

## ENVIRONMENTAL IMPACT ASSESSMENT: PROPOSED OPEN CYCLE GAS TURBINE POWER PLANT, FUEL SUPPLY PIPELINE, SUBSTATION AND TRANSMISSION LINES AT MOSSEL BAY

APRIL 2005

### BACKGROUND INFORMATION DOCUMENT



#### Background

Eskom applies an Integrated Strategic Electricity Planning (ISEP) process to identify long-term options regarding both the supply and demand sides of electricity provision in South Africa.

In the most recently approved ISEP plan (June 2003), the need for increased electricity supply by about 2006 was identified. This is to meet the gradual annual growth of about 3% in electricity demand, coupled with moderate generating reserves. Reinstating power stations that had been mothballed is a desirable option, while various other options, ranging from plant using conventional hydrocarbon and nuclear fuels to renewable energy sources, receive continued attention.

As part of the increased electricity supply plan, Open Cycle Gas Turbines (OCGTs) were identified as a means to provide peaking capacity in the short term. Peaking capacity refers to those periods in the mornings and evenings when electricity demand is greatest. OCGTs are a favoured means of providing peaking capacity for two reasons. Firstly, they can be constructed within a relatively short space of time and secondly, once constructed, they can begin to generate electricity within a few minutes of starting the power plant.

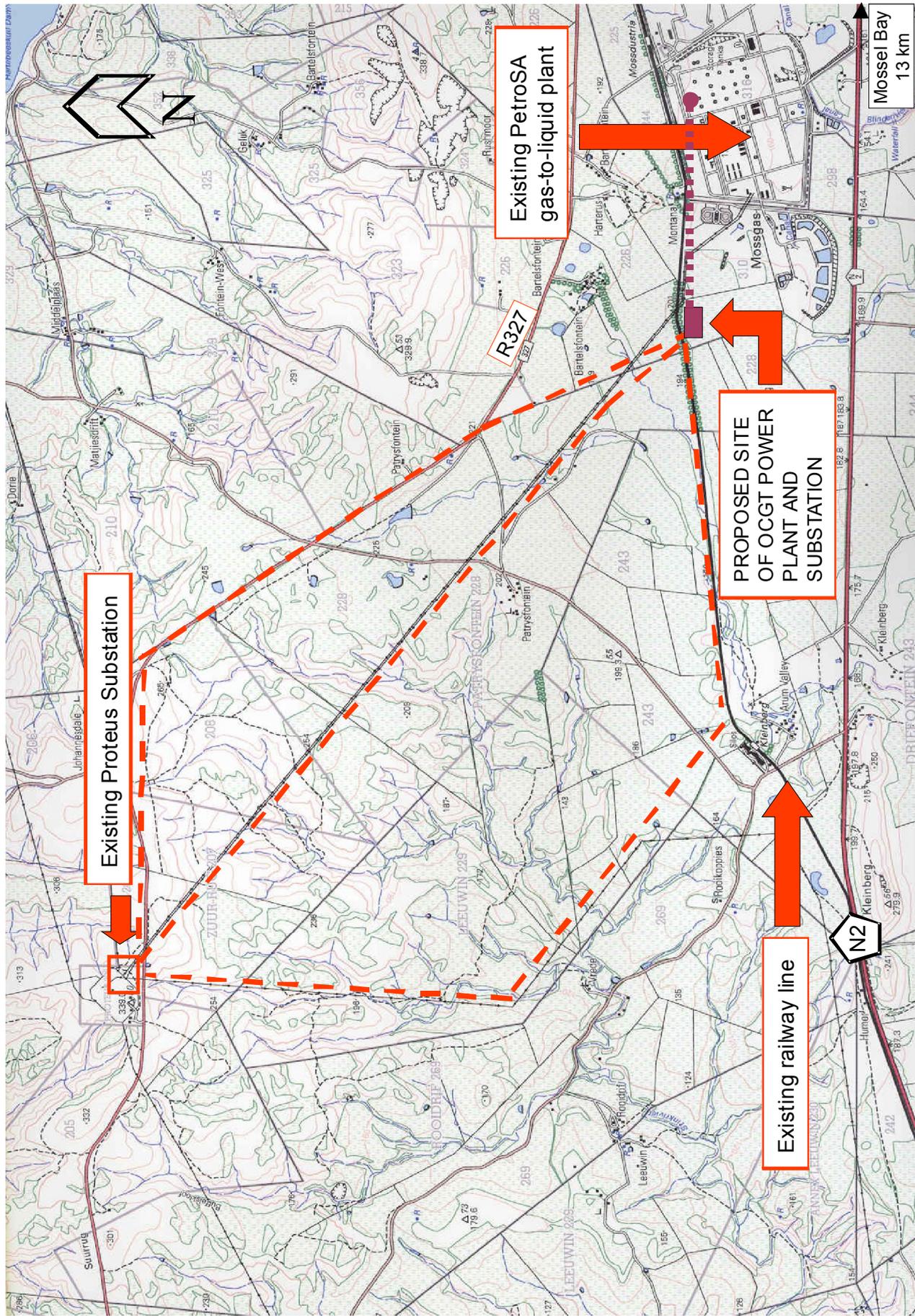
As a consequence of this forward planning process, two OCGT plants are proposed in the Western Cape, one in Atlantis near to Cape Town and the other adjacent to the PetroSA facility (previously known as Moss gas) near Mossel Bay. The information presented and EIA process described in this Background Information Document (BID) refers to the proposed Mossel Bay OCGT power plant and associated infrastructure only.

Ninham Shand Consulting Services has been appointed by Eskom to undertake an Environmental Impact Assessment (EIA) process for the activities relating to the proposed OCGT power plant, fuel supply pipeline, substation and transmission lines (Figure 1).

The purpose of this BID is to:

- ▶ Provide a background to and description of the proposed project;
- ▶ Describe the study process, particularly in terms of the opportunities for public participation (Figure 2); and
- ▶ Invite Interested and Affected Parties (I&APs) to register as participants in the process and to raise any issues or concerns they may have regarding the project.





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 Source: 1:50 000 topographical sheet 3421 BB Herbertsdale

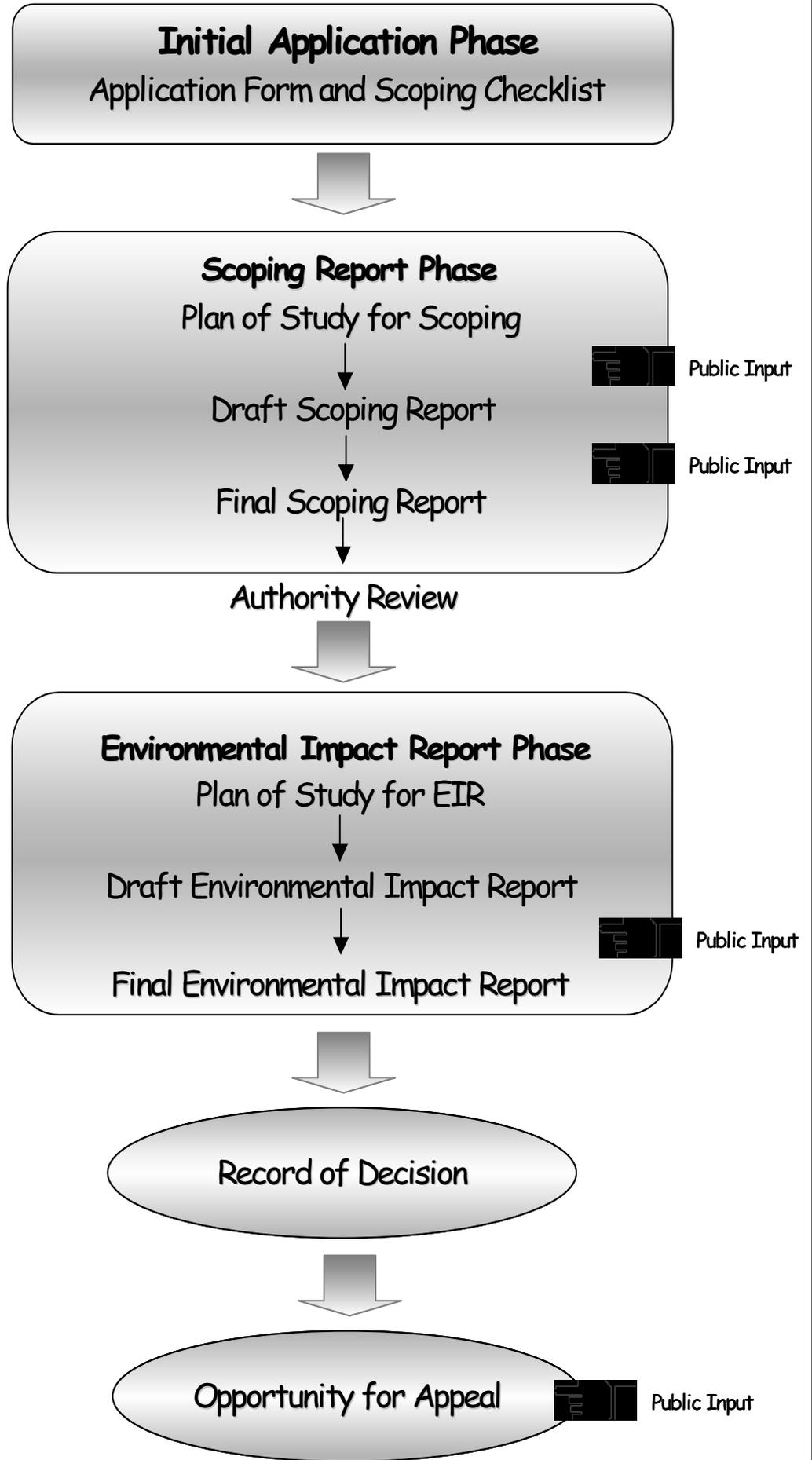
SCHEMATIC FUEL PIPELINE

ROUTE ALTERNATIVES FOR TRANSMISSION LINES

Background Information Document  
 Mossel Bay OCGT EIA: April 2005

Figure 1: Location map





**Figure 2: Environmental Impact Assessment process**



## The proposed project

In essence, an OCGT power plant produces electricity by means of hot gas that turns a turbine, which powers a generator. The hot gas is produced by introducing fuel to compressed air in a combustion chamber. The fuel in this case would be kerosene and the plant would exhaust to the atmosphere.

The proposed project comprises the following components:

- ▶ The OCGT power plant (made up of three or four gas turbines with an output of 150 to 250 MW each) adjacent to the existing PetroSA facility. The footprint of the OCGT power plant and associated substation would be approximately 9 ha;
- ▶ A fuel supply pipeline to transport kerosene from the PetroSA facility to the OCGT plant;
- ▶ A substation adjacent to the OCGT plant, to feed the generated electricity to the transmission lines; and
- ▶ Two transmission lines of 400kV capacity each from the OCGT substation to Proteus substation, to introduce the generated electricity into the national grid. Proteus substation is approximately 10 km north west of PetroSA (see Figure 1).

It is envisaged that the OCGT power plant would operate for on average of 2 hours each morning and evening. This however is dependent on electricity demand and system requirements. It could thus be necessary to operate for up to 8 hours at a time.

## Legal requirements and EIA process

Regulation 1182, promulgated in terms of the Environment Conservation Act (ECA) (No 73 of 1989), identifies certain activities, which “*could have a substantial detrimental effect on the environment*”. These scheduled activities require environmental authorisation from the competent environmental authority.

With reference to the schedule, the “*construction, erection and upgrading of facilities for commercial electricity generation with an output of at least 10 megawatts and infrastructure for bulk supply*” and (with regard to any substance which is dangerous or hazardous and is controlled by national legislation), “*the construction, erection and upgrading of infrastructure ... for the transportation of any such substance; and (the) manufacturing, storage, handling, treatment or processing facilities for any such substance*” are such listed activities. Accordingly, the proposed OCGT power plant, fuel supply pipeline, substation and transmission lines require authorisation from the competent environmental authority via the EIA process outlined in Regulation 1183 of the ECA. This EIA process is summarised in Figure 2. Although the primary trigger of the ECA regulations is the generation and transport of electricity, the proposed project also entails other activities that are listed in terms of Regulation 1182. These activities include the access road to the OCGT plant and the emissions that trigger the Atmospheric Pollution Prevention Act (No. 45 of 1965).



The EIA process consists of a Scoping Report Phase and an Environmental Impact Report (EIR) Phase. The purpose of the Scoping Report Phase is to identify and outline potential positive and negative environmental impacts, both social and biophysical, associated with the proposed project. Public participation forms an integral component of both the Scoping and EIR Phases.

The Scoping Report will identify those aspects that will require specialist investigation and assessment during the EIR Phase. To date, the following specialist studies have been identified as being necessary:

Specialist study	Specialist undertaking the work
Air quality impacts and risk management	AirShed Planning Professionals
Noise impacts	Jongens Keet Associates
Visual impacts	CNdV africa
Botanical impacts	Nick Helme Botanical Surveys
Avifaunal impacts	Ninham Shand
Heritage resources impacts	Archaeology Contracts Office
Socio-economic impacts	Urban-Econ

Provision has also been made for a review of the entire process by a recognized review consultancy, Mark Wood Environmental Consultants.

## Consideration of Alternatives

This project has been informed by strategic investigations that have been undertaken by Eskom, viz. the ISEP and site screening processes. These investigations will be reviewed and vetted by the environmental team before presenting them as the point of departure for this EIA process. The public would have the opportunity to comment on these investigations at the start of the Public Participation Process, although these high-level alternatives will only be considered as part of the review of Eskom's strategic planning.

There are several project level alternatives that will be evaluated during the EIA process. These include:

- ▶ Fine scale location of the OCGT power plant and substation on the proposed property;
- ▶ Emission control measures;
- ▶ Alignment of the transmission lines;
- ▶ The type of transmission line tower design used; and
- ▶ Alignment of the fuel supply pipeline and access road.

Following the identification of the complete set of project alternatives, the financial, technical and environmental implications of each alternative would be screened during the Scoping Report Phase. Feasible alternatives would be identified for comparative assessment during the EIR Phase.



## Public Participation

### Phase 1

The primary purpose of this phase is to present the motivation for the proposed project and elicit issues and comments that I&APs (the public and key stakeholders) may have in this regard. Phase 1 comprises the following steps.

- ▶ Undertaking initial consultation with key stakeholders (viz. affected landowners, local authorities etc.);
- ▶ Advertising the project in local, regional and national newspapers, inviting registration of I&APs and eliciting initial comment;
- ▶ Making this BID available to identified I&APs;
- ▶ Holding a public forum for key stakeholders and the public at large;

### Phase 2

The primary purpose of Phase 2 is to present the draft Scoping Report to I&APs, to show how their comments to date have been incorporated into the report and to elicit any additional issues of concern and/ or comment. Phase 2 comprises the following steps:

- ▶ Incorporating public comment received into the Draft Scoping Report, as an Issues Trail;
- ▶ Lodging the Draft Scoping Report in public libraries/ municipal offices and on the Eskom project website;
- ▶ Holding a second public forum to present the Draft Scoping Report. All registered I&APs will be notified of the meeting and lodging of the report and be provided with copies of the Executive Summary by mail;

### Phase 3

Phase 3 is aimed at presenting the draft Environmental Impact Report (EIR) to I&APs. This phase comprises:

- ▶ Lodging the Draft EIR in public libraries/ municipal offices and on the Eskom project website;
- ▶ Holding a final public forum to present the Draft EIR. All registered I&APs will be notified of the meeting and lodging of the report and be provided with copies of the Executive Summary by mail;
- ▶ Finalising the EIR by incorporating all public comment received into an updated Issues Trail; and
- ▶ Notifying registered I&APs of the outcome of the EIA process.

### Phase 4

This is the 30 day appeal period, during which I&APs have the opportunity to appeal against the Record of Decision (ROD) issued by the environmental authority. The appeal period commences as soon as the ROD is issued.



A three-week comment period is provided for each of the iterations in public participation.

The requirements of the EIR Phase would be informed by the findings of the Scoping Report. Accordingly, a Plan of Study for EIR (which would outline the approach to the EIR phase with respect to alternatives to be assessed and the Terms of Reference for the Specialist studies) would be included in the Scoping Report and would therefore be open to public review.

The key stakeholders identified to date comprise the following:

- ▶ Affected landowners, viz.
  - Patryfontein
  - Leeuwin
  - Haelkraal
  - Bartelsfontein
  - Harterus
  - Buffelskloof
  - Zuurrug;
- ▶ PetroSA;
- ▶ Voelvlei Farmers Union;
- ▶ Ward Councillor;
- ▶ Municipal Planning Dept;
- ▶ Municipal Electrical Dept;
- ▶ Mossel Bay Environmental Partnership;
- ▶ WESSA, Southern Cape;
- ▶ Earthlife Africa;
- ▶ Cape Nature;
- ▶ Energy Research Centre;
- ▶ Telkom;
- ▶ Dept of Trade & Industry;
- ▶ Dept of Minerals & Energy;
- ▶ Civil Aviation Authority;
- ▶ Spoornet; and
- ▶ National Energy Regulator.

This is by no means a complete list and if you know of any other I&APs that we have not yet identified, please let us know.



## How you can get involved

You have been identified as an I&AP due to your possible interest in the project, through your involvement in the initial public consultation, or as a result of your response to the press adverts. Should you wish to raise any issues of concern regarding the proposed project, please complete the attached Response Form and return it to Ninham Shand by fax or by using the postage paid envelope provided.

If you wish to receive further information, invitations to meetings, etc. please register yourself as an I&AP. You can register online at [www.eskom.co.za/EIA](http://www.eskom.co.za/EIA), (where the various reports will also be available as the process unfolds), or by contacting the following people.

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