

APPROACH TO UNDERTAKING THE SCOPING PHASE

CHAPTER 4

An Environmental Impact Assessment (EIA) process refers to that process (dictated by the EIA Regulations) which involves the identification of and assessment of direct, indirect and cumulative environmental impacts associated with a proposed project. The EIA process comprises two phases: **Scoping Phase** and **EIA Phase**. The EIA process culminates in the submission of an EIA Report (including an environmental management plan (EMP)) to the competent authority for decision-making. The EIA process is illustrated below:



The Scoping Phase for the proposed Gourikwa Power Station Conversion and Transmission Integration project has been undertaken in accordance with the EIA Regulations published in Government Notice 28753 of 21 April 2006, in terms of Section 24(5) of the National Environmental Management Act (NEMA; Act No 107 of 1998). This Draft Scoping Report aimed to identify potential issues associated with the proposed project, and define the extent of studies required within the EIA. This was achieved through an evaluation of the proposed project involving specialists with expertise relevant to the nature of the project and the study area, the project proponent, as well as a consultation process with key stakeholders that included both relevant government authorities and interested and affected parties (I&APs). This chapter serves to outline the process which was followed during the Scoping Phase of the EIA process.

4.1. Objectives of the Scoping Phase

This Scoping Phase aimed to:

- » Identify and evaluate potential environmental (biophysical and social) impacts and benefits of all phases of the proposed development (including design, construction and operation) within the study area through a desk-top review of existing baseline data and specialist studies.
- » Provide the authorities with sufficient information in order to make a decision regarding the scope of issues to be addressed in the EIA process, as well as

regarding the scope and extent of specialist studies that will be required to be undertaken as part of the EIA Phase of the process.

Within this context, the objectives of this Scoping Phase were to:

- » Clarify the scope and nature of the proposed activities.
- » Clarify the reasonable and feasible project-specific alternatives to be considered through the EIA process, including the “do nothing” option.
- » Identify and evaluate key environmental issues/impacts associated with the proposed project, and through a process of broad-based consultation with stakeholders and desk-top specialist studies identify those issues to be addressed in more detail in the Impact Assessment Phase of the EIA process.
- » Conduct an open, participatory and transparent public involvement process and facilitate the inclusion of stakeholders’ concerns regarding the proposed project in the decision-making process.

4.2. Overview of the Scoping Phase

The Scoping Phase has been undertaken in accordance with the EIA Regulations published in Government Notice 28753 of 21 April 2006 in terms of NEMA.

The potential impacts associated with the installation of 400 MW of additional electricity generation capacity at Gourikwa Power Station, as well as the transmission of this additional power to the national electricity network have been evaluated. Key tasks undertaken within the Scoping Phase included:

- » Consultation with relevant decision-making and regulating authorities (at National, Provincial and Local levels).
- » Submission of a completed application form for authorisation in terms of Regulation 13 and 27 of Government Notice No R385 of 2006 to the competent authority (DEAT).
- » Undertaking a public involvement process throughout the Scoping process in accordance with Regulation 56 of Government Notice No R385 of 2006 in order to identify issues and concerns associated with the proposed project.
- » Preparation of a Comments and Response Report detailing key issues raised by I&APs as part of the EIA Process (in accordance with Regulation 59 of Government Notice No R385 of 2006).
- » Undertaking of independent specialist studies in accordance with Regulation 33 of Government Notice No R385 of 2006.
- » Preparation of a Draft Scoping Report and Plan of Study for EIA in accordance with the requirements of the Regulation 29 Government Notice No R385 of 2006.

These tasks are discussed in detail below. Quality control sheets to ensure that all the minimum requirements for the key tasks as listed above are met are included in Appendix C.

4.2.1. Authority Consultation and Application for Authorisation in terms of GN No R385 of 2006

As Eskom is a state-owned enterprise (SoE), the National Department of Environmental Affairs and Tourism (DEAT) is the competent authority for this application. As the project falls within the Western Cape Province, the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) acts as a commenting authority for the project. Consultation with these authorities has been undertaken throughout the Scoping process. This consultation has included the following:

- » Pre-application consultation with DEAT and DEA&DP regarding the proposed project and the EIA process to be undertaken.
- » Submission of applications for authorisation for the power station conversion and transmission power line to DEAT, with copies submitted to DEA&DP. These applications were accepted and the reference numbers 12/12/20/1141 (power station conversion) and 12/12/20/1142 (proposed transmission power line) allocated. Authorisation was therefore granted to continue with the Scoping Phase of the project. It was agreed that potential impacts associated with both the power station conversion and the transmission power line could be considered within a single report as the two projects are inter-linked. Two separate Environmental Authorisations would, however, be issued.

A record of all authority consultation undertaken within the Scoping Phase is included within Appendix D.

4.2.2. I&AP Identification, Registration and the Creation of an Electronic Database

The first step in the public involvement process was to identify relevant stakeholders and interested and affected parties (I&APs). This process was undertaken by **Sustainable Futures ZA** (specialist public participation consultants) through existing contacts and databases, recording responses to site notices and newspaper advertisements, as well as through the process of networking. Stakeholder and I&AP information included on the databases from the previous EIA processes undertaken in 2005 and 2007 was verified and included within the database for this proposed project.

Stakeholder groups identified include:

- » Provincial Government Departments (departments of relevance within the Western Cape Government)
- » Local Authorities (Eden District Municipality and Mossel Bay Local Municipality)
- » National Government Departments (Line Departments)
- » Business Sector
- » Localised Civil Society Groupings (Community Based and Non-governmental Organised groups)
- » Organised Labour
- » Environmental Groupings (Traditional and Energy Sector)

All relevant stakeholder and I&AP information have been recorded within a database of affected parties (refer to Appendix E for a listing of recorded parties). Databases prepared as part of the previous EIAs undertaken for the Gourikwa Power Station were used as a basis for identifying I&APs and stakeholders for involvement within this current EIA process. While I&APs have been encouraged to register their interest in the project from the start of the process, the identification and registration of I&APs will be on-going for the duration of the EIA process. Over 110 parties have registered their interest in the project to date. The project database will be updated on an on-going basis throughout the project process, and will act as a record of the parties involved in the public involvement process.

4.2.3. Notification of the EIA Process

In order to notify and inform the public of the proposed project and invite members of the public to register as interested and affected parties (I&APs), the project and EIA process was advertised in the following newspapers:

- » Regional newspaper – *Die Burger*: 10 April 2008
- » Regional/local newspaper – *Mossel Bay Advertiser*: 16 May 2008

In addition, site advertisements were posted at various locations throughout the study area, i.e.:

- » On the Gourikwa Power Station site: attached to the fences at all entrances/gates to the facility
- » At the entrance to Proteus Substation
- » Along the route of the existing Gourikwa-Proteus 400 kV power lines
- » D’Almeida Library
- » Kwanonaqaba Library and Community notice board
- » Marsh Street Library

- » Dana Bay Spar notice board
- » Dana Bay Friendly Store and Post Office notice board

In addition to the above advertisements and notices, key stakeholders and registered I&APs were notified in writing of the commencement of the EIA process (notifications sent out on 04 April 2008). These parties included:

- » Organs of State having jurisdiction in respect of any aspect of the activity
- » Municipal officials, as well as ratepayers organisations that represents the communities in the area.
- » Potentially affected and neighbouring landowners
- » Relevant environmental organisations
- » Business and labour organisations represented in the area

Copies of the advertisements placed and notices distributed are contained in Appendix F of this report.

4.2.4. Public Involvement and Consultation

The aim of the public participation process was primarily to ensure that:

- » Information containing all relevant facts in respect of the application was made available to potential stakeholders and I&APs.
- » Participation by potential I&APs was facilitated in such a manner that all potential stakeholders and I&APs were provided with a reasonable opportunity to comment on the application.
- » Comment received from stakeholders and I&APs is recorded.

In order to provide information regarding the proposed project and the EIA process, a background information document (BID) for the project was compiled at the outset of the process (refer to Appendix G). The BID (including a map and a reply form inviting I&APs to register for the proposed project and submit details of any issues and concerns) was distributed to identified stakeholders and I&APs, and additional copies were made available at public venues within the broader study area. To date, over 300 copies of the BID have been distributed.

Through consultation with key stakeholders and I&APs, issues for inclusion within the scoping study were identified and confirmed. In order to accommodate the varying needs of stakeholders and I&APs within the study area, as well as capture their views, issues and concerns regarding the project, various opportunities were provided for I&APs to have their issues noted prior to the release of the Draft Scoping Report for public review, as follows:

- » **Focus group meetings** (pre-arranged and stakeholders invited to attend)

- » One-on-one **consultation meetings**
- » Telephonic consultation sessions (consultation with various parties from the EIA project team, including the project participation consultant, lead EIA consultant as well as specialist consultants)
- » Written, faxed or e-mail **correspondence**

Table 4.1 below provides details of the formal focus group meetings held during the scoping phase of the public consultation process.

Table 4.1: Details of the focus group meetings held during the scoping phase of the public consultation process

Organisation	Date
Mosselbay Environmental Partnership	7 May 2008
SANCO	7 May 2008
PetroSA	7 May 2008
Mossel Bay Municipality (Municipal Manager and Electro Technical Services)	7 May 2008
Landowners and farmers surrounding the Gourikwa Power Station	7 May 2008
Residence Association of Dana Bay Conservancy	7 May 2008
South African National Ports Authority in Mossel Bay	8 May 2008

Networking with I&APs will continue throughout the duration of the EIA process. Notes from meetings held with stakeholders and reply forms returned by I&APs are included within Appendix H.

4.2.5. Identification and Recording of Comments and Concerns

Issues and concerns raised by I&APs during the scoping phase have been synthesised into a Comments and Response Report (refer to Appendix I). The Comments and Response Report includes responses from members of the EIA project team and/or the project proponent. The responses indicate how the issues will be addressed in the EIA process, or clarification is provided. Where issues are raised that the EIA team considers beyond the scope and purpose of this EIA process, clear reasoning for this view is provided.

4.2.6. Evaluation of Issues Identified through the Scoping Process

All components of the proposed power station conversion project (as discussed in Chapter 3) will be on the site of the existing Gourikwa Power Station, and will not require any additional land take outside of the existing power station boundaries. Specialist studies undertaken within the two previous EIA processes for the existing OCGT units at Gourikwa considered potential impacts on the entire site under consideration. As these EIA processes were recently undertaken (i.e.

within the last 2 years) and the sites have been already disturbed through construction activities, it was not considered necessary to commission new specialist investigations into site-specific issues associated with the following:

- » Heritage
- » Ecology, flora and fauna
- » Geology, soil conditions and erosion potential
- » Soils, agricultural areas and potential
- » Groundwater
- » Access and transportation

Information collected within the previous studies undertaken and the conclusions drawn are assumed to be sound and based on legislated requirements. These studies have been reviewed and verified, and the relevant findings incorporated within this draft Scoping Report.

The conversion of the existing OCGT units to CCGT may alter the nature and/or extent of a number of issues as a result of the addition of components and the change in technology being utilised. In this regard, the following specialist studies have been included in this draft Scoping Study for the power station conversion:

- » Visual scoping study
- » Air quality scoping study
- » Noise scoping study
- » Social scoping study

The findings and conclusions of the previous specialist studies undertaken in this regard for the OCGT units have been used as a basis for the specialist investigations.

In addition, the proposed transmission power line could impact on various aspects of the environment. In this regard, the following specialist studies have been undertaken:

- » Visual scoping study
- » Heritage scoping study
- » Ecology and flora scoping study
- » Avifauna scoping study
- » Social scoping study

Potential issues (both direct and indirect environmental impacts) associated with the proposed project identified within the scoping process have been evaluated through desk-top studies. In evaluating potential impacts within the Scoping

Phase, Savannah Environmental has been assisted by the following specialist consultants:

Specialist	Area of Expertise	Refer Appendix
Demos Dracoulides of DDA	Air quality and noise scoping study for the power station conversion	Appendix J
Lourens du Plessis of MetroGIS	Visual scoping study and GIS mapping for the power station conversion and transmission power line	Appendix K
Liezl Coetzee of Southern Hemisphere	Social scoping study for the power station conversion and transmission power line	Appendix L
Nick Helme of Nick Helme Botanical Surveys	Vegetation scoping study for the power station conversion and transmission power line	Appendix M
Jon Smallie of the Endangered Wildlife Trust (EWT)	Avifauna scoping study for the proposed transmission power line	Appendix N
Tim Hart of the Archaeology Contracts Office, Department of Archaeology: University of Cape Town	Heritage scoping study for the power station conversion and transmission power line	Appendix O

In order to evaluate issues and assign an order of priority, it was necessary to identify the characteristics of each potential issue/impact:

- » *the nature*, which includes a description of what causes the effect, what will be affected and how it will be affected
- » *the extent*, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development) or regional

The evaluation of issues has resulted in a statement regarding the potential significance of the identified issues, as well as recommendations regarding detailed investigations of these issues and other specialist studies required within the EIA phase (refer to Chapter 8). Recommendations regarding the methodology to be employed in assessing potential impacts have also been made (refer to Chapter 9).

Specialist Scoping Reports are contained within Appendices J - O.

4.2.7. Assumptions and Limitations

The following assumptions and limitations are applicable to the studies undertaken within this Scoping Phase:

- » All information provided by Eskom and I&APs to the environmental team was correct and valid at the time it was provided.
- » The Transmission line corridors identified by Eskom are technically and economically viable. The final power line route will be determined after the EIA process within the nominated preferred power line corridor.
- » Strategic, forward planning deliberations are reflected in the IEP, NIRP and ISEP planning processes and do not form part of this EIA.
- » The wealth of information already in hand from the EIA process undertaken by Ninham Shand for the initial OCGT projects provide a baseline from which this EIA process finds a point of departure.
- » This report and its investigations are project-specific, and consequently the environmental team did not evaluate any other power source alternatives.
- » As the proposed power station conversion is to be undertaken within the Gourikwa Power Station site, no site alternatives have been investigated as part of this EIA process.

4.2.8. Public Review of Draft Scoping Report and Feedback Meeting

This is the **current stage** of the Scoping Phase. The Draft Scoping Report has been made available for public review from **30 May 2008 to 30 June 2008** at the following locations:

- » www.eskom.co.za/eia
- » www.savannahSA.com
- » Marsh Street Library
- » D'Almeida Library
- » Kwanonaqba Library
- » Mossel Bay Environmental Partnership
- » Dana Bay Conservancy
- » SANCO
- » PetroSA
- » Mossel Bay Municipal Offices
- » TNPA
- » Farmers Association representing local and neighbouring farmers

In order to facilitate comments on the Draft Scoping Report, a public meeting will be held during the review period as follows:

- » Public feedback meeting: Thursday, 19 June 2008 at Die Skuur Dias Museum, Mossel Bay

The public review process and details of the public meeting were advertised in regional and local newspapers: Die Burger and the Mossel Bay Advertiser (refer

Appendix F). In addition, all registered I&APs were notified of the availability of the report and public meeting by letter. Identified key stakeholders were personally invited to attend the key stakeholder workshop by letter.

4.2.9. Final Scoping Report

The final stage in the Scoping Phase will entail the capturing of responses from I&APs on the Draft Scoping Report in order to refine this report. It is this final report upon which the decision-making environmental Authorities provide comment, recommendations and acceptance to undertake the EIA Phase of the process.

4.3. Regulatory and Legal Context

The South African energy industry is evolving rapidly, with regular changes to legislation and industry role-players. The regulatory hierarchy for an energy generation project of this nature consists of three tiers of authority who exercise control through both statutory and non-statutory instruments – that is National, Provincial and Local levels.

4.3.1. Regulatory Hierarchy

At National Level, the main regulatory agencies are:

- » *Department of Minerals and Energy (DME)*: This department is responsible for policy relating to all energy forms, including renewable energy. It is the controlling authority in terms of the Electricity Act (Act No 41 of 1987).
- » *National Energy Regulator (NER)*: This body is responsible for regulating all aspects of the electricity sector, and will ultimately issue generating licenses for power station developments to generate electricity.
- » *Department of Environmental Affairs and Tourism (DEAT)*: This Department is responsible for environmental policy and is the controlling authority in terms of NEMA and the EIA Regulations. DEAT is the competent authority for this project, and charged with granting the relevant environmental authorisation.
- » *Department of Transport and Public Works*: This department is responsible for roads and the granting of exemption permits for the conveyance of abnormal loads (as may be associated with the construction phase) on public roads.

At Provincial Level, the main regulatory agency is:

- » *Provincial Government of the Western Cape (PGWC) – Department of Environmental Affairs and Development Planning (DEA&DP)*. This is the principal authority involved in the EIA process and determines many aspects

of Provincial Environmental policy. The department is a commenting authority for this project.

At Local Level the local and municipal authorities are the principal regulatory authorities responsible for planning, land use and the environment. The proposed project falls within the jurisdiction of the Mossel Bay Municipality.

- » In terms of the Municipal Systems Act (Act No 32 of 2000) it is compulsory for all municipalities to go through an Integrated Development Planning (IDP) process to prepare a five-year strategic development plan for the area under their control. The IDP process, specifically the spatial component (Spatial Development Framework), in the Western Cape Province is based on a bioregional planning approach to achieve continuity in the landscape and to maintain important natural areas and ecological processes.
- » By-laws and policies have been formulated by local authorities to protect environmental resources relating to issues such as air quality, community safety, etc.

4.3.2. Legislation and Guidelines that have informed the preparation of this Scoping Report

The following legislation and guidelines have informed the scope and content of this Draft Scoping Report:

- » National Environmental Management Act (Act No 107 of 1998)
- » EIA Regulations, published under Chapter 5 of the NEMA (GN R385, GN R386 and GN R387 in Government Gazette 28753 of 21 April 2006)
- » Guidelines published in terms of the NEMA EIA Regulations, in particular:
 - * **Guideline 3:** General Guide to Environmental Impact Assessment Regulations, 2006 (DEAT, June 2006)
 - * **Guideline 4:** Public Participation in support of the Environmental Impact Assessment Regulations, 2006 (DEAT, May 2006)
 - * **Guideline 5:** Assessment of alternatives and impacts in support of the Environmental Impact Assessment Regulations, 2006 (DEAT, June 2006)
 - * Guideline on Public Participation, 2006 (DEA&DP, July 2006)
 - * Guideline on Alternatives, 2006 (DEA&DP, July 2006)
- » Specialist study guidelines published by DEA&DP (June 2005)

Those Acts, standards or guidelines which have informed the project process and the scope of issues evaluated in this Scoping Study are summarised in Table 4.2.

Table 4.2: List of applicable legislation and compliance requirements required for the Gourikwa Power Station conversion and transmission integration project, Western Cape Province

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
<i>National Legislation</i>			
<p>National Environmental Management Act (Act No 107 of 1998)</p>	<p>EIA Regulations have been promulgated in terms of Chapter 5. Activities which may not commence without an environmental authorisation are identified within these Regulations.</p> <p>In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation.</p> <p>In terms of GNR 387 of 21 April 2006, a scoping and EIA process is required to be undertaken for the proposed power station conversion and transmission integration project</p>	<p>National Department of Environmental Affairs and Tourism – lead authority.</p> <p>Western Cape Department of Environmental Affairs and Development Planning – commenting authority.</p>	<p>This EIA report is to be submitted to DEAT and DEA&DP in support of the application for authorisation submitted in March 2008.</p>
<p>National Environmental Management Act (Act No 107 of 1998)</p>	<p>In terms of the Duty of Care provision in S28(1) Eskom as the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with this project is avoided, stopped or minimised.</p> <p>In terms of NEMA, it has become the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.</p>	<p>Department of Environmental Affairs and Tourism (as regulator of NEMA).</p>	<p>While no permitting or licensing requirements arise directly by virtue of the proposed project, this section will find application during the EIA phase and will continue to apply throughout the life cycle of the project.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
Environment Conservation Act (Act No 73 of 1989)	Section 20(1) provides that where an operation accumulates, treats, stores or disposes of waste on site for a continuous period, it must apply for a permit to be classified as a suitable waste disposal facility.	National Department of Environmental Affairs and Tourism and Department of Water Affairs and Forestry.	As no waste disposal site is to be associated with the proposed project, no permit is required in this regard.
Environment Conservation Act (Act No 73 of 1989)	National Noise Control Regulations (GN R154 dated 10 January 1992). Provincial noise control regulations have been promulgated for the Western Cape in Provincial Notice (PN 627/P5309/2299) dated 20 November 1998. In terms of these Regulations, industrial noise limits are 61 dBA and noise limits from any source other than an industrial source are 65 dBA. Draft regulations relating to noise control published in Provincial Gazette No 6412, PN 14 dated the 25th of January 2007. Noise limits are based on the acceptable rating levels of ambient noise contained in SANS 10103.	National Department of Environmental Affairs and Tourism Western Cape Department of Environmental Affairs and Development Planning Local authorities, i.e. City of Cape Town	There is no requirement for a noise permit in terms of the legislation. A Noise Impact Assessment is required to be undertaken in accordance with SANS 10328. This has been undertaken as part of the EIA process (refer to Appendix J).
National Water Act (Act No 36 of 1998)	Section 21 sets out the water uses for which a water use license is required.	Department of Water Affairs and Forestry	The need for water use permits or licenses for water use (as defined in terms of S21 of the NWA) associated with the proposed project to be applied for or obtained will be determined once the source and water quantities are finalised and defined.
National Water Act (Act No 36 of 1998)	In terms of Section 19, Eskom as the project proponent must ensure that reasonable measures are taken throughout the life cycle of	Department of Water Affairs and Forestry (as regulator of NWA)	This section will find application during the EIA phase and will continue to apply throughout the life cycle of the

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>this project to prevent and remedy the effects of pollution to water resources from occurring, continuing or recurring.</p>		<p>project.</p>
<p>Atmospheric Pollution Prevention Act (Act No 45 of 1965)</p>	<p>Scheduled Processes: A specifications standard applies to the production of noxious or offensive gases. This means that pollution control equipment used in operating the process must conform to certain design criteria. Currently sixty nine (69) scheduled processes are listed in the Second Schedule to the Act. No person may carry on a Scheduled Process in or on any premises unless he is the holder of a current registration certificate. The granting of a permit is subject to compliance with certain minimum standard specifications.</p> <p>To be replaced by the National Environmental Management: Air Quality Act (Act No 39 of 2004) on promulgation of Section 22 of this Act.</p>	<p>National Department of Environmental Affairs and Tourism - Chief Air Pollution Control Officer (CAPCO)</p> <p>Western Cape Department of Environmental Affairs and Development Planning - Chief Air Pollution Control Officer (CAPCO)</p>	<p>Eskom have applied for an emissions permit for the current operations at the Gourikwa Power Station and are in consultation with CAPCO in this regard. Eskom may need to obtain an amended registration certificate from the Chief Air Pollution Control Officer (CAPCO) at DEA&DP in the event that the emissions from the power station are altered as a result of the proposed conversion project. Eskom must ensure that the conditions in the certificate are complied with at all times.</p>
<p>National Heritage Resources Act (Act No 25 of 1999)</p>	<p>Section 38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including</p> <ul style="list-style-type: none"> » the construction of a road, power line, pipeline, canal or other similar linear development or barrier exceeding 300 m in length; » any development or other activity which will change the character of a site exceeding 5 000 m² in extent. <p>The relevant Heritage Resources Authority must be notified of developments such as linear</p>	<p>South African Heritage Resources Agency (SAHRA) - National Heritage Sites (grade 1 sites) as well as all historic graves and human remains</p> <p>Heritage Western Cape - all Provincial Heritage Sites (grade 2 sites), generally protected heritage and structures (grade 3a – 3c sites) and prehistoric human remains</p>	<p>The area proposed for the location of the CCGT units associated with the power station conversion project is within the existing Gourikwa power station site. This area has been disturbed through construction activities associated with the OCGT power station. No heritage sites are expected to be located within this area. Therefore, no permits will be required to be obtained.</p> <p>An HIA will be required to be</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>developments (such as roads and power lines), bridges exceeding 50 m, or any development or other activity which will change the character of a site exceeding 5 000 m²; or the re-zoning of a site exceeding 10 000 m² in extent. This notification must be provided in the early stages of initiating that development, and details regarding the location, nature and extent of the proposed development must be provided.</p> <p>Stand alone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of Section 38. In such cases only those components not addressed by the EIA should be covered by the heritage component.</p>		<p>undertaken for the proposed power line. A permit may be required should identified cultural/heritage sites along the proposed transmission power line be required to be disturbed or destroyed as a result of the proposed development.</p> <p>An HIA may be required to be undertaken for the proposed water pipeline and access road to the power station, depending on the length and location of this pipeline.</p>
<p>National Environmental Management: Biodiversity Act (Act No 10 of 2004)</p>	<p>In terms of Section 57, the Minister of Environmental Affairs and Tourism has published a list of critically endangered, endangered, vulnerable and protected species in GNR 151 in Government Gazette 29657 of 23 February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007.</p> <p>In terms of GNR 152 of 23 February 2007: Regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA phase of the project to incorporate the legal provisions as well as the regulations associated with listed</p>	<p>National Department of Environmental Affairs and Tourism</p>	<p>As Eskom will not carry on any restricted activity, as is defined in Section 1 of the Act, no permit is required to be obtained in this regard.</p> <p>Specialist ecology and flora studies are required to be undertaken as part of the EIA process. These studies have been undertaken as part of the previously EIAs undertaken for the power station site. Specialist ecology and flora scoping studies have been undertaken for the proposed power line (refer to Appendices M -O). Detailed specialist studies will be required to be undertaken for the nominated</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements at an early stage of the EIA phase.</p>		<p>preferred alternative.</p> <p>As the power station site has been disturbed through construction activities associated with the OCGT power station, no protected plant species are likely to be present on the proposed development site. Therefore, no permits will be required to be obtained in this regard.</p> <p>A permit may be required should any protected plant species within the power line corridor be disturbed or destroyed as a result of the proposed development.</p>
<p>Conservation of Agricultural Resources Act (Act No 43 of 1983)</p>	<p>Regulation 15 of GNR1048 provides for the declaration of weeds and invader plants, and these are set out in Table 3 of GNR1048. Weeds are described as Category 1 plants, while invader plants are described as Category 2 and Category 3 plants. These regulations provide that Category 1, 2 and 3 plants must not occur on land and that such plants must be controlled by the methods set out in Regulation 15E.</p>	<p>Department of Agriculture</p>	<p>While no permitting or licensing requirements arise from this legislation, this Act will find application during the EIA phase and will continue to apply throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies must be developed and implemented. In addition, the existing weed control and management plan within the EMP must be implemented.</p>
<p>Minerals and Petroleum Resources Development Act (Act No 28 of 2002)</p>	<p>A mining permit or mining right may be required where a mineral in question is to be mined (e.g. materials from a borrow pit) in accordance with the provisions of the Act.</p>	<p>Department of Minerals and Energy</p>	<p>As no borrow pits are expected to be required for the power station conversion and transmission integration project, no mining permit or mining right is required to be obtained.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
<p>National Veld and Forest Fire Act (Act No 101 of 1998)</p>	<p>In terms of Section 12 Eskom would be obliged to burn firebreaks to ensure that should a veldfire occur on the property, that same does not spread to adjoining land.</p> <p>In terms of Section 13 Eskom must ensure that the firebreak is wide enough and long enough to have a reasonable chance of preventing a veldfire from spreading; not causing erosion; and is reasonably free of inflammable material.</p> <p>In terms of Section 17, Eskom must have such equipment, protective clothing and trained personnel for extinguishing fires as are prescribed or in the absence of prescribed requirements, reasonably required in the circumstances.</p>	<p>Department of Water Affairs and Forestry</p>	<p>While no permitting or licensing requirements arise from this legislation, this Act will find application during the operational phase of the project.</p>
<p>Hazardous Substances Act (Act No 15 of 1973)</p>	<p>This Act regulates the control of substances that may cause injury, or ill health, or death by reason of their toxic, corrosive, irritant, strongly sensitising or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products.</p> <p>Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc, nature or because it generates pressure through decomposition, heat or other</p>	<p>Department of Health</p>	<p>It is necessary to identify and list all the Group I, II, III and IV hazardous substances that may be on the site by the activity and in what operational context they are used, stored or handled. If applicable, a license is required to be obtained from the Department of Health.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>means, cause extreme risk of injury etc., can be declared to be Group I or Group II hazardous substance;</p> <p>Group IV: any electronic product;</p> <p>Group V: any radioactive material.</p> <p>The use, conveyance or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.</p>		
<p>National Road Traffic Act (Act No 93 of 1996)</p>	<p>The Technical Recommendations for Highways (TRH 11): "Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads" outline the rules and conditions which apply to the transport of abnormal loads and vehicles on public roads and the detailed procedures to be followed in applying for exemption permits are described and discussed. Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges and culverts.</p> <p>The general conditions, limitations and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the</p>	<p>Western Cape Department of Transport and Public Works (provincial roads)</p> <p>South African National Roads Agency (national roads)</p>	<p>An abnormal load/vehicle permit will be required to transport the various CCGT and power line components to site for construction. These include:</p> <ul style="list-style-type: none"> » Route clearances and permits will be required for vehicles carrying abnormally heavy or abnormally dimensioned loads. » Transport vehicles exceeding the dimensional limitations (length) of 22m. » Depending on the trailer configuration and height when loaded, some of the power station components may not meet specified dimensional limitations (height and width).

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
National Road Traffic Act (Act No 93 of 1996)	requirements of the National Road Traffic Act and the relevant Regulations. Regulation 274 (read with SABS Code 0232 which deals with transportation of dangerous goods and emergency information systems) states that the regulations are applicable where dangerous goods are transported in quantities, which exceed the exempt quantities (listed in Annex E of SABS Code 0232). Dangerous goods may only be transported in accordance with the provisions in the Regulations, unless the Minister of Transport has granted an exemption.	Department of Transport Western Cape Department of Transport and Public Works (provincial roads) South African National Roads Agency (national roads)	Eskom will need to ensure that procedures are in place to prevent that the quantities of dangerous goods transported exceed the prescribed quantity (listed in Annex E of SABS Code 0232). Apply for an exemption, if applicable.
Development Facilitation Act (Act No 67 of 1995)	Provides for the overall framework and administrative structures for planning throughout the Republic.	Western Cape Department of Environmental Affairs and Development Planning Local authorities, i.e. City of Cape Town	As the power station conversion project is planned to be undertaken within the existing Gourikwa power station site, no rezoning or sub-division of land is required. Therefore, no land development application is required to be submitted. Eskom must submit a land development application for the proposed transmission power line in the prescribed manner and form as provided for in the Act.
Land Use Planning Ordinance 15 of 1985	Details land subdivision and rezoning requirements & procedures	Western Cape Department of Environmental Affairs and Development Planning Local authorities, i.e. City of Cape Town	As the power station conversion project is planned to be undertaken within the existing Gourikwa power station site, no rezoning or sub-division of land is required. Therefore, no application in terms of LUPO is required to be

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
			<p>submitted.</p> <p>Given that the transmission power line is proposed on land that is zoned for agricultural use (depending on the preferred power line corridor nominated through the EIA process), a rezoning application in terms of Section 17 of LUPO to an alternative appropriate zone will be required. Rezoning is required to be undertaken following the issuing of an environmental Authorisation for the proposed project.</p>
Provincial Legislation			
<p>Nature Conservation Ordinance (Act 19 of 1974)</p>	<p>Article 63 prohibits the picking (defined in terms of article 2 to include, cut, chop off, take, gather, pluck, uproot, break, damage or destroying of certain flora. Schedule 3 lists endangered flora and Schedule 4 lists protected flora.</p> <p>Articles 26 to 47 regulates the use of wild animals</p>	<p>CapeNature</p>	<p>As the power station site has been disturbed through construction activities associated with the OCGT power station, no endangered or protected plant species are likely to be present on the proposed development site. Therefore, no permits will be required to be obtained in this regard.</p> <p>A permit may be required should any endangered or protected plant species within the power line corridor be disturbed or destroyed as a result of the proposed development.</p>

This chapter provides a description of the environment that may be affected by the proposed Gourikwa Power Station Conversion and Transmission Integration Project. This information is provided in order to assist the reader in understanding the possible effects of the proposed project on the environment. Aspects of the biophysical, social and economic environment that could be affected by, or could affect the proposed development have been described. This information has been sourced largely from existing information available for the area, and aims to provide the overall context within which this environmental impact assessment process is being conducted. A more detailed description of each aspect of the affected environment is included within the specialist scoping reports contained within Appendices J – O.

5.1. Location of the Study Area and Property Description

The study area is located within the falls within the Mossel Bay Municipality of the Eden District in the Western Cape Province. The existing Gourikwa OCGT Power Station is located approximately 15 km west of Mossel Bay adjacent to the PetroSA plant. The power station site is approximately 1,3 km north of the N2 national road between Mossel Bay and Riversdale, and lies ~1 km west of the PetroSA plant.

The Gourikwa Power Station is located on Farm 310, Bartelsfontein 226 and a portion of Portion 1 of the Farm Patryfontein 228. These properties are owned by PetroSA and Eskom. The existing Gourikwa OCGT power station and transmission substation site is located within PetroSA's landholding and is zoned for industrial use. Formal confirmation of the industrial zoning of the OCGT power plant site was obtained from the Mossel Bay Municipality during the EIA process undertaken for the initial OCGT units and the expansion project (Ninham Shand, 2005 and 2007). Infrastructure associated with conversion project will be developed on the site of the existing Gourikwa Power Station, and will not require any additional land take outside of the existing power station boundaries.

Apart from its location close to the N2, the power station site is considered to be relatively remote and far removed from major centres and tourist attractions.

In accordance with the requirements of Section 16(2) of the NEMA EIA Regulations, potentially affected landowners have been given notice of the proposed activity and have been provided with the opportunity to participate within the EIA process.

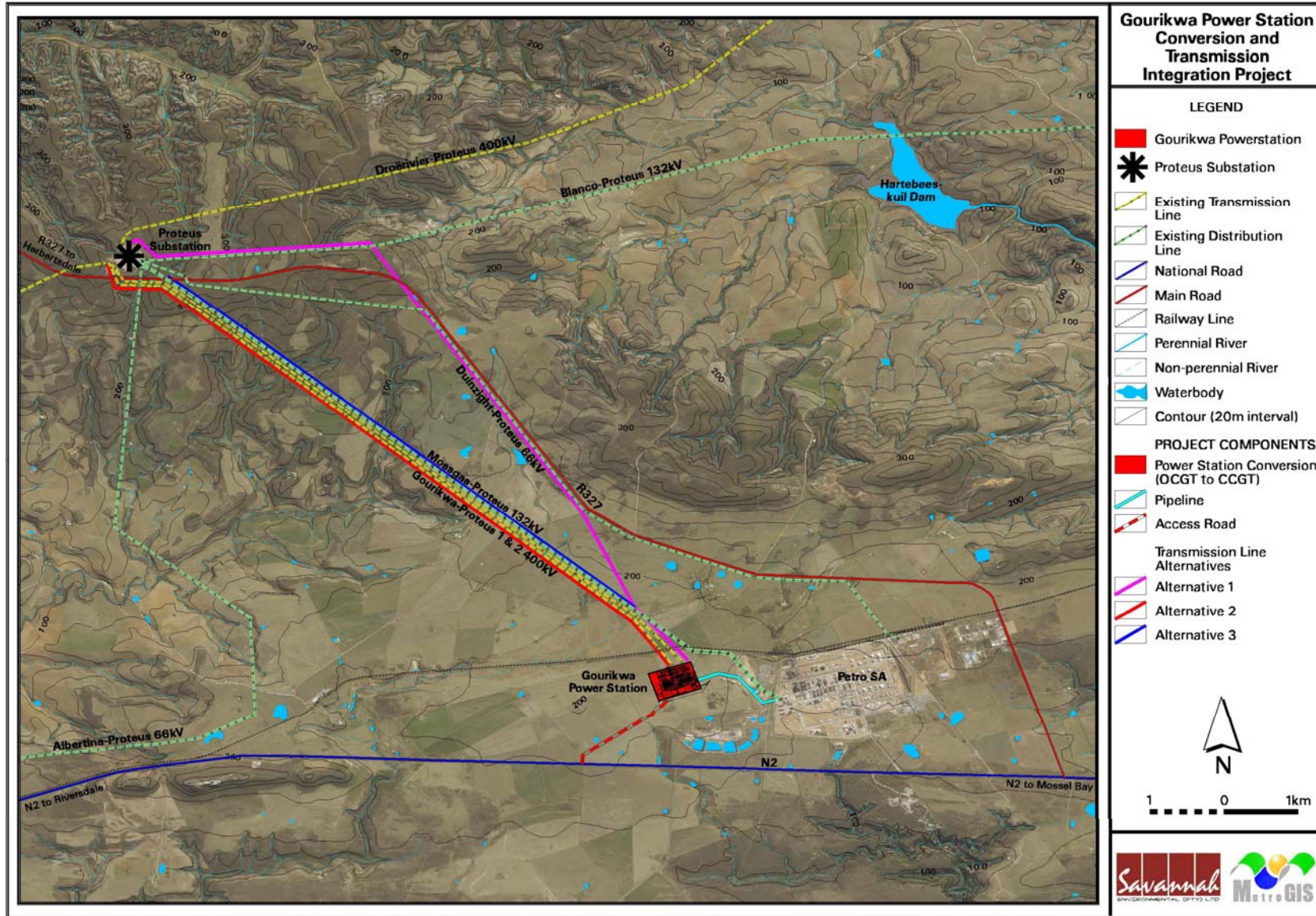


Figure 5.1: Locality map showing the project components: Gourikwa Power Station, the feasible alternative transmission power line corridor alternatives between Gourikwa and Proteus Substation, and the water pipeline and access road alignments

5.2. Social Characteristics of the Study Area

The Gourikwa Power Station is located within an existing industrial area, and is adjacent to the PetroSA plant. The predominant land use in the surrounding area is agriculture with a combination of cattle, sheep and ostriches as well as crop (mainly wheat) cultivation. The predominantly low income African and Coloured neighbourhoods of KwaNonqaba and Joe Slovo as well as the middle to upper middle income predominantly White neighbourhood of Dana Bay are situated within a 5 km radius of the development site.

Farms surrounding the Gourikwa Power Station site to the north and west include:

Farm	Owners/ Residents
B&H Boerdery	Bennie & Hennie Pienaar
Patrysfontein	Ignatius Muller & Quintus Muller
Bartelsfontein	Henry Muller
Hartelus	Jacques & Annelie De Villiers
Arum Valley	Gilbert Muller
Kleinberg	Lucas Muller

B&H Boerdery, Bartelsfontein and Hartelus are situated in close proximity to the Gourikwa site, to the west (B&H Boerdery) and north (Bartelsfontein and Hartelus) respectively.

The residences of Ignatius Muller and Quintus Muller on the farm Patrysfontein, situated north-west of the Gourikwa site, are both situated within 1 km of the existing Gourikwa-Proteus 400kV servitude (Alternative 2 for proposed transmission line) and Mossgas-Proteus 132kV servitude (Alternative 3 for proposed transmission line).

5.2.1 Demographic Profile

According to the 2001 Census, the population of the former Ward 11, reflecting the population within immediate proximity of the Gourikwa Power Station site, and including the neighbourhoods of KwaNonqaba and Joe Slovo as well as Dana Bay, comprised approximately 46% Coloureds, 44% Whites, and 10% Black Africans in 2001. The African population showed significantly faster growth than other groups between 1996 and 2001 and can therefore be expected to have increased proportionally since the last Census. Subsequent indicators indicate vast disparities between population groups in Mossel Bay in general, indicating the population surrounding the site to be characterised by high levels of inequality.

5.2.2. Age distribution

While the African population is predominantly youthful, indicating rapid future growth, the White population is older, indicating slower growth into the future. This has important implications for social capital and cohesion, as the fastest growing sector of the population is also that characterised by the most severe shortages as shown in a range of socio-economic variables. The high percentage of the African population is in the age-group 15-34, which may be regarded as the youthful potential labour force, emphasises the need for employment opportunities for this group.

5.2.3. Language

Although Afrikaans is the most commonly spoken language in the Province and the region, it is only spoken by 6% of the African population, 88% of whom are isiXhosa speakers.

5.2.4. Educational Profile

Although levels of education in the Western Cape Province as well as in Eden District and Mossel Bay are generally higher than national averages, great discrepancies exist between different population groups, with a greater percentage of the African and Coloured population having received no schooling, while the Indian and White groups have significantly higher percentages having attained tertiary or higher education.

In contrast to levels of education attained, the percentage of persons aged between 15 and 24 not attending any educational institution is significantly higher in the Western Cape than nationally, with the percentage attending school correspondingly much lower provincially than for South Africa as a whole. The Eden District and Mossel Bay region correspond closer to national levels although the percentage not attending any educational institution is still somewhat higher, and school attendance lower than nationally. School attendance is roughly similar between different population groups although slightly higher amongst Whites and Africans. It is important to note that, although actual attendance may be similar, the standard of schools and consequently the quality of education available for different groups continues to sharpen disparities in actual educational attainment.

5.2.5. Employment and Income

The disparity between population groups is particularly stark with relation to employment status, with the African population having more than double the percentage of unemployed persons (31%) than the Coloured group (14%), which

itself is over three times higher than the corresponding percentage amongst Whites (4%).

The construction sector in Mossel Bay is responsible for a greater share of employment (14%) than elsewhere in the district (11%), province (7%), or country (5%). This sector is furthermore the one responsible for the greatest share of employment amongst the African population, a quarter of whom were employed in it according to the 2001 Census. The great emphasis placed by community stakeholders on the potential for local job creation presented by the Development during the construction phase needs to be understood in this context, in which this is the sector in which the greatest percentage of Africans in the region have some levels of skills and experience.

While a third of workers in Mossel Bay were involved in elementary occupations in 2001, a further 15% had skills in crafts and related trades. Disparities are again great between population groups, with 42% of Africans and 41% of Coloureds in elementary occupations, compared to only 4% of Whites. Corresponding percentages for craft and trade are 22% of Africans, 16% of Coloureds, and 9% of Whites.

Income levels vary sharply between different population groups, with 78% of the African and 75% of the Coloured population earning an average individual income of less than R1 600 per month, compared to only 18% of both the White and Indian populations. Ten percent of households in Mossel Bay reported 'no annual income' in the 2001 census.

5.2.6. Housing, services and infrastructure

Although almost three quarters of households in Mossel Bay resided in a 'house or brick structure on a separate stand' in 2001, this was only true for about half of the African population. A third of this group reside in 'informal dwellings in informal settlements, noting the prevalence of such settlements, which have continued to grow in years since the census. This is particularly relevant to consider with respect to the development's potential to attract both labourers and job-seekers to the area, which could place further strain on existing townships' housing, infrastructure and services.

While 91% of households in Mossel Bay appear to have access to electricity, indicating this as their primary source of energy for lighting, alternative sources are more commonly used for cooking and heating, probably due to financial constraints. These include paraffin (most common amongst Africans residing in townships) and wood (most common amongst Coloureds residing on farms).

Access to transport and communications infrastructure is relevant to consider as this impacts on access to potential employment and business opportunities. In both cases disparities are vast. Over half the African and Coloured populations travel mainly 'on foot', followed by smaller percentages travelling as in cars passengers or use public transport. By contrast 77% of the White population travel by car either as driver or passenger. More than half of the African and 40% of the Coloured population rely on access to a public telephone nearby, while 96% of the White population have telephones either in their dwellings or cell phones, or both (47%).

The N2 National Road is located approximately 1,3 km south of the existing power station site. The Kleinberg-Mossdustria railway line is located immediately north of the site and the R327 is located further to the north. The Proteus substation is located 10 km northwest of the power station site and two 132 kV and two 400 kV transmission lines run in a north-westerly direction from the site to the substation.

5.2.7. Heritage Profile

Mossel Bay itself is an historic town which dates back the use of the bay as an anchorage since the first Portuguese explorers rounded the Cape. The core of the town which contains buildings which date back to the 18th and 19th century is a declared conservation area. In the more rural areas, settled agriculture as practiced by European farmers dates to the early 18th century. However prior to the historic period, pre-colonial settlement of the region has enjoyed massive time depth. The presence of sea caves with deep archaeological deposits has attracted the attention of archaeologists, professional and amateur since the early 19th century, however recent 21st century research has placed Mossel Bay on the international map as a key research area.

The main cave at Cape St Blaize was first described and excavated in 1888 by Lieth and Jones in 1899, then by John Goodwin in the 1920's revealing an extensive archaeological deposit dating from 200 000 years (Middle Stone Age) to the relatively recent shell middens of pre-colonial San and/or Khoekhoen herders. Lieth and Jones (1899) noted that many of the great cave deposits and prehistoric middens in the Mossel Bay – Pinnacle Point area were being 'mined' by local farmers who collected wagon loads of archaeological deposits for use as fertilizer. It would appear that severe impacts took place to local Mossel Bay heritage before the dawn of scientific enquiry.

For many years since the excavations of Cape St Blaize cave, very little archaeological research has taken place in the area until the extensive cave and rock shelters of Pinnacle Point were brought to the Attention of Prof Curtis Marean (Stoneybrook University, New York and Dr Peter Nilssen (Mossel Bay

Archaeological Project). A detailed program of research commenced, and resulted in the excavation of several sites resulting in the discovery of some very early fragmentary human remains and a complex Middle Stone Age sequence. Marean *et al* (2007) have claimed that the Middle Stone Age sequences of the mid-late Pleistocene at Pinnacle Point has produced evidence that people were exploiting marine food resources as early as 164 000 years ago. This is construed as very early evidence for modern human cognitive development.

No colonial period archaeological research has ever taken place in the study area so very little is known about early colonial period settlement, apart from that which is historically recorded and protected in the historic museum precinct and building conservation area with the town of Mossel Bay. In terms of the study area itself, no material of special significance has been identified to date. During the preparation of the Gourikwa Power Station site, a number of Early Stone Age artefacts that are between 300 000 and a million years old were collected within the excavated soils from the bulk earthworks.

Since the study areas are situated in rolling open landscape or coastal plains away from the coast, the expectation is that the kind of archaeological material that will be encountered will consist of open scatters of Early and Middle Stone Age artefacts (with rarer concentrations of later material). This kind of archaeology occurs ubiquitously throughout Southern Africa. It is only when such scatters are found in association with fossil bone or in clusters of discernable density that they are considered to have high heritage significance. Since there are no rocky outcrops, shelters or natural foci in along any of the transmission line alternatives or proposed pipeline route, occurrences of Late Stone Age archaeological material is not expected to be frequent.

5.2. Biophysical Characteristics of the Study Area

5.2.1. Climate

The study area falls within a Mediterranean-type climate with hot summers and wet winters. The annual precipitation is approximately 400mm - 600 mm, peaking in spring and autumn. Winds are typically from the southeast during summer months, while winter frontal systems cause north and westerly winds. Strong winds with an average speed of 20 km/h are experienced during winter, while the average wind speed in summer is approximately 15 km/h.

The average mean temperature in summer is 25°C and the average mean temperature in winter is 14°C.

5.2.2. Geology and Drainage

The study area is underlain by sandstone and shale beds of the Table Mountain and Bokkeveld Groups. North of Mossel Bay, rocks of the Enon Formation and other similar younger deposits (of Cretaceous and Tertiary age) are found. These rocks are deposited in an east to west elongated trough and are considered to extend offshore.

The Kouga Formation is the principal aquifer in the study area and its recharge area lies north of the PetroSA refinery.

A minor seasonal tributary of the Blinde River, which drains to the south, has its source approximately 1 km to the south-southwest of the power station site. However, the site is particularly flat and as a consequence is not well drained. A shallow water table is likely to occur in an area approximately 800 m to the east of the site, i.e. closer to the PetroSA facility.

5.2.3. Vegetation

The site is located within a bioregion known as the Riversdale Plain, which lies within the Fynbos biome and the Cape Floristic Region (CFR). The South African vegetation map describes the PetroSA area as Albertinia Sand Fynbos. The vegetation in the Proteus area is indicated as being Swellendam Silcrete Fynbos, and much of the intervening area is Mossel Bay Shale Renosterveld (refer to Figure 5.2). The National Spatial Biodiversity Assessment (NSBA) indicates that the Sand Fynbos is a Vulnerable vegetation type and that the Silcrete Fynbos and Shale Renosterveld are both Endangered vegetation types on a national basis.

The ecology of the power station site has been largely transformed through the construction of the existing Gourikwa Power Station. Previous investigations of the vegetation of the power station site (Ninham Shand, 2005; 2007) have indicated that the area on which the power station is located had been recently and regularly ploughed, and also grazed by livestock. The site was dominated by grazing grasses along with a few indigenous but weedy and alien species. No rare or localised plant species were likely to persist. This area had a very low local and regional conservation value.

The most sensitive area in the vicinity of the power station was identified to be a patch of approximately 1 ha of Shale Renosterveld about 200 m to the east of the site (Ninham Shand, 2007). This patch occurred immediately east of a farm fence, and its northern border is the railway line. The vegetation here is a remnant piece of Mossel Bay Shale Renosterveld, which is an Endangered vegetation type (Rouget *et al*, 2004). The site is dominated by *Bobartia robusta*, which is a Rare Red Data listed species (Hilton Taylor, 1996) restricted to this

vegetation type west and north of Mossel Bay. Other species include *Rhus lucida* (blinktaaibos), *Metasias pungens* (blombos), *Cynodon dactylon*, *Hypoxis setosa*, and *Falkia repens*. Various bulbs species are likely to be common, some of which may be rare and/or localised. This area has a very high local, and high regional conservation value, and should not be disturbed. Similar, but larger patches of remnant Renosterveld occur about 0,7 km west of the originally proposed site.

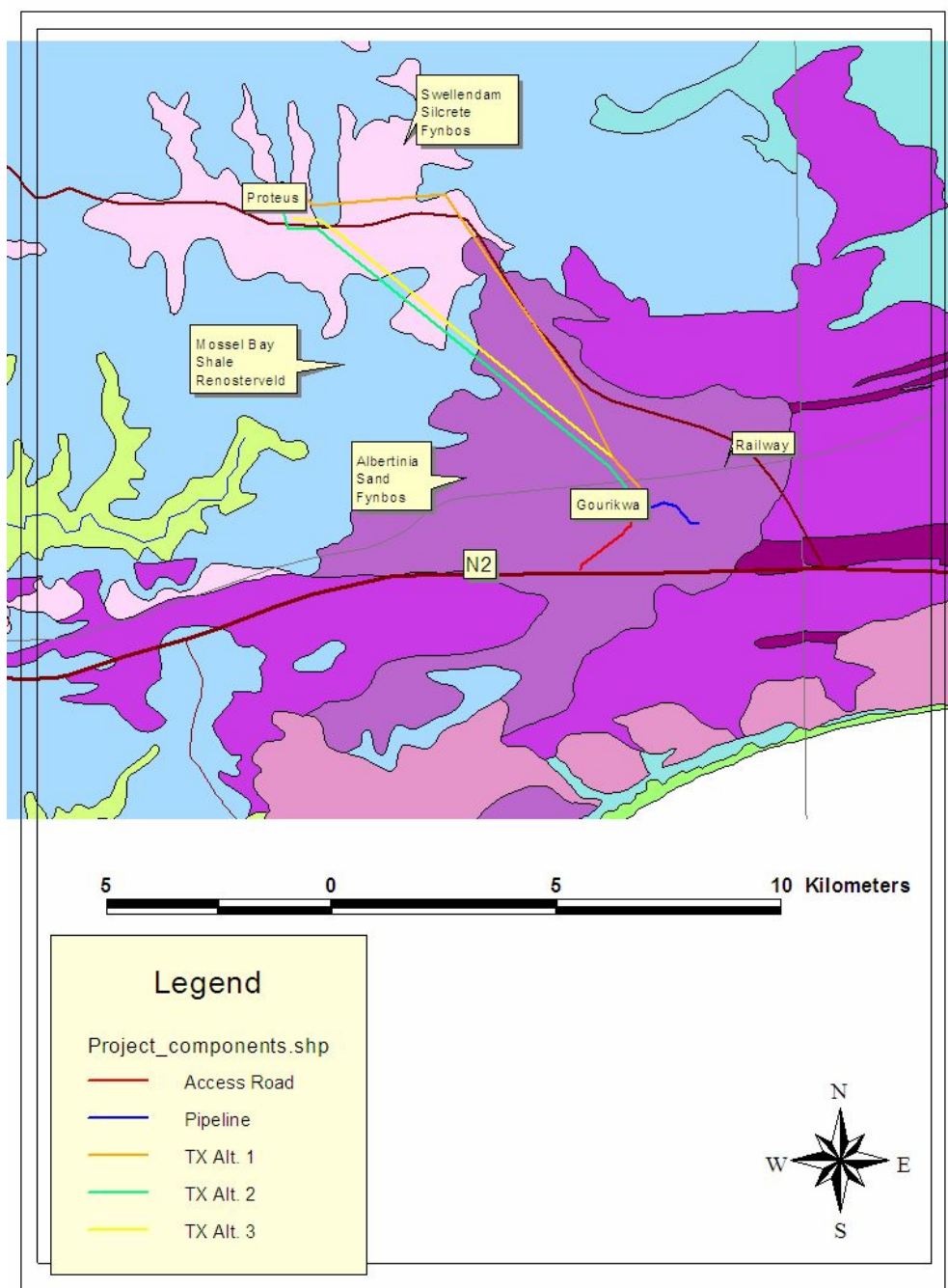


Figure 5.2: Project components superimposed on SA Vegetation map (Mucina & Rutherford 2006), showing local extent of the three vegetation units concerned

In addition, the other habitat of moderate concern is a grassy wetland area to the south-east of the power station site. This was a natural drainage line, but has been dammed and heavily transformed by agriculture, notably heavy stock grazing. The vegetation is dominated by grasses and sedges, most of which are common and widespread, resilient species, but occasional rare bulb species could be present. The botanical conservation value was rated as being low to moderate (Ninham Shand, 2007).

Remaining vegetation between the Gourikwa Power Station site and the Proteus Substation is a mosaic of ploughed lands and Mossel Bay Shale Renosterveld (refer Figure 5.3) and is generally in good condition with relatively few invasive alien species, although there are scattered *Acacia mearnsii* (black wattle) and *Acacia saligna* (Port Jackson). The protected species *Sideroxylon inerme* (milkwood) was recorded as being present in the thicket elements of this vegetation. This species is protected under the Forestry Act (Act No 122 of 1984), and may only be disturbed (including cutting or pruning in any way) with the relevant permit from Department of Water Affairs and Forestry.



Figure 5.3: View of the area between the Proteus Substation and Gourikwa, crossing mosaic of ploughed lands and Mossel Bay Shale Renosterveld.

Mossel Bay Shale Renosterveld is characterised by a high bulb diversity. The bulb *Bobartia robusta* (blombiesie) is very common in many natural areas along the

proposed power line routes and was previously Red Data Book listed as Rare (Hilton-Taylor 1996), but has been downgraded to Least Threatened as the species no longer meets IUCN requirements for Red listing (Raimondo et al – in prep.). The species is however a regional endemic, and is found only in the area from Albertinia to Mossel Bay.

Protea lanceolata (lance leaf sugarbush) has recently been Red Data listed as Near Threatened; Raimondo et al – In prep.), and is uncommon in the vicinity of Proteus, on the silcrete hills.

There is a low to moderate likelihood of certain very rare cryptic dwarf succulents such as *Euphorbia bayeri* (local endemic), various *Haworthia* species, and various bulbs occurring in the study area. There is also a small likelihood that the very rare *Satyrium muticum* (Endangered) could occur (the species is known from about 400m east of Proteus substation; B. Liltved - *pers. comm.*). Most of these would be likely to occur in rocky areas.

5.2.4. Terrestrial Fauna

Due to the farming activities within the study area, indigenous terrestrial faunal diversity is restricted. However, there is evidence of various small mammals such as rodents, porcupines, and small antelope within the study area. In addition, PetroSA's nature reserve is located adjacent to the refinery, between the southern security fence and the N2 National Road. Species found with the Nature Reserve include springbok, Burchell's Zebra, grysbok and Cape hares (Ninham Shand, 2007).

5.2.5. Avifauna

The study area consists of predominantly flat arable lands in the south, and some remaining fynbos on the rolling hills in the north. The Southern African Bird Atlas Project (Harrison *et al*, 1997) recorded a total of 157 bird species in the quarter degree square within which the study area falls, i.e. 3421BB. This included seven Red Data species, four 'vulnerable' and three 'near-threatened' (Barnes, 2000). In addition, the White Stork (Protected internationally under the Bonn Convention on Migratory Species) is considered as a threatened species for the purpose of this study. This is a relatively low diversity of bird species, and consequently Red Data species, meaning that in terms of avifauna, this study area is not particularly unique. However, several of the Red Data species recorded here are known to be extremely vulnerable to impacts of power lines, through collision. The Blue Crane, Secretarybird, Denham's Bustard and White Stork are all extremely vulnerable to collision, and several birds of these species have been reported colliding with the existing power lines in the study area previously.

SCOPING OF ISSUES ASSOCIATED WITH THE PROPOSED POWER STATION CONVERSION

CHAPTER 6

This chapter of the Scoping Report serves to evaluate the identified potential environmental (socio-economic and biophysical) impacts associated with the proposed conversion of the OCGT units at the Gourikwa Power Station to CCGT units, including potential impacts associated with the direct access road as well as the proposed water pipeline. Potential direct and indirect impacts of the components of the proposed conversion project are evaluated, and recommendations are made regarding further studies required within the EIA phase of the process.

The cumulative impacts associated with the proposed power station conversion project are expected to be associated with the addition of infrastructure to the existing power station footprint and are largely associated with potential noise, air quality and visual impacts of the facility on the surrounding environment. Cumulative effects can only be assessed once the detailed design information becomes available, and will be considered in the detailed specialist studies to be undertaken in the EIA phase.

6.1. Potential Impacts on Air Quality

The Gourikwa Power Station is located approximately 15 km west of Mossel Bay adjacent to the PetroSA plant. The power station site is approximately 1,3 km north of the N2 national road between Mossel Bay and Riversdale, and 1 km west of the PetroSA plant. The predominant land use in the area is agriculture with a combination of cattle, sheep and ostriches as well as crop (mainly wheat) cultivation.

The existing air quality in the area is impacted by the emissions from the existing OCGT units, as well as those from the PetroSA plant. Apart from the industrial activities in the area, other potential air pollution sources include vehicular traffic, domestic fires, ploughed fields and non-vegetated land.

6.1.1. Nature and Extent of Impacts

Potential impacts are associated with both the construction and operational phases of the proposed power station conversion project. The main air pollution sources identified to be associated with the proposed power station conversion include:

- » The various construction activities during the construction phase.

- » The turbine combustion emissions during the normal operation phase.
- » The turbine combustion emissions during start-up and upset conditions.

Potentially sensitive receptors surrounding the power station site include the farms surrounding the site, including:

- » B&H Boerdery
- » Patryfontein
- » Bartelsfontein
- » Hartelus
- » Arum Valley
- » Kleinberg

The communities of KwaNonqaba and Joe Slovo and Dana Bay are situated within a 5 km radius of the development site.

» *Potential Impacts during the Construction Phase:*

Dust would be generated through the various construction activities of the proposed CCGT power station. The greatest impact of the dust would be limited to the immediate vicinity of the proposed site. This impact is expected to be of low significance.

» *Potential Impacts during the Operational Phase*

An OCGT power plant produces and releases into the atmosphere a number of gaseous and particulate emissions, such as sulphur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), nitrogen dioxide (NO₂), fugitive volatile organic compounds, greenhouse gases and inhalable particulates (PM10). In addition, heat is emitted from the OCGT power plant via the hot exhaust gasses. The impact of emissions on air quality under normal operating conditions of the OCGT units on the site is predicted to be of low significance given that the OCGT plant would not exceed any of the prescribed air emission limits (Ninham Shand, 2007).

The exhaust emissions during normal operation, start-up and upset conditions could have a negative impact on the air quality of the area in close proximity to the power station. The type of emissions are not expected to change from those currently generated by the OCGT units, since instead of being released into the atmosphere after the turbines, as the gases from the OCGT plant will pass through a heat recovery system and then be released. The only variations to the OCGT emissions will be the different release heights of the new stacks and the temperature of the emitted gases. These changes could have a small additional negative impact on potentially sensitive receptors in the vicinity of the power station. If vapour recovery systems are installed on fuel storage tanks, air pollution impacts associated with emissions from fuel

storage tanks are anticipated to be small. The extent of potential impacts associated with all emissions from the power station will need to be quantified and assessed in the EIA. Cumulative impacts associated with the proposed project within the study area will also be investigated.

Potential impacts on human health could potentially occur where people live in close proximity to the power station site. The duration of these impacts will be long-term, i.e. for the lifespan of the project. The extent of potential impacts will need to be assessed in the EIA.

6.1.2. Conclusions and Recommendations

In order to determine existing air quality and assess potential air pollution impacts as a result of the proposed power station conversion project and to make recommendations with regards to mitigation measures, as well as air quality monitoring (if deemed necessary), a specialist air quality impact assessment (including modelled scenarios) must be undertaken in the EIA Phase. This study will consider the following conditions:

- » Normal operations
- » Start-up and upset conditions
- » Cumulative impacts of emissions to air for the area

6.2. Potential Noise Impacts

The existing noise environment in the study area is impacted by the existing Gourikwa Power Station and the PetroSA plant. Other noise sources include localised vehicular traffic from the N2 national road located to the south of the site.

The control of noise in the Western Cape is legislated in terms of the Noise Control Regulations promulgated under the Environment Conservation Act (Act No 73 of 1989) as adopted by the Provincial Gazette Number 5309 of 20 November 1998. Under these regulations, rural environments are considered as sensitive from a noise impact perspective.

The acceptable daytime and night time rating levels in a rural district with little road traffic are, 45 dBA and 35 dBA respectively. Noise levels measured in the surrounding area as part of the previous EIA processes (Ninham Shand, 2007) were found to be approximately 43 dBA.

Worst-case scenario noise levels associated with the approved OCGT units at the Gourikwa Power Station for normal daytime operation of the units for five hours out of the 16 daytime hours were predicted to exceed the measured ambient

level within a distance of 1 920 m from the centre of the power station. This area includes the farming areas up to the R327 in the north, Montana and the residences at Harterus to the northeast and to Langewag to the southwest. At these locations, noise intensity would be expected to be between negligible and low. However, near the boundaries of the OCGT facility, this intensity would range between medium and very high. It was predicted that when all the proposed OCGT units are operated continuously (worst-case scenario), the measured ambient level of 43 dBA would occur up to a distance of 3 000 m from the centre of the OCGT power station. This was predicted to result in a high intensity of noise at Montana and Harterus, and to a very high intensity at Langewag and Bartelsfontein (Ninham Shand, 2007). To this end, Eskom have negotiated a noise buffer zone of 1,5 km radius around the existing Gourikwa power station facility in order to ensure that no further development occurs within this zone, thereby preventing the potential for additional future impacts on sensitive receptors.

6.2.1. Nature and Extent of Impacts

The conversion of the Gourikwa Power Station units from open cycle to combined cycle will introduce additional noise sources, including:

- » The construction equipment and activities during the construction phase.
- » The equipment during the operational phase such as:
 - * the air filters
 - * the gas compressor
 - * the gas turbine
 - * the generator
 - * the electricity transformers
 - * the fans associated with the stacks
 - * the heat recovery equipment
 - * the steam generator
 - * the steam turbine
 - * the air-cooled condenser system associated with the dry-cooling system

» *Potential Impacts during the Construction Phase:*

Noise associated with construction activities is generally of local extent and short duration. The construction operations are not expected to have any significant impact on the nearest residences in the surrounding area. The noise impact therefore is expected to be of low significance.

» *Potential Impacts during the Operational Phase:*

The introduction of additional noise sources could have additional impacts (direct and cumulative impacts) as a result of the increase of the noise levels within and around the power station site. The duration of the noise impact is

expected to be long-term, i.e. for the duration of the operational life of the project. The extent of the impact will be dependent on the final design and any mitigation implemented, and will be considered in the detailed specialist studies to be undertaken in the EIA phase.

6.2.2. Conclusions and Recommendations

In order to assess the nature and extent of the noise emissions from the CCGT units (and verify the expected significance thereof), information regarding the reduction efficiency and the noise emissions will need to be obtained from the design engineers and included in the assessment within the detailed EIA phase. The noise sources will then be used in a noise model in order to calculate the resulting noise levels around the power station and assess the potential direct, indirect and cumulative impacts associated with the proposed project. This detailed assessment will be performed in the EIA phase in accordance with the South African National Standards (SANS).

6.3. Potential Visual Impacts

Apart from its location close to the N2 National Road, the Gourikwa Power Station site is considered to be relatively remote and far removed from major centres and tourist attractions. It is located adjacent to the N2 between Mossel Bay and Riversdale, approximately 1 km west of the PetroSA plant.

6.3.1. Nature and Extent of Impacts

The conversion of the power station from OCGT to CCGT technology, as a visual concern, primarily entails the increase of the dimensions of the gas turbine units. The tallest of the new components (such as the stacks) will be 60 m tall whereas the existing tallest structures (exhaust stacks) are 30 m tall. Additional infrastructure associated with the conversion project includes the construction of a small water treatment plant, and six additional fuel tanks (with a total capacity of approximately 32 million litres) west of the OCGT facility footprint.

An initial viewshed analysis of the proposed Gourikwa conversion project (based on a 20 m contour interval digital terrain model of the study area) indicates the visibility of the OCGT plant at full capacity (i.e. five turbine units) and the potential future visual exposure after the conversion (refer to Figure 6.1). The object offset for the current power station was taken at a maximum 30 m above ground level (i.e. the height of the OCGT stacks) and the proposed converted

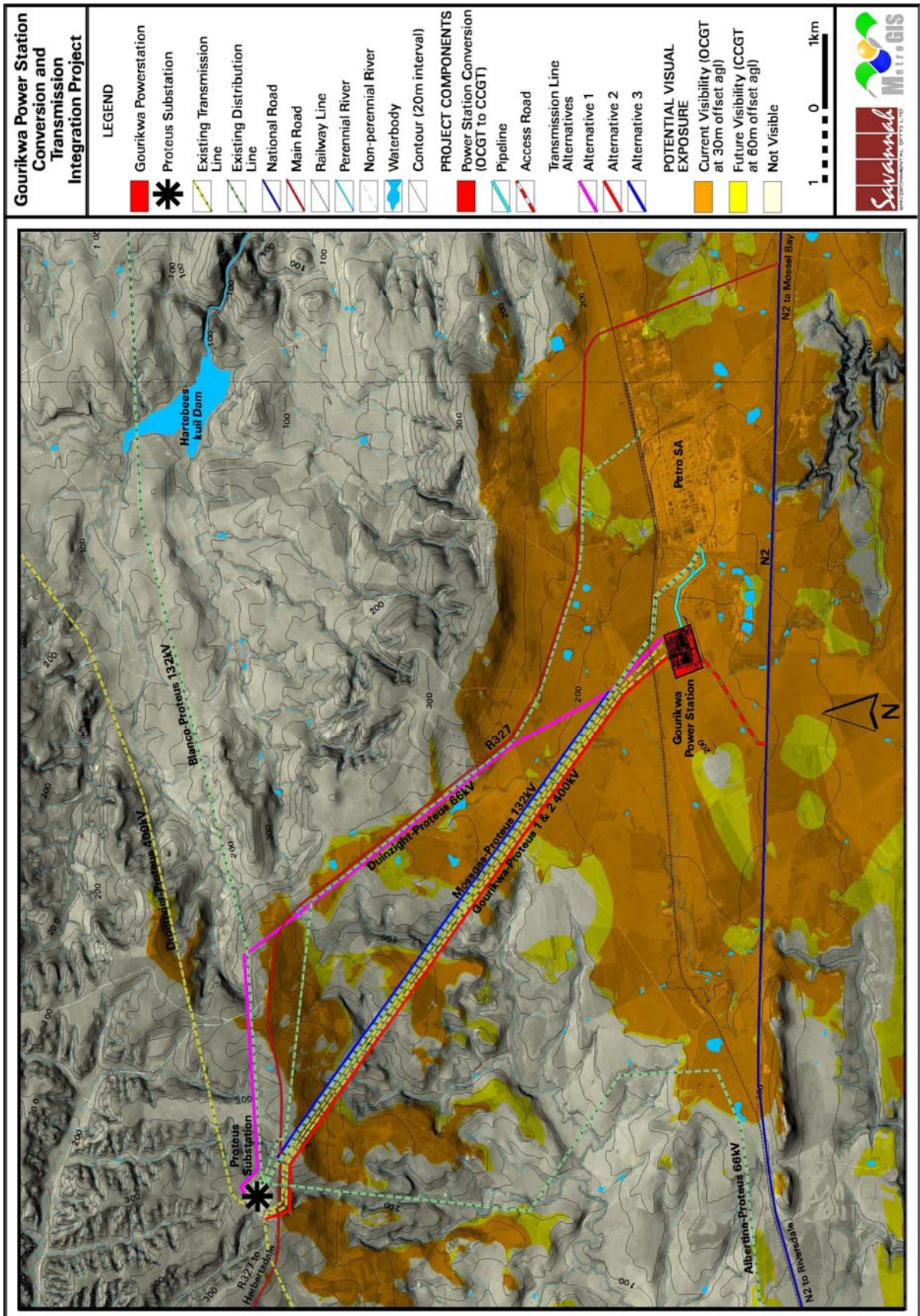


Figure 6.1: Potential visual exposure of the Gourikwa power station

power station was taken at 60 m offset above ground level.⁷

It becomes apparent that the facility would be relatively exposed due to the predominantly flat topography of the region. The general trend of the visual exposure (for the OCGT power station) shows a larger area with a short to medium distance exposure (up to 5 km from the power station), and a smaller, scattered area with medium to long distance exposure north-west of the site. The areas shown in yellow indicate the additionally exposed land after the conversion to a CCGT power station. The increase in dimensions of the power station, following the conversion process, does not increase the visual exposure of the power station significantly.



Figure 6.2: View of the existing Gourikwa OCGT power station from the N2

The construction of the ~1,3 km water supply pipeline adjacent to the fuel supply pipeline between Gourikwa power station and PetroSA is not expected to pose a risk of significant visual impact. The construction of the proposed new access road to the power station is similarly not expected to cause a significant visual impact, provided that no tall lighting structures (i.e. street lights) are proposed to be erected along this road, and it would provide access to an existing industrial complex.

⁷ This viewshed analysis is based on the facility alone and does not include the proposed Gourikwa-Proteus transmission line. Separate viewshed analyses were done for the three transmission line alternatives (refer to Chapter 7).



Figure 6.3: Photograph taken travelling south along the R327 towards the Gourikwa power station (seen in the background)

6.3.3. Conclusions and Recommendations

The fact that additional areas are potentially exposed to the power station following the conversion process does not imply that it constitutes a significant visual impact, at least not for all of the exposed areas. Further investigation is necessary in order to determine the specific visual impact within these exposed areas (i.e. the potential occurrence of sensitive visual receptors).

No potential visual impacts are expected to be associated with the proposed pipeline or the access road. Therefore, no further studies are required to be undertaken for these components of the project.

The visual impact assessment within the EIA will address issues related to the visibility of the proposed OCGT to CCGT conversion project, as well as potential cumulative visual impact of the power station conversion project. These issues or criteria will aim to quantify the actual visual impact and to identify areas of perceived visual impact.

Other issues/criteria to be addressed by the visual impact assessment include:

- » Visual distance/observer proximity to the facility (apply the principle of reduced impact over distance)
- » Viewer incidence/viewer perception (identify areas with high viewer incidence and negative viewer perception)
- » Landscape character/land use character (identify conflict areas in terms of existing and proposed land use)
- » Visually sensitive features (scenic features or attractions)

- » General visual quality of the affected area
- » Potential impact of the power station conversion on the tourism and eco-tourism potential of the area
- » Visual absorption capacity of the vegetation
- » The effect of existing man-made structures on the visual exposure
- » Potential visual impact of lighting (after hours operations and security)
- » Potential mitigation measures

An initial scanning level assessment of the above issues did not reveal any fatal flaws to be associated with the proposed power station conversion project. These issues should however still be investigated in greater detail in order to scientifically motivate and/or identify any other mitigating/aggravating circumstances.

6.4. Potential Impacts on Vegetation

The power station site is located within a bioregion known as the Riversdale Plain, which lies within the Fynbos biome and the Cape Floristic Region (CFR). The South African vegetation map describes the PetroSA area as Albertinia Sand Fynbos.

The ecology of the power station site has been largely transformed through the construction of the existing Gourikwa Power Station. No significant natural vegetation remains in the proposed pipeline route to PetroSA, due mostly to previous cultivation.

The direct access road to the power station is proposed to run along an existing fence line for much of its length. The fence separates two cultivated lands. Approximately 90% of the proposed route has previously been ploughed and/or planted to pasture and can therefore be considered to be disturbed. Species diversity is very low in these areas, and there is an almost zero likelihood of any rare or localised plant species occurring within these disturbed areas of the proposed route.

Scattered Thicket elements, including species such as *Rhus lucida* (blinktaabos) occur within 5 m of the fence line (see Figure 6.4). These thickets are considered to be important roosting and shelter sites for numerous birds and insects, and therefore have ecological value. However, the botanical value of these thickets is considered to be Low to Moderate.



Figure 6.4: View along proposed new access road route towards N2, showing scattered shrubs along fenceline and adjacent ploughed lands

A patch of heavily grazed natural Renosterveld vegetation is located approximately 800 m due south of the power station site. This vegetation is considered to be of Moderate conservation value. Species diversity is relatively low within this patch of natural Renosterveld vegetation, due to heavy grazing by stock. Only one species of conservation concern was noted, being *Bobartia robusta*. This species is quite common in this patch, being non-palatable. The species is a regional endemic, but is not Red Data listed, as it no longer meets IUCN requirements for Red listing (Raimondo et al – in prep.). A number of small seasonal wetlands also occur in the area.

6.4.1. Nature and Extent of Impacts

Direct impacts occur primarily at the construction stage, and the nature of the impact is direct loss of vegetation within the development footprint. Indirect impacts occur mostly during the operational phase (post construction), and in this case the nature would vary from the introduction of alien vegetation and alien animal species (such as Argentine ants), to partial disruption of ecological processes due to the effects of the alien species, to partial disruption of ecological processes due to fragmentation of habitat.

The construction of the proposed power station conversion and the water pipeline between the PetroSA site and the power station is not predicted to have any direct negative impacts as no natural vegetation occurs within the proposed development area.

The proposed road route may impact on small patches (<1 ha in total) of remnant natural vegetation. Loss of natural vegetation (and possibly small areas of seasonal wetland) will occur in these areas and is expected to be localised in extent. However, most of the proposed route passes through cultivated lands with no significant natural vegetation.

Potential indirect impacts which may be associated with the proposed project include introduction of alien species, to partial disruption of ecological processes due to the effects of the alien species, to partial disruption of ecological processes due to fragmentation of habitats. Impacts are expected to be of low to negligible significance at the local level due to the disturbed nature of the study area.

Extensive Eskom infrastructure development is taking place in the region, and on-going development inevitably has a cumulative negative impact on remaining natural vegetation. In this particular instance the cumulative impacts are likely to be low negative, as most of the development is taking place in previously cultivated areas, and footprints and permanent vegetation losses are very small within the vegetated areas (<1 ha in total).

6.4.3. Conclusions and Recommendations

As no impacts are expected as a result of the proposed power station conversion and construction of the water pipeline, no further studies are required to be undertaken for these components of the proposed project. The proposed pipeline route is acceptable and should have no botanical impact.

The final alignment of the proposed new road access should be such as to accommodate the identified areas of botanical sensitivity in the area. This would result in the road having a minimal impact on vegetation. A field survey of the final proposed road route should be undertaken as part of a detailed EIA assessment, and standard impact assessment methodology employed to assess the potential impacts. The Impact Assessment should clearly outline practical mitigation that can be implemented to reduce any identified botanical impacts of significance.

6.5. Potential Impacts on Heritage Sites

Since the study areas are situated in rolling open landscape or coastal plains away from the coast, the expectation is that the kind of archaeological material that will be encountered will consist of open scatters of Early and Middle Stone Age artefacts (with rarer concentrations of later material). This kind of archaeology occurs ubiquitously throughout Southern Africa.

6.4.1. Nature and Extent of Impacts

The site of the power station site has been largely disturbed through the construction of the existing Gourikwa Power Station. Therefore, no impacts on heritage sites are expected to be associated with the proposed conversion project.

It is anticipated that the laying of the water pipeline may cause limited impacts to buried and surface archaeological material (mainly dispersed scatters of Middle Stone Age (MSA) and early Stone Age (ESA) material) which is known to occur on the coastal plain. Most of the area that is proposed to be disturbed has already been subject to extensive earthmoving operations when the PetroSA (Mossgass) plant was built in the 1970s. This will have rendered the heritage value and archaeology of the study area valueless. Therefore, no significant impacts on heritage resources are anticipated as a result of the construction of the water pipeline.

The proposed access road will pass through an area that is known to contain ESA and MSA material. However, it is not expected that this material will occur in a density or context that will necessitate changes to the proposed route, or result in any other significant impacts.

6.4.3. Conclusions and Recommendations

No risks in heritage terms have been identified with respect to the proposed conversion as this involves modifications to an existing structure which does not trigger a need for a heritage assessment. As no impacts are expected as a result of the proposed power station conversion or water pipeline, no further studies are considered to be necessary to be undertaken. A field survey will be required to be undertaken as part of the EIA in order to assess impacts of the proposed access road on heritage resources.

6.6. Potential Impacts on the Social Environment

The Gourikwa Power Station site is located in a predominantly rural area, with the dominant land use being agriculture. The site is located approximately 15 km

west of Mossel Bay adjacent to the PetroSA plant, within the Mossel Bay Municipality of the Eden District in the Western Cape Province. The neighbourhoods of KwaNonqaba and Jo Slovo as well as Dana Bay are situated within a 5 km radius of the development site. Properties utilised for farming are in the immediate vicinity of the facility.

6.6.1. Nature and Extent of Impacts

Potential impacts on the social environment as a result of the proposed power station conversion project are expected to occur as a result of both the construction and operational phases. Social impacts for the conversion can therefore be expected to be similar to those that were identified for the initial OCGT Development, which was assessed in 2005, as well as the expansion of the OCGT plant, which was assessed in 2007 (Ninham Shand, 2005; 2007).

» Potential Impacts during the Construction Phase:

Temporary local employment opportunities

Construction activities could create a number of temporary employment opportunities, resulting in a positive economic impact. The proposed conversion project would result in on-going construction opportunities following the completion of the current construction of additional OCGT units at the Gourikwa site.

Employment can be regarded as an important requirement for ensuring an improvement of livelihoods in the area. For this impact to truly be of benefit to the local population, emphasis must be placed on employment of local people as far as possible. Employment conditions on the site should also be considered to maximise potential positive impacts.

Potential impacts are expected to be of low to medium significance at the local level. The magnitude of this impact will depend on the number of construction workers to be employed, either by Eskom itself or by contractors.

Although the impact on employment will be temporary, due to high levels of poverty and unemployment, any impact on job creation in the area will have some positive impact and therefore be of some positive significance. This impact can be optimised by focusing on local employment creation where possible, and addressing current labour concerns. This will be assessed in more detail in the detailed SIA to be undertaken in the EIA phase of the process.

Businesses Opportunities

Representatives of local business organisations who have been engaging in consultation with Eskom have stressed the importance of emphasising local

BEE procurement and ensuring local businesses are granted fair opportunities to tender for contracts. Potential positive impacts are expected to be of low to medium, depending on the number of local business opportunities that may be created. This will be investigated in more detail in the detailed SIA to be undertaken in the EIA phase of the process.

Housing of temporary workers

The housing of workers brought from other areas presented problems during previous phases of the OCGT development. The levels of vulnerability of local communities in the area are perceived to increase significantly if a further influx of workers or work seekers occurs into their areas for the following reasons:

- * Limited land availability in existing townships for new residents.
- * Infrastructural concerns including possible problems with waste and sewerage disposal by informal squatters.
- * Perceptions that the presence of construction workers from elsewhere could aggravate existing social problems (such as alcohol and drug abuse, unwanted pregnancies, etc.).
- * Increased burden on the local economy as a result of an influx of workers into the area.
- * The belief that an influx of outsiders to the area may result in greater security concerns for neighbouring landowners and residents.

This potential impact is expected to be of low to medium significance at a local level, depending on the extent to which labourers are brought from other areas, and where such workers are housed.

Influx of job seekers

In addition to a possible influx of labourers, large developments are also known to attract numbers of hopeful job-seekers to an area in search of possible employment. This would be a cumulative impact to similar trends that have been noted in the area as a result of its rapid industrial development. The rapid growth of African and Coloured settlements, and particularly expansion of informal squatter settlements on the edges of these areas as a result of such influx, is amongst the often overlooked impacts of developments on surrounding low-income communities. Such in-migration that can be expected to result from the proposed conversion project, as expectations of possible employment rise in surrounding areas, can have several negative implications on the local population, including:

- * Increased pressure on low-cost housing provision.
- * Competition for jobs as outsiders often provide cheap labour.

- * An increase in the unemployed population becomes an economic burden for existing communities.
- * Crime levels rise if population density and unemployment levels rise. The potential for crime can be exacerbated by the increased perception of inequality between the very wealthy and very poor.
- * The influx of foreigners has many negative repercussions for the social integrity of local communities. It can lead to community disintegration, and other social problems at the community and/or family levels.

This potential impact is expected to be of low significance at a local level. The extent to which Eskom's activities, the proposed conversion process in particular, add to the perception of Mossel Bay as a source of potential employment can be considered minimal.

Social conflict

The social environment in which the power station conversion is proposed is characterised by high levels of poverty and unemployment, and stark inequalities between different population groups. This creates an atmosphere in which scarce resources and potential opportunities (particularly related to employment and other types of benefits that may be associated with a development of the scale proposed) become the object of fierce competition within local communities. The lack of efficient institutional leadership structures in the area has led to the emergence of various locally-based groups and organisations claiming to represent community interests. In the atmosphere of competition for scarce resources and fears of some benefiting over others, claims of legitimacy and representivity of such organisations are frequently disputed.

The legacy of past discrimination, much of which is perceived to continue, can still be felt acutely in local communities neighbouring the development site, with high levels of distrust between different population groups. Still persisting socio-economic disparities continue to deepen the divide between the White population and local African and Coloured communities, while competition and fears of scarcity amplifies conflict between the African and Coloured population groups, both perceiving the other to be 'relatively better off' in terms of access to opportunities.

Many years of effective exclusion from economic benefits has led to high levels of resentment amongst local communities. Experiences with large employers in the area (PetroSA is often mentioned as a point of reference) have reinforced such a sense of exclusion, particularly emphasised by the repeated experience of seeing outside labour brought in for work on large contracts while the majority of the local population are in desperate need of employment.

Potential impacts are expected to be of low to high significance at a local level.

Increase in traffic as a result of construction traffic

A traffic assessment conducted for the OCGT power plant noted that during the construction of the plant, heavy duty and abnormal vehicles will transport equipment to the site. A similar situation is expected for the conversion project. This is a short-term situation and will not substantially impact on the national road or traffic flows. However, it will be necessary to have the necessary traffic accommodation arrangements in place when the abnormal load vehicles are in transit.

» *Potential Impacts during the Operational Phase:*

Provision of electricity: Local/regional/national linkages and macro-economy

The purpose of the Gourikwa Conversion project is to improve Eskom's capacity to provide for South Africa's increasing demands for electricity in the medium-term (i.e. until 2014). The most significant and far reaching social impact during the operational phase of the project will hence be the provision of electricity for the South African population.

Electricity supply makes an important contribution towards economic growth, and hence to employment creation and poverty alleviation on a national level. If peak demand exceeds supply, the reliability and quality of electricity services will be negatively impacted. Unreliable electricity supply is likely to have significant negative economic (and hence social) consequences, as has been evidenced particularly in the Western Cape in 2006. These impacts derive from the fact that several economic sectors - manufacturing industries, in particular - are dependent on the electricity sector for their operation and survival. Electricity generation and provision therefore constitute an enabling industry without which few other industries would be able to flourish.

Therefore, the impact associated with the proposed project is expected to be one of high positive significance at a national level.

Ongoing employment opportunities for locals

Given the skilled nature of the employment opportunities associated with the operation phase, it is unlikely that employment opportunities will benefit members of local communities. It is unlikely that the operation of the CCGT power station units will employ more people than is currently the case at the existing power station, and an impact of low positive to no significance is predicted. The extent to which local procurement has taken place to date will

however be investigated as part of the detailed SIA to be undertaken in the EIA phase.

Social Investment

Eskom Development Foundation is a Section 21 company and a wholly-owned subsidiary of Eskom Holdings Ltd. The Development Foundation is responsible for: initiating and evaluating Eskom’s corporate social investment (CSI) related projects; coordinating and integrating Eskom’s CSI activities; and developing grants and donations in South Africa.

The role of the Development Foundation is to enhance the socio-economic fabric of society by supporting social and economic projects that primarily focus on capacity building, job creation and poverty alleviation through grants and donations in an integrated, efficient and effective way. The Foundation focuses on communities where Eskom implements its capital expansion programme and communities it operates in.

The following social developments initiatives are currently in the pipeline for neighbouring communities surrounding the Gourikwa power station. These will be discussed in the detailed SIA as part of the EIA process (Ramanotsi, 2008).

Proposed Project	Scope of work / Deliverables
Information Communication Technology (ICT) for Education	Providing Computers and ICT network connectivity and wireless infrastructure to facilitate advance teaching and learning
CEF Creating Effective Families, D'Almieda	Equipment, Appliances, Training & Paving
Siphucule Pre- Primary School Kwa-Nonqaba	Infrastructure upgrade (paving & varandah), domestic appliances, furniture, equipment , toys and food garden
Imekhaya Primary School Kwa-Nonqaba	Infrastructure upgrade (sports field), food garden, sewing output
Isalathiso Secondary School Kwa Nonqaba	Equipment and appliances for a soup kitchen

An impact of low to high positive significance can be expected, depending on the type and extent of Social Investment implemented by Eskom. The significance of this positive impact can be maximised through appropriate targeting of Social Investment. This will be discussed further in the detailed SIA to be undertaken in the EIA phase of the process.

Impacts on Sense of Place⁸

As the proposed Gourikwa Power Station conversion would take place on the existing Gourikwa Power Station site, located adjacent to the PetroSA site, impact on sense of place can be expected to be limited. It should, however, be noted that the tallest of the new components (i.e. the stacks) will be 60 m tall, whereas the existing tallest structures (exhaust stacks) are 30 m tall. Eskom are also planning additional fuel storage on the site. This may have an impact as a result of cumulative visual impacts (to be assessed as part of a separate specialist study).

Impacts on residents of neighbouring farms primarily relate to noise and visual impacts. Noise impacts were noted as of medium to 'very high' significance in the assessment for the OCGT expansion in 2007. Neighbouring residents mention noise as the most significant impact associated with the operation of the existing power station. Potential visual and noise impacts that may be associated with the construction phase of the conversion project will be addressed in separate specialist assessments. As these issues relate closely to people's perceptions of the project, key findings of the Visual Assessment and Noise Assessment will be noted in the detailed SIA to be undertaken in the EIA phase of the process.

Concerns have been raised by the Dana Bay residents regarding the development of the area as a power generating hub by Eskom. Concerns particularly relate to the location of the power station alongside the N2 coming into Mossel Bay from Cape Town, which is considered as an important tourist route. The main concern noted is the potential impact of such an industrial power zone on tourism, which is an important driver of the Mossel Bay economy.

The potential impact on tourism was raised in the Urban Econ economic assessment for the original OCGT site in 2005 which evaluated the various tourism clusters which currently exist in the Mossel Bay area and established that the proposed site would not affect the existing tourism route as the nearest tourism attraction is located approximately 15 km away from the proposed site. In addition, it was emphasised that the proposed site is located near the existing PetroSA GTL Plant. "As a result of this plant, which was established a number of years ago and which is very visible in the landscape as an industrial activity; tourism activities have tended not to locate near to this site... There are a total of 5 attractions within a 15 km

⁸ The term sense of place has been defined and utilised in different ways by different people. To some, it is a characteristic some geographic places have and some do not, while to others it is a feeling or perception held by people (not by the place itself). It is often used in relation to those characteristics that make a place special or unique, as well as to those that foster a sense of authentic human attachment and belonging.

radius but they will not be impacted directly. Therefore the proposed OCGT power plant will not be in any way a negative contributor towards current tourism activities in the Mossel Bay area." (Urban Econ, 2005).

Potential impact are expected to be of low to medium significance. These impacts will be assessed in detail within the SIA, based on findings from visual, noise, air quality and (previous) traffic assessments.

Impacts on Health and Safety

Potential impacts on health and safety could result from:

- * Storage of additional fuel on-site
- * Impacts on air quality during operation

The risk assessment conducted for the expansion of the OCGT site (Ninham Shand, 2007) indicated risks associated with storage of both diesel and propane to be confined to the immediate site area. Social impacts of such risks can therefore be considered minimal. An additional risk assessment for the additional fuel storage proposed on the site should be undertaken in order to confirm that this is the case with this new scenario.

Impacts on air quality were cited as minimal during the assessment undertaken for the OCGT expansion (Ninham Shand, 2007). A detailed air quality impact assessment must be undertaken in order to confirm that this will remain the case with the proposed conversion project (refer to Section 6.1).

6.5.3. Conclusions and Recommendations

In order to assess the potential impacts on the social environment associated with the construction and operation of the proposed power station conversion project (and verify the expected significance thereof), a detailed Social Impact Assessment (SIA) must be undertaken within the EIA phase of the project.

6.7. Impacts associated with the 'Do-nothing' Alternative

The 'do-nothing' alternative is the option of not converting the existing Open Cycle Gas Turbine units at Gourikwa Power Station to Combined Cycle Gas Turbine units.

The electricity demand in South Africa is placing increasing pressure on Eskom's existing power generation capacity. Using the strategic electricity planning in place (refer to Chapter 2) and taking into account the continued growth in electricity demand, Eskom has determined that there is a need for additional

power generation capacity in the medium-term. In considering the most suitable options to meet the increased electricity demand in the mid-term (i.e. by 2011), Eskom has concluded that the most feasible option is the conversion of the existing Gourikwa OCGT units to CCGT units, thereby generating additional capacity for the same amount of fuel (under a similar operating regime). The CCGT units can be operated for longer periods than the OCGT units, and can therefore be successfully utilised as mid-merit capacity, with the OCGT units still being available for use during peaking periods.

The do-nothing option will result in electricity demands in the medium-term not being met. This has serious short- to medium-term implications for economic growth on a provincial and a national level.

Therefore, this option is rejected as a feasible alternative and is not considered further in the EIA.