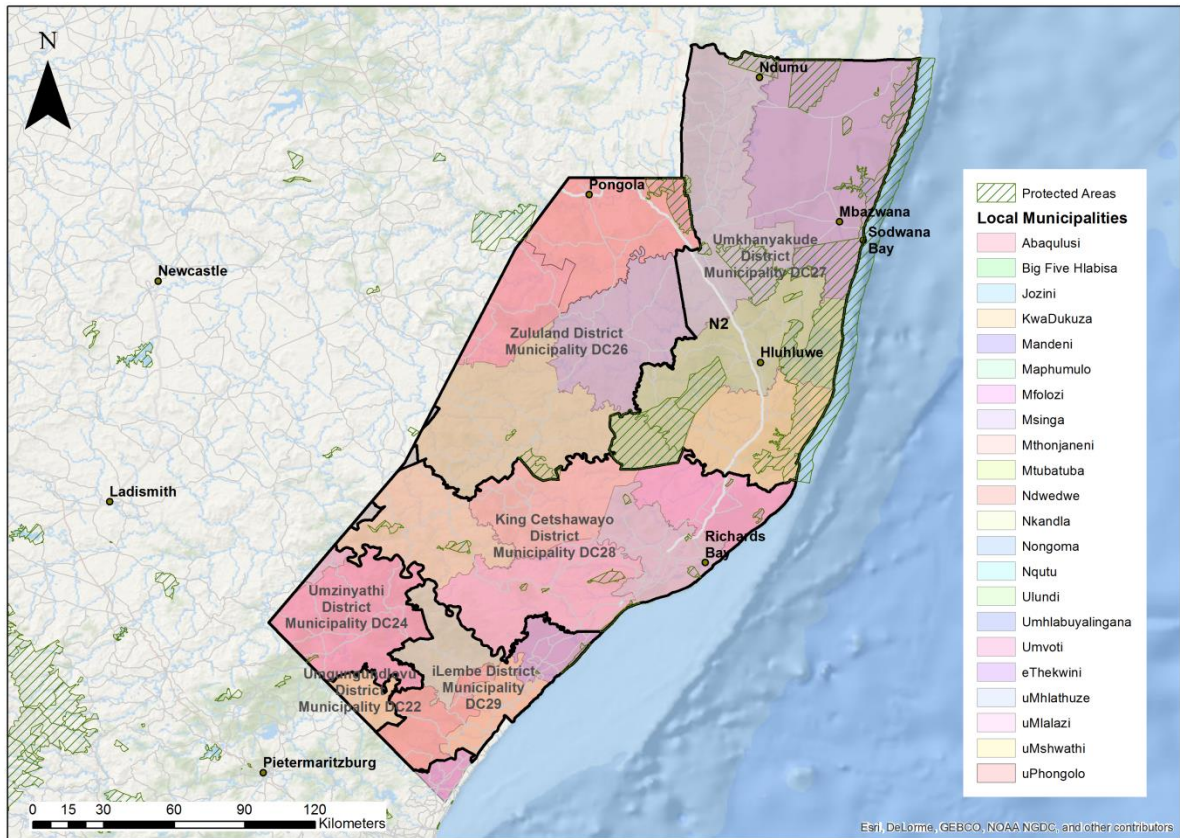
Province/ Local Municipality	Total Population (2011)	Annual Population Growth Rate (2001 to 2011)	Population Density 2011 (people/km <sup>2</sup> )	Unemployment Rate - 2011	Percentage of households without electricity (2011)	Main Towns	Tourism Region
<b>Northern Cape</b>	<b>1 145 433.25</b>	<b>1.34</b>	<b>3.06</b>	<b>12.80</b>	<b>13.31</b>	<b>Kimberley, Upington</b>	
Richtersveld	11 981.00	1.50	1.25	8.86	3.70	Port Nolloth	Namaqualand
Nama Khoi	47 034.66	0.46	2.61	7.79	5.43	Springbok	Namaqualand
Kamiesberg	10 171.30	(0.53)	0.72	9.64	8.17	Garies	Namaqualand
Hantam	21 960.32	0.74	0.56	3.85	16.42	Calvinia	Kalahari and Diamond Fields
Khâi-Ma	12 434.27	0.58	0.79	10.48	8.12	Pofadder	Kalahari and Diamond Fields
<b>Western Cape</b>	<b>5 822 511.31</b>	<b>2.32</b>	<b>44.81</b>	<b>11.60</b>	<b>6.12</b>	<b>Cape Town</b>	
Matzikama	67 156.00	1.92	5.17	5.79	10.49	Vredendal	Namaqualand

9

## 10 5.2 Expansion of the Eastern Corridor

11 The expanded Eastern Corridor contains the KwaZulu-Natal North Coast, from the northern outskirts of  
12 eThekweni to the Mozambican border, which is densely populated and a popular tourism and recreation  
13 destination (Figure 4). The key economic sectors include agriculture, tourism, industry, forestry,  
14 government and services. The northern section of the corridor contains the St Lucia wetland system  
15 (isiMangaliso Wetland Park, a World Heritage Site), scenically prominent features including Greytown,  
16 Kranskop and the Lebombo Mountains, Lake Jozini, Lake Sibaya and Kosi Lake and a large number of  
17 game reserves, all adding to its tourism value. The corridor also contains the Umfolozi and Mkhuze Game  
18 Reserves and the Zululand Rhino Reserve. The key tourism regions within this corridor are the Midlands  
19 and Battlefields as well as the Zululand and Maputaland. Zululand, especially, is also considered to have  
20 cultural and historical significance. Richards Bay, including its port centred around coal exports through the  
21 Richards Bay Coal Terminal, is the prominent industrial hub in the region. The Dube TradePort Special  
22 Economic Zone (SEZ), international airport and surrounds are also a major growth node with significant  
23 scope for further expansion along with nearby coastal areas.





1  
2 Figure 4: District and Local Municipalities as well as key roads and formal protected areas falling within the  
3 expanded Eastern Corridor

4  
5 Table 5 contains a summary of socio-economic data and a list of key towns/cities in the expanded Eastern  
6 Corridor. In terms of unemployment levels, this corridor contains generally areas of high unemployment  
7 and percentage of households without electricity that could potentially benefit from an EGI network in the  
8 area.  
9

1

Table 5. Socio-economic data and key towns - Expanded Eastern Corridor

Province/Local Municipality	Total Population (2011)	Annual Population Growth Rate (2001 to 2011)	Population Density 2011 (people/km <sup>2</sup> )	Unemployment Rate - 2011	Percentage of households without electricity (2011)	Main Towns	Tourism Region
KwaZulu-Natal	10 269 876.11	1.43	108.84	14.65	21.25	Durban	
eThekweni	3 473 508.78	1.01	1 359.01	12.49	9.85	Durban	Midlands and Battlefields
uMhlathuze	367 350.58	1.28	297.84	11.46	6.46	Richards Bay	Zululand and Maputaland
KwaDukuza	231 455.73	2.74	314.92	9.83	9.36	Stanger	Midlands and Battlefields
Abaqulusi	214 820.15	0.95	49.80	7.11	27.82	Vryheid	Midlands and Battlefields
uMlalazi	213 472.00	(0.35)	96.42	6.31	40.81	Eshowe	Midlands and Battlefields
Inkosi Langalibalele	196 202.42	0.83	57.73	9.11	27.98	Estcourt	Midlands and Battlefields
Nongoma	194 483.00	(0.18)	89.13	6.41	35.21	Nongoma	Zululand and Maputaland
Ulundi	188 144.00	(0.02)	57.89	7.87	25.58	Ulundi	Midlands and Battlefields
Jozini	186 439.00	0.16	54.16	6.74	66.61	Mkuze	Zululand and Maputaland
Mtubatuba	175 375.38	1.71	89.03	7.38	33.25	Mtubatuba	Zululand and Maputaland
Msinga	170 227.58	0.67	71.67	4.87	70.61	Pomeroy	Midlands and Battlefields
Nqutu	165 164.16	(0.26)	84.17	4.81	46.45	Nqutu	Midlands and Battlefields
Umhlabuyalingana	156 649.00	0.88	31.47	6.83	80.78	Emangusi	Zululand and Maputaland
Ndwedwe	140 448.27	(0.34)	128.51	7.66	61.55	Ndwedwe	Midlands and Battlefields
Mandeni	138 045.00	0.78	253.07	8.59	16.74	Mandeni	Zululand and Maputaland
Mfolozi	129 604.71	1.09	99.71	10.11	15.22	KwaMbonambi	Zululand and Maputaland
uPhongolo	123 379.69	0.55	39.67	8.02	25.39	Pongola	Zululand and Maputaland

## STRATEGIC ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF ELECTRICITY GRID INFRASTRUCTURE IN SOUTH AFRICA

Province/Local Municipality	Total Population (2011)	Annual Population Growth Rate (2001 to 2011)	Population Density 2011 (people/km <sup>2</sup> )	Unemployment Rate - 2011	Percentage of households without electricity (2011)	Main Towns	Tourism Region
Nkandla	114 227.00	(1.69)	62.50	4.72	54.66	Nkandla	Midlands and Battlefields
Umvoti	113 315.75	0.81	41.90	6.70	41.69	Greytown	Midlands and Battlefields
Big Five Hlabisa	107 129.62	0.57	30.91	7.39	45.93	Hluhluwe	Zululand and Maputaland
uMshwathi	106 994.67	(0.20)	57.35	6.63	26.60	Wartburg	Midlands and Battlefields
Maphumulo	96 626.00	(2.40)	107.85	5.44	61.95	Maphumulo	Midlands and Battlefields
Mthonjaneni	84 389.54	(1.63)	51.50	5.73	43.15	Melmoth	Zululand and Maputaland
eDumbe	82 016.00	(0.02)	42.22	7.09	36.54	Paulpietersburg	Midlands and Battlefields
Mkhambathini	57 056.58	0.93	65.70	7.97	29.84	Camperdown	Midlands and Battlefields
Mpofana	35 487.54	0.22	20.20	8.74	23.28	Moorivier	Midlands and Battlefields
Alfred Duma	339 636.75	0.04	90.22	8.93	23.35	Ladysmith	Midlands and Battlefields
Endumeni	64 860.00	2.12	40.28	8.43	20.33	Dundee	Midlands and Battlefields
Emadlangeni	34 427.00	0.62	9.73	10.19	49.90	Utrecht	Midlands and Battlefields
The Msunduzi	621 556.92	1.05	827.54	12.24	7.68	Pietermaritzburg	Midlands and Battlefields
uMngeni	92 695.63	1.98	61.00	10.48	13.97	Howick	Midlands and Battlefields
Mpumalanga	4 039 691.46	1.68	52.81	14.80	13.07	Nelspruit (Mbombela)	
Mkhondo	171 987.00	1.69	35.23	9.96	32.43	Piet Retief	Midlands and Battlefields

## 6 KEY POTENTIAL IMPACTS AND MITIGATION

New transmission lines and associated infrastructure are required to connect generation pools to one another and to the major load/demand centres in the country. EGI is thus essential for the transmission or transport of electricity from locations where it is generated to its end users. It therefore forms an integral part of the system that allows for the provision of electricity to consumers and its strategic socio-economic benefits are essentially inseparable from the overall strategic benefits of electricity provision. These are highly significant, diverse and relatively self-evident. Adequate electricity supply is a pre-requisite for reduction in poverty and for the establishment and continued growth of a modern economy. However, proposed EGI projects are generally perceived in a negative manner and subjected to drawn out servitude negotiation processes. It is recognised and understood that in general impacts on surrounding communities and the acceptability of proposed projects are often linked to the way in which the public participation processes are managed.

Various methods of stakeholder engagement have been adopted during the SEA:

- Two Public Outreach Programmes have been held at key towns across the country in November 2017 and October 2018.
- A number of sector specific and focus group meetings were undertaken throughout the SEA.
- A Project Steering Committee (PSC) and Expert Reference Group (ERG) were set up during the inception phase of the SEA and consists of representatives from relevant authorities, experts, NGOs etc.
- Public and stakeholder commenting will also be undertaken during the gazetting process to ensure that all Interested and Affected Parties (I&APs) have the opportunity to comment on the decision support outputs generated as part of the SEA (such as the final corridors, EMP, Protocols and Standards), before they are gazetted.

Additional information on the public outreach programme undertaken during this SEA Process will be available as part of the SEA Report. Detailed requirements in terms of further public outreach at project specific level will also be included, where applicable, as part of the proposed decision support outputs (e.g. Standard, protocol, EMP), to ensure that adequate consultation is undertaken once a route has been identified and planned to be constructed.

The streamlining of the environmental authorisation process that would be associated with the EGI development inside the declared corridors would have significant economic advantages due to reduction of the timeframes and pre-negotiation of servitudes. The declaration of the corridors will also provide greater certainty to electricity generators and large users and would demonstrate a commitment to prioritising grid expansion and facilitate/accommodate investment. Refer to Section 7.1 of the 2015 Socio-Economic Assessment (DEA, 2016) for further details on the strategic benefits of electricity provision and corridors declaration.

The following potential socio-economic impacts associated with the expansion of the EGI corridors have been identified and assessed:

### Positive Impacts (Benefits)

1. Impacts on key economic sectors including<sup>1</sup>:
  - a. Impacts on electricity generators
  - b. Impacts on energy intensive users

### Negative Impacts

- c. Impacts on tourism (including eco-tourism)
2. Impacts on property values
3. Impacts on surrounding communities due to visual intrusion
4. Resettlement and relocation/displacement impacts
5. Impacts associated with project workers/workforce
6. Health impacts focused on electro-magnetic fields (EMFs)

<sup>1</sup> Note that impacts on agriculture are dealt with in the chapter on additional impacts, which generally covers agriculture.

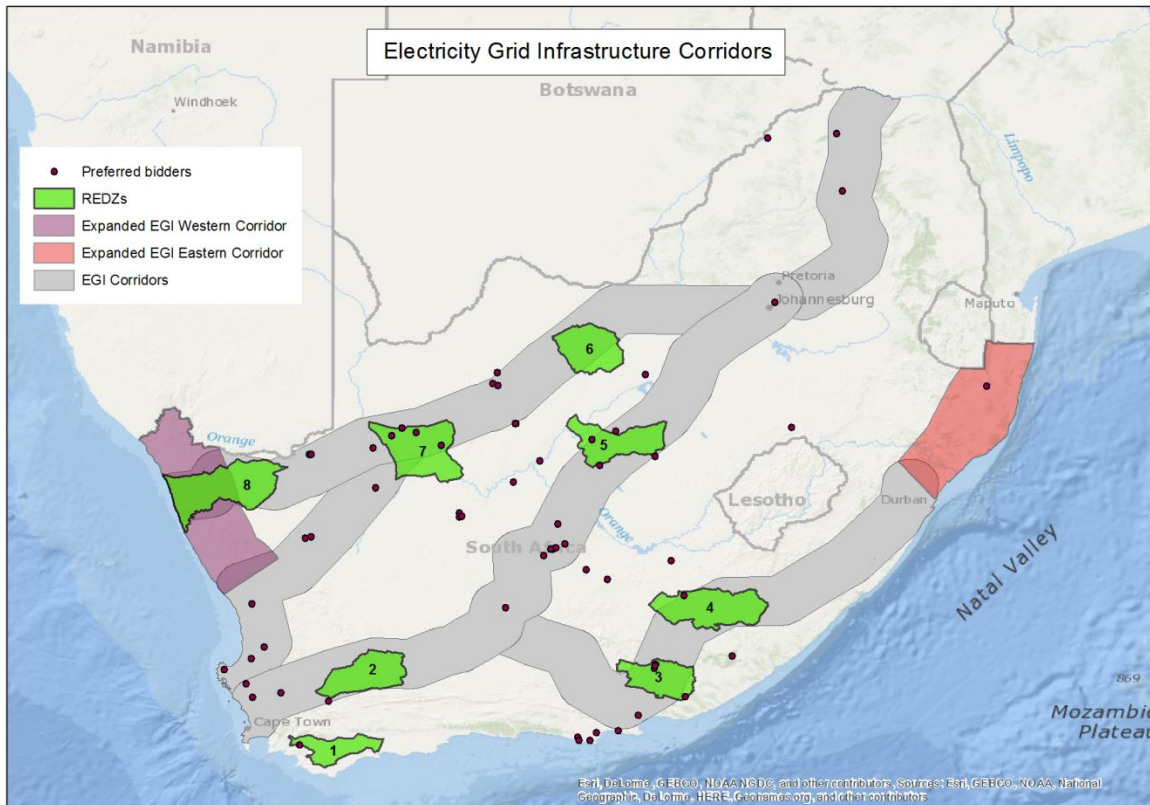
1 Generic impacts linked to the development of EGI were assessed in the 2015 Socio-Economic Assessment  
2 undertaken as part of the EGI SEA (DEA, 2016) and have not been repeated in this report. The reader is  
3 referred to Section 7 of the 2015 Socio-Economic Assessment (DEA, 2016) undertaken by Dr Hugo van Zyl  
4 and Tony Barbour for a detailed description of those impacts. Where required, relevant section of the 2015  
5 Socio-Economic Assessment has been cross-referenced and provided in this report for ease of reference.  
6

## 7 **6.1 Impacts on electricity generators**

8 The development of EGI will enhance grid access to electricity generators so that the energy they generate  
9 can reach users and it will therefore constitute a positive impact on electricity generators. This includes  
10 generation plants of all types and sizes. It also encompasses independent power producers (IPPs) which  
11 have rapidly become a key source of demand for grid access particularly for renewable energy projects.  
12 Note that the rapid development of renewable energy generation over the last few years lead to mis-  
13 matches between where developers wanted to establish generation projects and grid access opportunities.  
14

15 The latest Eskom TDP (2019-2028) notes that the establishment of large-scale renewable energy  
16 developments is becoming the key driver of network development in the three Cape provinces (apart from  
17 the Cape Corridor project and the base metals mining area in the Northern Cape and established load  
18 centres) (Eskom, 2015; 2019). The Northern Cape is the greatest beneficiary of the programme thus far  
19 with 59 projects awarded preferred bidder status (IPP Office, 2017). This represents 53% of the total  
20 capacity for Renewable Energy IPP up to the fourth window (including the small scale renewable energy  
21 bidding windows 1 and 2) followed by the Eastern Cape with 15% and the Western Cape with 13% of total  
22 capacity (IPP Office, 2017). It is beneficial that the proposed expanded corridors overlap, where possible,  
23 with the gazetted Renewable Energy Development Zones (REDZs) (published in Government Notice 114 in  
24 Government Gazette 41445 on 16 February 2018) as this is where future grid access will be required; and  
25 with the preferred IPPs where current grid access is required. The expanded western corridor covers a  
26 small section of REDZ 8 not previously included within the original EGI corridors and the eastern corridor  
27 includes a preferred IPP (Figure 5). It is important to re-iterate that the two expanded EGI corridors were  
28 conceptualised in order to support potential business and economic activity extending to Mozambique and  
29 Namibia, as well as to facilitate potential export and import of power to and from these regions.  
30

31 The current SEA Process also launched an energy generation mapping exercise to gather information on  
32 where EGI expansion needs to be prioritised (in the context of the EGI expansion corridors) to support the  
33 evacuation of electricity from future energy generation activities (e.g. Renewable projects and Gas to power  
34 plants). Where suitable motivation is provided, based on this mapping exercise, the positioning of the  
35 corridors will be refined to overlap with areas of aggregated common development interest amongst  
36 generators and to accommodate these plans. Additional information on the demand mapping process will  
37 be provided in the SEA Report.



1  
 2 Figure 5: Expanded EGI corridors, existing and gazetted EGI corridors overlapped with the identified and gazetted  
 3 REDZs and preferred IPPs (in terms of Bidding Windows 1 to 4).

4  
 5 In addition, as noted above, the declaration of these corridors will lead to significant benefits for electricity  
 6 generators as it will provide them with the option to self-build connections to the Eskom EGI network  
 7 infrastructure under an exempted EA Process via the adoption of Standards or a streamlined EA process.

8  
 9 It will also facilitate in the planning process associated with rolling out and location of future projects and  
 10 provide better investment certainty. The declaration of the EGI corridors will also enable Eskom to provide  
 11 feedback in a more-timely manner in terms of future grid availability.

12  
 13 Refer to Section 7.2 of the 2015 Socio-Economic Assessment (DEA, 2016) for additional information on  
 14 the impacts of EGI development and corridor declaration on electricity generators.

15  
 16 6.1.1 Management and mitigation

17 The key need of IPPs will be access to timely and accurate information about intended development within  
 18 the corridors. Eskom should engage with the relevant representative bodies with a view to drawing up an  
 19 appropriate and clearly understandable information package and dissemination plan in this regard. Refer  
 20 to Section 7.2.3 of the 2015 Socio-Economic Assessment (DEA, 2016) for a description of the  
 21 recommended mitigation measures for this impact.

## 6.2 Impacts on energy intensive users (industry and mining)

The development of EGI will facilitate the supply of power to what are often large, energy intensive users such as industry and mining. Linked to industry, the SEZs are spread throughout the country and occur within most provinces. The eight SEZs and their locations are listed below (Department of Trade and Industry (dti), 2016):

1. Coega Industrial Development Zone (IDZ) (Eastern Cape)
2. Richards Bay IDZ (KwaZulu-Natal)
3. East London IDZ (Eastern Cape)
4. Saldanha Bay IDZ (Western Cape)
5. Dube TradePort SEZ (KwaZulu-Natal)
6. Maluti-A-Phofung SEZ (Free State)
7. OR Tambo SEZ (Gauteng)
8. Musina/Makhado SEZ (Limpopo)

The Richards Bay IDZ and Dube TradePort SEZ fall within the additional Eastern EGI corridor.

In addition, there are three proposed SEZs noted by the dti (2016), namely: Nkomazi SEZ in Mpumalanga; Atlantis SEZ in Western Cape; and Bojanala SEZ in the North-West. Research indicates that in late 2018, a decision was made by the dti to designate the Nkomazi SEZ and to accordingly grant an SEZ licence to the Mpumalanga Department of Economic Development and Tourism (Creamer Media, 2018). Based on feedback from authorities during meetings held during the SEA, an SEZ is also proposed in Upington. These additional SEZs do not fall within the proposed EGI corridors, however could still benefit from the two expanded EGI corridors.

Similarly to the energy generation mapping exercise undertaken as part of this SEA, an energy demand mapping exercise was also carried out to identify areas designated for future energy intensive usage activities, such as industrial development (industrial expansion, IDZ, SEZ) or potential mining operations which could be represented spatially. The outputs of this mapping exercise also informed the corridor refinement process to ensure that the corridors overlap with areas planned for intensive energy activities. Additional information on the demand mapping process will be provided in the SEA Report.

In addition, the establishment of the two expanded corridors will facilitate energy trading and commerce among the interconnected entities which will have a positive impact on the overall energy mix. As noted above, the expanded Western Corridor will enable a connection between Namibia and South Africa to support gas power generation and transmission as well as renewable energy generation integration. The expanded Eastern Corridor will enable a connection to Mozambique.

The positive impacts associated with the declaration of the Eastern and Western EGI corridors on the industry and mining sectors would be similar to the benefits to electricity generators, as outlined in Section 6.1 of this report. These include providing investment certainty to these sectors and enable Eskom and other developers to provide informed responses to electricity supply requests. In addition, these corridors will also facilitate planning through Spatial Planning and Land Use Management Act (SPLUMA) which requires provinces, districts and local municipalities to make provision for the development of infrastructure including that which may be linked to EGI (DEA, 2016). Once gazetted, the outcome of the EGI Expansion SEA process will mean that bulk generators and bulk users of electricity will benefit from the accelerated authorisation or absence thereof for the construction of transmission level infrastructure in the gazetted corridors.

Refer to Section 7.3 of the 2015 Socio-Economic Assessment (DEA, 2016) for additional information on this impact.

### 6.2.1 Management and mitigation

The key need of mining and industry will be access to timely and accurate information about intended development within the corridors. Eskom should engage with the relevant representative bodies with a view to drawing up an appropriate and clearly understandable information package and dissemination plan in this regard. Refer to Section 7.3.3 of the 2015 Socio-Economic Assessment (DEA, 2016) for a description of the recommended mitigation measures for this impact.

### 6.3 Impacts on tourism

Landscape qualities, particularly scenic resources, have important economic value in the form of tourism for most regions, including the Western and Eastern expanded Electricity Grid Infrastructure (EGI) corridors currently being assessed. Transmission lines and related infrastructure, such as substations, tend to have an industrial connotation and have been found to entail risks for tourism where visual quality and natural landscapes with minimal signs of man-made structures (e.g. pristine or protected environments) are a key attraction. This tends to be the case in relatively unspoilt areas and particularly those containing land uses such as protected areas and game farms. Such areas can be found in all of the two expanded EGI corridors. There are, however, certain areas where tourism is relatively more prominent and potentially sensitive. Such areas are broadly identified in Table 6 below for each corridor. These features have all been considered within the Visual Impact Assessment undertaken as part of this SEA and were allocated an appropriate sensitivity level.

Table 6: Areas of particular tourism sensitivity per corridor

Corridors	Areas of relatively higher tourism value and sensitivity
Expanded Western Corridor	<p>Namaqua National Park, the Goegap Nature Reserve and the Richtersveld Transfrontier Park (a World Heritage Site). The corridor is also bound in the North by the Orange River that is a key recreational attraction.</p> <p>The key towns within the corridor, from north to south are Alexander Bay, Port Nolloth, Springbok, Kamieskroon which all fall within the Namaqualand tourism region.</p>
Expanded Eastern Corridor	<p>Scenically prominent features that would be a drawcard to tourists include Greytown, Kranskop and the Lebombo Mountains, and Lake Jozini, Lake Sibaya and Kosi Lake. A key tourism attraction is also the St. Lucia Wetlands (Isimangaliso Wetland Park, a World Heritage Site).</p> <p>Key tourism regions include Midlands and Battlefields as well as the Zululand and Maputaland.</p>

The declaration of the expanded corridors will have a positive impact to the tourism sector due to the enhanced planning information available and would provide the following (DEA, 2016):

- An increased level of certainty to the tourism sector regarding the broad areas (i.e. 100 km corridors) where future major transmission lines and other EGI are likely to be constructed;
- Guidance regarding particularly sensitive areas within the corridors which are likely to be avoided by future EGI projects making them potentially more suitable for tourism on balance;
- Understanding of risks posed by the introduction of transmission lines to tourism establishments located inside the corridors wishing to expand;
- New tourism ventures and providing a fuller set of information in terms of location options.

On a local level the declaration of the corridors may pose a risk to new tourism investment and/or expansion through the avoidance of the corridors. However, the establishment of a 100 km wide corridor will in all likelihood limit the risk (DEA, 2016).

The risk to especially eco-tourism would be in areas where the sensitivity mapping undertaken for these corridors would leave limited areas available for EGI development. This would mean that the likelihood of



1 the EGI going through narrow areas would increase, which could in turn deter investment in the area (DEA,  
2 2016).

3  
4 Sensitivity mapping within the EGI corridors introduced layers for the following types of land uses or areas:

- 5
- 6 • Protected areas (including buffers and expansion areas), game farms and private nature reserves.
- 7 • Visually sensitive areas including scenic routes.
- 8 • Areas of high heritage and ecological value.

9  
10 The avoidance of these areas will assist with limiting tourism risks at a broad level. A more detailed  
11 assessment, including ground truthing, at project specific level is recommended. Such assessment would  
12 need to:

- 13
- 14 • Identify, briefly describe and map key tourism assets and establishments (e.g. lodges, guest  
15 houses).
- 16 • Assess their likely sensitivity to impacts taking into consideration their tourism offering and key  
17 target markets. For example, high-end ecotourism or hunting lodges are likely to be particularly  
18 sensitive given their clientele.
- 19 • Assess potential socio-economic impacts on them, informed by visual impacts along with how  
20 these could be mitigated (DEA, 2016).

21  
22 Refer to Section 7.4 of the 2015 Socio-Economic Assessment (DEA, 2016) for additional information on  
23 this impact.

#### 24 25 6.3.1 Management and mitigation

26 A comprehensive list of mitigation measures that can essentially be applied to all transmission line  
27 projects is provided by Milburn (2013). As one would expect, the majority of these measures focus on  
28 limiting visual and ecological impacts of echoing the findings of visual and ecological specialist studies.

29  
30 Refer to Section 7.4.3 of the 2015 Socio-Economic Assessment (DEA, 2016) for a description of the  
31 recommended management actions for this impact.

### 32 33 6.4 Impacts on property values

34 EGI has the potential to impact negatively on property values primarily through the visual impacts that are  
35 often associated with substations and transmission lines in particular. Health concerns and disruption of  
36 activities such as farming or recreation can also play a role. Risks have been found to be highly case  
37 specific and variable and tend to be higher in residential areas and in rural areas where visual quality and  
38 natural landscapes with minimal signs of man-made structures are a key attraction (e.g. protected areas  
39 and game farms). They can be found in both expanded EGI corridors.

40  
41 In terms of impact on property values, the expanded Western Corridor contains large pieces of land (used  
42 for farming or owned by mining companies), making the impact to property value low, while the expanded  
43 Eastern Corridor contains areas of high property value, due to the tourism potential especially along the  
44 coast. These areas would need to be avoided to manage the impact to property values within this corridor.

45  
46 The declaration of the corridors are likely to have a positive impact on the property market by providing a  
47 fuller picture of where an EGI network is likely to occur and contribute to improved property market  
48 functioning. Without the declaration of the corridors property purchase decisions will be based on  
49 incomplete information.

50  
51 However, while there may be a positive impact to property functioning, the declaration of the corridors may  
52 pose a risk to existing property owners. This would especially be the case where prospective buyers looking  
53 for eco-tourism and/or leisure or lifestyle potential properties are deterred from the corridors if they are

1 seeking properties with a high (current and future) aesthetic value. In terms of agriculture, buyers may  
2 avoid these areas due to the potential disruption to agricultural activities.

3  
4 Having established that there may be risks, it is extremely difficult to come to an overall conclusion  
5 regarding the actual level of risk (DEA, 2016). The 100 km width of the corridors should, however, ensure  
6 that risks are kept low. The risk of the impact occurring may be higher in areas where the outcome of the  
7 sensitivity mapping reduces the developable area for EGI development. This would increase the likelihood  
8 of the EGI network going through these areas and buyers are then likely to be particularly careful when  
9 considering such areas.

10  
11 As noted in Section 7.5.2 of the 2015 socio-economic report, the potential for speculative buying to drive  
12 up demand for these areas cannot be entirely ruled out (i.e. people buying with the sole purpose of  
13 extracting a higher price from the Developer given their weaker bargaining position). However, such a  
14 strategy would entail significant risks with potentially limited rewards which most speculators should be  
15 aware of. In particular they are unlikely to be encouraged by the limited likelihood of the Developer paying  
16 high prices for servitudes as discussed in the next section. Increased powers of land expropriation for  
17 strategically important projects as envisaged by the Land Expropriation Bill are also likely to discourage  
18 speculation.

19  
20 The avoidance of these areas will assist with limiting risks to property values at a broad level. In addition,  
21 as per Section 6.3 of this report, it has been recommended that key tourism areas are avoided and a more  
22 detailed assessment be undertaken for individual EGI projects within corridors. This should limit impacts  
23 on those property values that are linked to tourism.

24  
25 Refer to Section 7.5 of the 2015 Socio-Economic Assessment (DEA, 2016) for additional information on  
26 this impact.

#### 27 28 6.4.1 Management and mitigation

29 As in the case of tourism impacts, mitigating property value impacts should focus on the limitation of visual  
30 and ecological impacts along with other potentially relevant impacts such as those of a social or heritage  
31 nature which may play a role in affecting property values. The relevant specialist inputs (i.e. the visual and  
32 terrestrial ecology studies) provide more details in this regard which are not repeated here.

33  
34 Refer to Section 7.5.3 of the 2015 Socio-Economic Assessment (DEA, 2016) for a description of the  
35 recommended mitigation measures for this impact.

### 36 37 6.5 Visual impacts and intrusion on surrounding communities

38 Although large sections of the population see transmission lines as a major visual detraction or eye-sore,  
39 there are others, mainly among the context of South Africa's working classes, who may regard them as a  
40 sign of progress and service delivery. Habituation is another consideration, where transmission lines have  
41 been in place over a length of time and are hardly noticed or seen as a disturbance any longer. This  
42 appears to have been the case with communication masts, which initially caused visual concern, but to  
43 which people have grown accustomed (Lawson & Oberholzer, 2018).

44  
45 The implications of these considerations are that the 'context' of both the landscape (the receiving  
46 environment) and the community (the receptor) is important in the siting of transmission infrastructure.

47  
48 Visually sensitive receptors, (e.g. settlements, routes); towns, villages and farmsteads, particularly  
49 historical settlements, residential and resort areas, tend to be sensitive to visual intrusions, including an  
50 effect on property values and tourism. Refer to the Visual Impact Assessment for further details on this  
51 impact and recommended management actions.

## 6.6 Resettlement and relocation/displacement impacts

The establishment of EGI has the potential to result in involuntary resettlement or relocation. If the resettlement is not properly planned or managed it can impact on people's lives and result in long-term hardships. Resettlement in rural areas and small villages is usually as a result of the loss of houses and farmland. The loss of access to farmland and other resources, such as rivers, springs and forests, can also impact on communities that rely on these resources for their livelihoods. One of the key challenges facing resettlement in rural areas is linked to the restoration of livelihoods based on land and access to resources (DEA, 2016).

Although transmission lines qualify as large infrastructure projects, the physical footprint and associated land take is relatively small and usually limited to the foundations associated with the powerline pylons. Impacts associated with the development of a substation may be more important given that substations have a large footprint; however, few substations are required to connect several kilometres of powerline. This means that not many substations will be developed within a corridor and can be located in areas that would have the least possibility of requiring resettlement/relocation. Given the width of the EGI expanded corridors (100km), it is likely that a suitable route and placement of substation can be identified that avoids and or minimises the impacts associated with involuntary resettlement. The need to relocate entire villages or communities is therefore highly unlikely.

In the event of involuntary resettlement occurring, there are two types of displacement that need to be considered when developing a Resettlement Action Plan (RAP). These are physical and economic displacement.

### Expanded Western Corridor

As noted above, the majority of the expanded Western Corridor passes through sparsely populated rural farm land and areas owned by mining companies in the Northern Cape Province. The land uses along this route are linked to commercial farming activities, mostly livestock (plus areas disturbed by mining, specifically diamond mining along the coast). The corridor is associated with declining population numbers due to urbanisation. The potential for involuntary resettlement related impacts (physical and economic) along this route are considered to be very low.

### Expanded Eastern Corridor

On the other hand, the eastern section of the expanded Eastern corridor passes through dense urban areas, including Durban and Richards Bay. These cities have large mixed economies and coupled with this, large population numbers. This will increase the potential for involuntary resettlement related impacts (physical and economic) along this section of the expanded Eastern Corridor. Care will need to be taken to avoid impacting on built up areas. The use of existing servitudes and road reserves would also reduce the potential impacts.

The western section of the expanded Eastern corridor has relatively lower population numbers. However, the trend is towards gradually increasing populations and economies which are likely to increase the risk of involuntary resettlement related impacts (physical and economic). However, with well-placed transmission lines, the potential for involuntary resettlement related impacts (physical and economic) along this section will be low.

Refer to Section 7.6 of the 2015 Socio-Economic Assessment (DEA, 2016) for additional information on this impact.

#### 6.6.1 Management and mitigation

Accepted international best practice requires that involuntary resettlement be avoided where possible. If this is not possible the number of people affected should be minimised.

1 Refer to Section 7.6.3 of the 2015 Socio-Economic Assessment (DEA, 2016) for a description of the  
2 recommended mitigation measures for this impact.  
3

## 4 **6.7 Impacts associated with project workers/workforce**

5 While some temporary local employment of unskilled labour is likely to be provided during the construction  
6 phase, long term employment opportunities are limited to repairs and maintenance and will be considered  
7 at a project specific level. Benefits associated with job opportunities during both the construction and  
8 operational phase are therefore anticipated to be limited.  
9

10 Given the linear nature of the work associated with the establishment of transmission lines, the  
11 construction activities will not be confined to a single area. The development of substations, on the other  
12 hand, will require that the workforce remain in a single location for a longer period. In both cases, however,  
13 the size of the workforce is likely to be relatively small compared to large civil or construction projects. The  
14 attraction potential for job seekers and the associated social impacts during both the construction and  
15 operational phase are therefore not anticipated to be significant.

16 The potential social impacts associated with the presence of construction workers are also likely to be  
17 limited and can be managed through the implementation of effective management and mitigation  
18 measures as listed below. This applies to both the expanded corridors. This also applies to workers  
19 involved with the repair and maintenance of the powerlines/substations once they are operational.  
20

21 The two expanded corridors are discussed below.  
22

### 23 **Expanded Western Corridor**

24  
25 The potential impacts associated with construction workers and maintenance crews along this corridor are  
26 likely to be of low significance due to the low population numbers.  
27

### 28 **Expanded Eastern Corridor**

29  
30 The population numbers in this corridor are higher in the eastern section compared to the western section  
31 but growth trends show that the population in the western section is increasing. This has the potential to  
32 increase the risks associated with the activities of construction and maintenance crews. Additional care  
33 will need to be taken in managing construction workers and maintenance crews along this section of the  
34 corridor.  
35

36 Refer to Section 7.7 of the 2015 Socio-Economic Assessment (DEA, 2016) for additional details on this  
37 impact.  
38

#### 39 **6.7.1 Management and mitigation**

40 The recommended mitigation measures apply to construction and maintenance related activities and are  
41 included in Section 7.7.3 of the 2015 Socio-Economic Assessment (DEA, 2016).  
42

## 43 **6.8 Health impacts focused on EMFs**

44 Findings in this section are largely based on a World Health Organisation (WHO) study on EMF  
45 (<http://www.who.int/peh-emf/about/WhatisEMF/en/index3.html>) which found no evidence of health  
46 consequences associated with exposure to low level of EMFs. However, the study did find that some gaps  
47 in knowledge about biological effects exist and need further research. This finding is also confirmed in the  
48 IFCs, Environmental, Health, and Safety Guidelines for Electric Power Transmission and Distribution  
49 (2007).  
50

51 The WHO study found that the exposure of people living in the vicinity of high voltage power lines differs  
52 very little from the average exposure in the population. The potential health related risks associated with  
53 the establishment of high voltage transmission lines is therefore not regarded as a key social issue.

1 Despite this, efforts should be made to ensure that transmission lines are not located within close  
 2 proximity to dwellings and settlements (DEA, 2016).

3  
 4 Given the width of the EGI corridors (100km) it is likely that a suitable sub-corridor (5 km wide) can be  
 5 identified that enables adequate buffer zones to be established between the servitude and potentially  
 6 affected dwellings and settlements. The buffer distances should be informed by internationally accepted  
 7 guidelines for buffers (DEA, 2016).

8  
 9 Since the expanded Western Corridor contains rural areas with low population numbers, this would  
 10 especially be the case for the expanded Eastern Corridor. Each corridor is discussed below.

11  
 12 **Expanded Western Corridor**

13  
 14 This risk of health impacts due to EMF levels are considered to be low for this corridor since the siting of  
 15 transmission pylons to ensure adequate distances between dwellings and transmission lines is considered  
 16 to be easily implemented.

17  
 18 **Expanded Eastern Corridor**

19  
 20 Care will need to be taken in siting transmission pylons in order to maximise the distances between  
 21 dwellings and the overhead transmission lines.

22  
 23 The overall anticipated health impacts are considered to be low. Refer to Section 7.8 of the 2015 Socio-  
 24 Economic Assessment (DEA, 2016) for additional information on this impact.

25  
 26 **6.8.1 Management and mitigation**

27 Given the 100 km width of the EGI corridors it is likely that a suitable sub-corridor (5 km wide) can be  
 28 identified that enables adequate buffer zones to be established between the servitude and potentially  
 29 affected dwellings and settlements. The buffer distances should be informed by internationally accepted  
 30 guidelines for buffers.

31  
 32 While the IFCs, Environmental, Health, and Safety Guidelines for Electric Power Transmission and  
 33 Distribution (2007), indicates that while the evidence of adverse health risks is weak, it is still sufficient to  
 34 warrant limited concern. The recommendations applicable to the management of EMF exposures and to  
 35 address the health and safety of electricity utility workers exposed to EMF are included in Section 7.8.3 of  
 36 the 2015 Socio-Economic Assessment (DEA, 2016).

1 **6.9 Summary of the Key Potential Impacts and Mitigation**

2

Corridor	Key Impacts	Site Specific Descriptions	Possible Effect	Mitigations
Expanded Western Corridor	Impacts on electricity generators	The corridor does cover a section of REDZ 8 not previously included within the original EGI corridors	<p>The corridor provides access to the National Grid which will support renewable energy developments.</p> <p>The key benefits from corridor declaration would be exemption or streamlining the authorisation process; and the provision of greater certainty or clarity regarding the future roll-out of EGI.</p>	See Section 6.1.1 of this report. Note that mitigation measures are also described in Section 7 of this report.
	Impacts on industry and mining	No SEZs are currently identified within this corridor though there are extensive diamond diggings and some mineral sands mines along the coast.	<p>The corridor provides access to the National Grid which will support mining and industrial developments.</p> <p>The positive impacts associated with the declaration of the EGI corridors to the industry and mining sectors would be similar to the benefits to electricity generators, as outlined in Section 6.1.1 of this report.</p>	See Section 6.2.1 of this report.
	Impacts on tourism	<p>The corridor contains that Namaqua National Park, the Goegap Nature Reserve and the Richtersveld Transfrontier Park (a World Heritage Site). The corridor is also bound in the North by the Orange River that is a key recreational attraction.</p> <p>The key towns within the corridor, from north to south are Alexander Bay, Port Nolloth, Springbok, Kamieskroon which all fall within the Namaqualand tourism region.</p>	<p>The declaration of the corridors will have a positive impact to tourism sector due to the enhanced planning information available.</p> <p>The development of EGI within the corridor may negatively impact on tourism due to its effect on sense of place (visual) and ecology.</p>	See Section 6.3.1 of this report.
	Impacts on property values	Contains areas that are sparsely populated and have declining population numbers due to urbanisation.	<p>EGI can have a positive impact on property values by contributing to socio-economic development and social well-being. However, the presence of EGI on a property may negatively influence the value of the property due to its impact on the visual quality of the property, health concerns and disturbing the current land-use of the property. The impact is however likely to be low.</p> <p>The declaration of the corridors are likely to have a positive impact on the property market by providing a comprehensive picture of where an EGI network is likely to occur and contribute to improved</p>	See Section 6.4.1 of this report.

Corridor	Key Impacts	Site Specific Descriptions	Possible Effect	Mitigations
			property functioning. However, the declaration of the corridors may also pose a risk to existing property owners (e.g. prospective buyers looking for eco-tourism and/or leisure or lifestyle potential properties are deterred from the corridors if they are seeking properties with a high (current and future) aesthetic value). The potential for speculative buying to drive up demand for these areas also cannot be entirely ruled out.	
	Resettlement and relocation/displacement impacts	May contain communities that need to be resettled, depending on the final routing of the EGI.	The establishment of transmission lines has the potential to result in involuntary resettlement or relocation. If the resettlement is not properly planned or managed it can have an impact on the livelihoods of the said community.  The potential for involuntary resettlement related impacts (physical and economic) in this corridor are considered to be low based on the low population numbers.	See Section 6.6.1 of this report.
	Impacts associated with project workers/workforce	The presence of workers and job seekers may have an impact on local social networks and family structures.	The potential impacts associated with the presence of project workers apply to both the construction and operational phase of the transmission lines. Although, given the remote location of the EGI corridors and the linear nature of the EGI corridors, the anticipated social impact associated the development of transmission lines within the EGI corridors are considered to be low.  The potential social impacts can be managed through the implementation of effective management and mitigation measures. Due to the low population sizes, the potential impacts associated with construction workers and maintenance crews along this corridor are likely to be low.	See Section 6.7.1 of this report.
	Health impacts focused on EMFs	Urban and rural areas are located within the corridors which means that communities may be exposed to EMF	EMFs are always created, in varying levels, with the generation and use of electricity and at the frequency of the electrical power system and may have an impact on human health.  This risk of health impacts due to EMF levels are considered to be low for this corridor.	See Section 6.8.1 of this report.
Expanded Eastern Corridor	Impacts on electricity generators	The corridor currently includes one preferred IPP	The corridor provides access to the National Grid which will support renewable energy developments.  The key benefits from corridor declaration would be exemption or streamlining the authorisation process; and the provision of greater certainty or clarity regarding the future roll-out of EGI.	See Section 6.1.1 of this report.

Corridor	Key Impacts	Site Specific Descriptions	Possible Effect	Mitigations
	Impacts on industry and mining	The Richards Bay IDZ and Dube Tradeport SEZ are located in the corridor	The corridor provides access to the National Grid which will support mining and industrial developments. The positive impacts associated with the declaration of the EGI corridors to the industry and mining sectors would be similar to the benefits to electricity generators, as outlined in Section 6.1.1 of this report.	See Section 6.2.1 of this report.
	Impacts on tourism	Contains scenic prominent features that would be a drawcard to tourists. These include Greytown, Kranskop and Nkandla and the Lebombo Mountains, and Lake Jozini, Lake Sibaya and Kosi Lake. A key tourism attraction is also the St Lucia Wetlands.  The key tourism regions within this corridor are the Midlands and Battlefields as well as the Zululand and Maputaland. Zululand, especially, is also considered to have cultural and historical significance.	The declaration of the corridors will assist the tourism sector due to the enhanced planning information available.  The development of EGI within the corridor may negatively impact on tourism due to its effect on sense of place (visual) and ecology.	See Section 6.3.1 of this report.
	Impacts on property values	Contains the Kwa-Zulu Natal North Coast which is densely populated and a popular tourism and recreation destination. The northern section of the corridor contains that St Lucia wetland system and a large number of game reserves, all adding to its tourism value.	EGI can have a positive impact on property values by contributing to socio-economic development and social well-being. However, the presence of EGI on a property may negatively influence the value of the property due to its impact on the visual quality of the property, health concerns and disturbing the current land-use of the property.  The declaration of the corridors are likely to have a positive impact on the property market by providing a comprehensive picture of where an EGI network is likely to occur and contribute to improved property market functioning. However, the declaration of the corridors may also pose a risk to existing property owners (e.g. prospective buyers looking for eco-tourism and/or leisure or lifestyle potential properties are deterred from the corridors if they are seeking properties with a high (current and future) aesthetic value). The potential for speculative buying to drive up demand for these areas also cannot be entirely ruled out.	See Section 6.4.1 of this report.
	Resettlement and relocation/ displacement	May contain communities that need to be resettled, depending on the final routing of the EGI	The establishment of transmission lines has the potential to result in involuntary resettlement or relocation. If the resettlement is not properly planned or managed it can have an impact on the	See Section 6.6.1 of this report.



Corridor	Key Impacts	Site Specific Descriptions	Possible Effect	Mitigations
	impacts		<p>livelihoods of the said community.</p> <p>The dense urban areas, including Durban and Richards Bay, which have large mixed economies and large population numbers, will increase the potential for involuntary resettlement related impacts (physical and economic) along the Eastern section of this corridor. On the other hand, the Western section of this corridor has lower population numbers but these are on an increasing trend, which means that in the near future the risk of involuntary resettlement related impacts (physical and economic) would increase.</p>	
	Impacts associated with project workers/ workforce	The presence of workers and job seekers may have an impact on local social networks and family structures	<p>The potential impacts associated with the presence of project workers apply to both the construction and operational phase of the transmission lines. Although, given the remote location of the EGI corridors and the linear nature of the EGI corridors, the anticipated social impact associated the development of transmission lines within the EGI corridors are considered to be low.</p> <p>The population numbers in this corridor is higher in the eastern section compared to the western section but growth trends show that the western section is increasing in population numbers. This has the potential to increase the risks associated with the activities of construction and maintenance crews.</p>	See Section 6.7.1 of this report.
	Health impacts focused on EMFs	Urban and rural areas are located within the corridors which means that communities may be exposed to EMF	<p>EMFs are always created, in varying levels, with the generation and use of electricity and at the frequency of the electrical power system and may have an impact on human health.</p> <p>Based on the higher population numbers in this corridor, mainly towards the eastern section, care will need to be taken in siting transmission pylons in order to maximise the distances between dwellings and the overhead transmission lines.</p>	See Section 6.8.1 of this report.

## 7 BEST PRACTICE GUIDELINES AND MONITORING REQUIREMENTS FOR THE MANAGEMENT OF THE SOCIO-ECONOMIC ENVIRONMENT

### 7.1 Planning phase

- The key need of the IPPs, mining, industry and tourism sectors will be access to timely and accurate information about intended development within the corridors. The Developer should engage with the relevant representative bodies with a view to drawing up an appropriate and clearly understandable information package and dissemination plan in this regard.
- Limit the extent of visual and ecological impacts as well as impacts of a social or heritage nature, which may play a role in affecting property values by adhering to the provisions made within the relevant supporting assessments undertaken for this SEA (i.e. Visual, Biodiversity (Terrestrial and Aquatic), and Socio-Economic Assessments).
- Anticipation of low payments can contribute to property value risks. Better servitude payments for EGI are therefore a potential mitigation if the goal is to reduce value losses specifically for property owners of EGI sites.
- Accepted international best practice requires that involuntary resettlement be avoided where possible. If this is not possible the number of people affected should be minimised.
- Where involuntary resettlement cannot be avoided, the relocation of affected households and/or compensation for economic displacement should be guided by international best practice and a Resettlement Action Plan (RAP) should be developed to manage the impact of resettlement.
- Given the width of the EGI corridors it is likely that a suitable sub-corridor (5 km wide) can be identified that enables adequate buffer zones to be established between the servitude and potentially affected dwellings and settlements. The buffer distances should be informed by internationally accepted guidelines for buffers.
- Installing transmission lines or other high voltage equipment above or adjacent to residential properties or other locations intended for highly frequent human occupancy, (e.g. schools or offices), should be avoided.
- It is recommended that further public outreach be undertaken at project specific level

### 7.2 Construction phase

- The Developer should make it a requirement for contractors to implement a 'locals first' policy for construction jobs.
- The Developer should consider the need to establish a Monitoring Forum (MF) in order to monitor the implementation of the recommended mitigation measures.
- The Developer and the appointed contractor(s) should, in consultation with representatives from the MF, develop a Code of Conduct for the construction phase.
- The Developer should be liable for compensating farmers in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers.
- The EMPr should outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested.
- The EMPr should also address risks posed by veld fires.
- The Developer s and the appointed contractor(s) should implement an HIV/AIDS awareness programme for all construction workers at the outset of the construction phase.
- Disturbed areas should be rehabilitated at end of construction phase. EMPr should outline procedures for rehabilitating disturbed areas;
- The Developer and or the appointed contractor should provide transport to and from the site on a daily basis for construction workers.
- Where feasible, no workers, with the exception of security personnel, should be permitted to stay over-night on the site. This would reduce the risk to local farmers.
- Identify potential EMF exposure levels in the workplace, including surveys of exposure levels in new projects and the use of personal monitors during working activities.
- Train workers in the identification of occupational EMF levels and hazards.

- 1 • Establish and identify safety zones to differentiate between work areas with expected elevated
- 2 EMF levels compared to those acceptable for public exposure, limiting access to properly trained
- 3 workers.
- 4 • Implement action plans to address potential or confirmed exposure levels that exceed reference
- 5 occupational exposure levels developed by international organizations such as the International
- 6 Commission on Non-ionizing Radiation Protection (ICNIRP) and the IEEE (Institute of Electrical and
- 7 Electronics Engineers).
- 8 • Personal exposure monitoring equipment should be set to warn of exposure levels that are below
- 9 occupational exposure reference levels (e.g. 50 percent).
- 10 • Action plans should be developed to address occupational exposure may include limiting exposure
- 11 time through work rotation, increasing the distance between the source and the worker, when
- 12 feasible, or the use of shielding materials.
- 13

### 14 7.3 Operations phase

- 15 • The Developer should make it a requirement for contractors to implement a 'locals first' policy for
- 16 maintenance jobs.
- 17 • The Developer should consider the need to establishing a MF in order to monitor the
- 18 implementation of the recommended mitigation measures.
- 19 • The Developer and the appointed contractor(s) should, in consultation with representatives from
- 20 the MF, develop a Code of Conduct for the operations (maintenance) phase.
- 21 • The Developer should be liable for compensating farmers in full for any stock losses and/or
- 22 damage to farm infrastructure that can be linked to /maintenance workers.
- 23 • The Developer and the appointed contractor(s) should implement an HIV/AIDS awareness
- 24 programme for all maintenance workers at the outset of the operations phase.
- 25 • The Developer and or the appointed contractor should provide transport to and from the site on a
- 26 daily basis for maintenance workers.
- 27 • Where feasible, no maintenance workers, with the exception of security personnel, should be
- 28 permitted to stay over-night on the site. This would reduce the risk to local farmers.
- 29 • Identify potential EMF exposure levels in the workplace, including surveys of exposure levels in
- 30 new projects and the use of personal monitors during working activities.
- 31 • Train workers in the identification of occupational EMF levels and hazards.
- 32 • Need to have a section that covers impacts associated with spills, leaks and explosions.
- 33 • Establish and identify safety zones to differentiate between work areas with expected elevated
- 34 EMF levels compared to those acceptable for public exposure, limiting access to properly trained
- 35 workers.
- 36 • Implement action plans to address potential or confirmed exposure levels that exceed reference
- 37 occupational exposure levels developed by international organizations such as the ICNIRP and the
- 38 IEEE.
- 39 • Personal exposure monitoring equipment should be set to warn of exposure levels that are below
- 40 occupational exposure reference levels (e.g. 50 percent).
- 41 • Action plans should be developed to address occupational exposure may include limiting exposure
- 42 time through work rotation, increasing the distance between the source and the worker, when
- 43 feasible, or the use of shielding materials.
- 44

### 45 7.4 Monitoring requirements

- 46 • Evaluate potential exposure to the public against the reference levels developed by the ICNIRP.
- 47 Average and peak exposure levels should remain below the ICNIRP recommendation for General
- 48 Public Exposure. Consider siting new facilities so as to avoid or minimize exposure to the public.
- 49 • If EMF levels are confirmed or expected to be above the recommended exposure limits,
- 50 application of engineering techniques should be considered to reduce the EMF produced by power
- 51 lines, substations, or transformers. Examples of these techniques include:
- 52 ➤ Shielding with specific metal alloys;

- Burying transmission lines;
- Increasing height of transmission towers;
- Modifications to size, spacing, and configuration of conductors.

## 8 CONCLUSIONS AND RECOMMENDATIONS

The majority of the expanded Western Corridor passes through sparsely populated rural farm land near the coastline in the Northern Cape Province. The primary land uses along this route are linked to commercial farming activities, mostly livestock, along with tourism and mining (existing and abandoned) uses. Large parts of the corridor are associated with declining population numbers due to urbanisation.

The expanded Eastern Corridor would be within KwaZulu-Natal Province extending from the northern outskirts of eThekweni to the Mozambican border. The western section of this corridor passes through dense urban areas, including Durban and Richards Bay. These cities have large mixed economies and coupled with this, large population numbers. The eastern section of the corridor has lower population numbers but trends are showing that these areas are increasing in population and economy sizes. The eastern section also passes through a number of conservation areas.

Based on the findings of this study, given its critical importance to socio-economic development, it makes sense to plan ahead for the installation of EGI and ensure that it can be delivered within a reasonable and predictable timeframe. The main benefactors of the improved planning of the roll-out of the EGI network are **electricity generators** and the **industry and mining sectors**.

The presence of an EGI network (which includes powerlines and substations) may also have an impact on the **tourism sector** and on **values** of properties that are located within or adjacent to the final routing of the future major transmission lines. However, given the 100 km width of the corridors it is likely that the majority of the potential negative impacts on tourism and property can be effectively mitigated with careful route selection.

In terms of **relocation and involuntary resettlement** given the low population numbers and rural character of the expanded Western Corridor, the potential for involuntary resettlement related impacts (physical and economic) along this route are considered to be low. Inversely, the expanded western and eastern sections of the Eastern Corridor contain large population numbers which will increase the potential for involuntary resettlement related impacts (physical and economic).

In terms of potential impacts associated with the **presence of project workers**, this depends on the size of the workforce, the duration of the construction or operational activity and the location of the site. The potential risks can however be effectively mitigated.

With regards to **EMFs**, based on a comprehensive WHO study and other sources, no health consequences associated with the exposure to EMFs from transmission lines have been found.

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