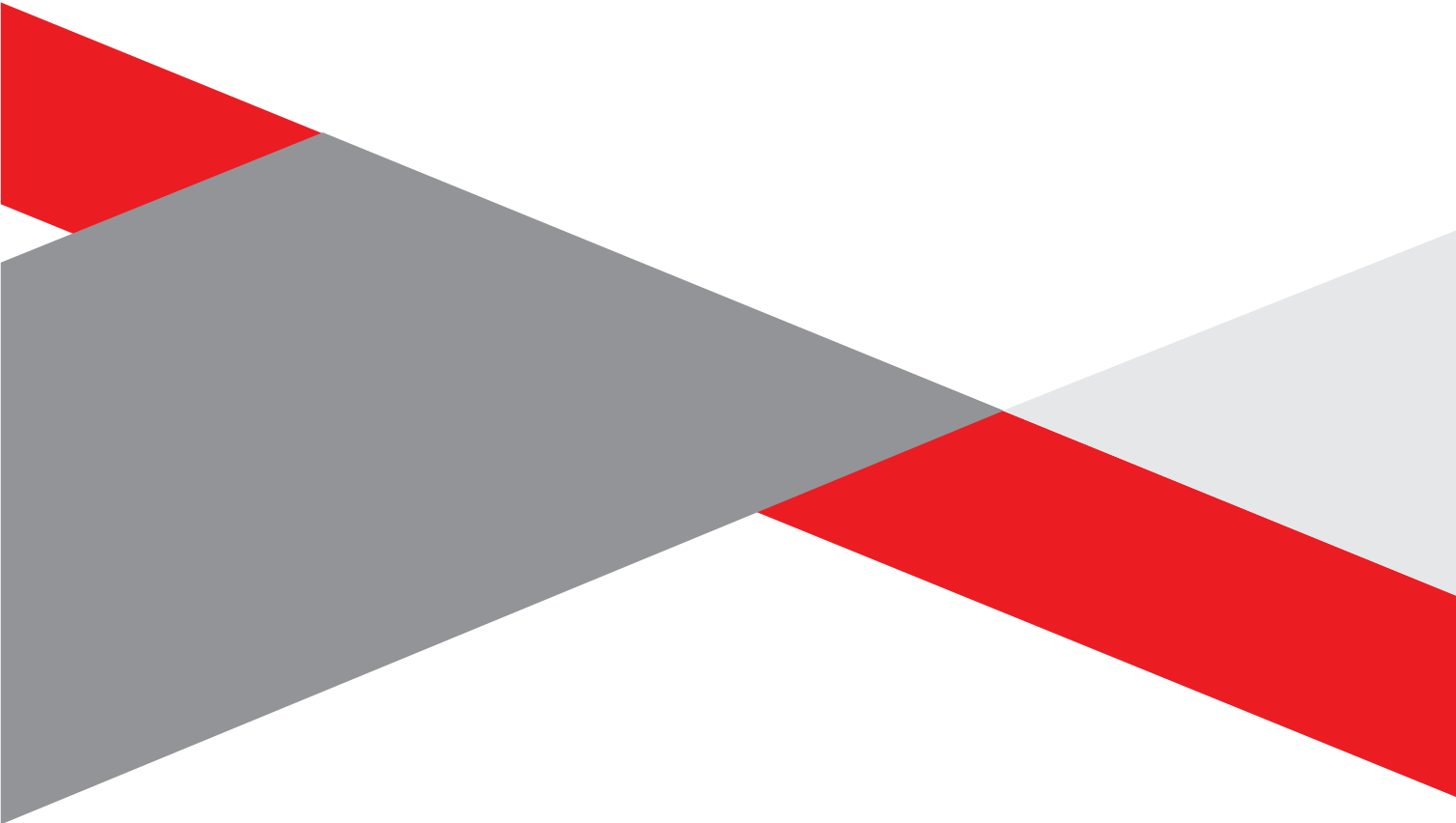


**APPENDIX C4**  
**BACKGROUND INFORMATION DOCUMENT**



NOVEMBER  
2021



ENVIRONMENTAL IMPACT ASSESSMENT PROCESS AND PUBLIC PARTICIPATION  
PROCESS

**PHAKWE RICHARDS BAY GAS POWER 3 (PTY) LTD (PRBGP3) COMBINED CYCLE (CC) GAS TO  
POWER PLANT, WITH A CAPACITY OF UP TO 2000MW LOCATED ON VARIOUS ERVEN WITH-  
IN THE RICHARDS BAY IDZ PHASE 1F, RICHARDS BAY,**

KWAZULU NATAL PROVINCE

Phakwe Richards Bay Gas Power 3 (Pty) Ltd (the Applicant) proposes the development of a combined cycle (CC) gas to power plant, with a capacity of up to 2 000MW, on various erven within the Richards Bay IDZ Phase 1F, Richards Bay. The proposed project is to be known as the Phakwe Richards Bay Gas Power 3 CCPP. The project site is located approximately 5km north-east of Richards Bay and 1km north of the suburb of Alton, within the jurisdiction of the City of uMhlathuze Local Municipality and the King Cetshwayo District Municipality, KwaZulu-Natal Province.

The Combined Cycle Power Plant and associated infrastructure is proposed in response to the provision for gas-to-power technology as part of the energy mix within the Integrated Resource Plan (IRP), 2019, and is planned to be bid into future procurement processes to be initiated by the Department of Mineral Resources and Energy (DMRE).

### What does this document tell you?

This document aims to provide Interested and/or Affected Parties (I&APs), with:

- Information on the proposed Combined Cycle Power Plant (CCPP) and associated infrastructures, with a generating capacity of up to 2000MW.
- An overview of the Environmental Impact Assessment (EIA) process and environmental studies being undertaken to assess the proposed Combined Cycle Power Plant (CCPP) and associated infrastructures, with a generating capacity of up to 2000MW.
- Details of how you can become involved in the EIA and BA processes, receive information, or raise issues, which may concern and/or interest you.

### Overview of the proposed project.

The Phakwe Richards Bay Gas Power 3 CCPP and associated infrastructure is proposed to be constructed on erven 16820, 16819,1/16674 and a subdivision of erf 17442 within the Richards Bay IDZ Zone 1F, and will occupy approximately 11.8ha (refer to attached map).

The power plant will operate at mid-merit to baseload duty and will include the following main infrastructure:

- A number of gas turbines for the generation of electricity through the use of natural gas (liquid or gas forms), or a mixture of Natural gas and Hydrogen (in a proportion scaling up from 20% H<sub>2</sub>) as fuel source, operating all turbines at mid-merit or baseload (estimated 16 to 24 hours daily operation).
- Exhaust stacks associated with each gas turbine.
- A number of Heat Recovery Steam Generator (HRSG) to generate steam by capturing the heat from the turbine exhaust.
- A number of steam turbines to generate additional electricity by means of the steam generated by the HRSG.
- The water treatment plant will demineralise incoming water from municipal or similar supply, to the gas turbine and steam cycle requirements. The water treatment plant will produce two parts demineralised water and reject one-part brine, which will be discharged to the R IDZ stormwater system.
- Steam turbine water system will be a closed cycle with air cooled condensers. Make-up water will be required to replace blow down.
- Air cooled condensers to condensate used steam from the steam turbine.
- Compressed air station to supply service and process air.
- Water pipelines and water tanks for storage and distributing of process water. (Potential sourcing of alternative water outside RB IDZ supply (Municipality))
- Water retention pond
- Closed Fin-fan coolers to cool lubrication oil for the gas turbines
- Gas generator Lubrication Oil System.
- Gas pipeline supply conditioning process facility. Please note, gas supply will be via dedicated pipeline from the proposed Transnet supply pipeline network of Richards Bay (the location of this network has not yet been confirmed) or, alternatively directly from the Regasification facilities at RB Harbour. The gas pipeline will be separately authorized.

- Site water facilities including potable water, storm water, waste water
- Fire water (FW) storage and FW system
- Diesel emergency generator for start-up operation.
- Onsite fuel conditioning including heating system.
- All underground services: This includes stormwater and wastewater.

#### Ancillary infrastructure including:

- Roads (access and internal);
- Warehousing and buildings;
- Workshop building;
- Fire water pump building;
- Administration and Control Building;
- Ablution facilities;
- Storage facilities;
- Guard House;
- Fencing;
- Maintenance and cleaning area;
- Operational and maintenance control centre;

#### Electrical facilities including:

- Power evacuation including GCBs, GSU transformers, MV busbar, HV cabling and 1x275kV or 400kV GIS Power Plant substation.
- Generators and auxiliaries;
- Eskom 275 or 400kV GIS interface Substation, Underground 275 or 400kV power cabling connecting Power Plant GIS substation and Eskom GIS Interface substation and an overhead 275kV or 400kV power line connecting the Eskom interface substation to the selected Eskom grid connection point (all subject to a separate environmental authorisation application):

#### Service infrastructure including:

- Stormwater channels;
- Water pipelines
- Temporary work areas during the construction phase (laydown areas)

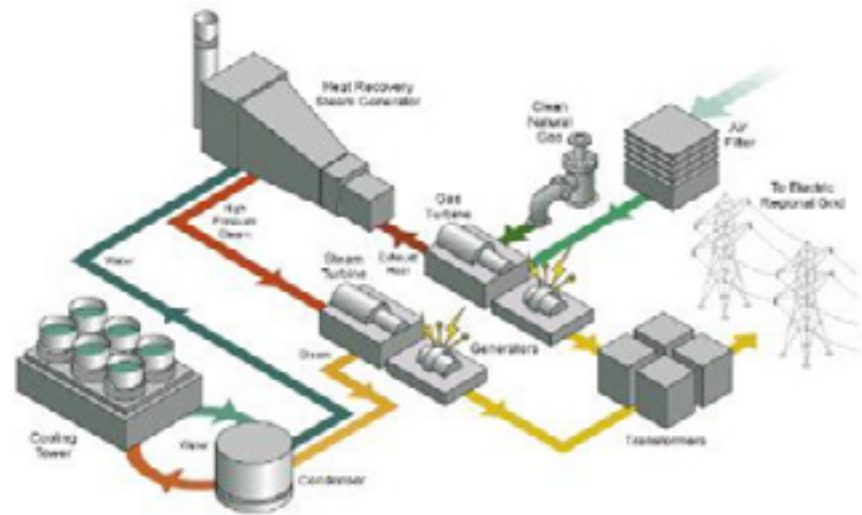
A dedicated pipeline to connect into an on-site gas receiving and conditioning station will provide the natural gas or the mixture of natural gas and Hydrogen. The pipeline will be connected to the proposed Transnet supply pipeline network of Richards Bay (the location of this network has not yet been confirmed), or it will extend directly to the Regasification facilities in the Richards Bay Harbour. A separate EIA process will be undertaken for the dedicated fuel-supply pipeline.



### Technology overview – combined cycle power plant (ccpp)

A combined cycle power plant (CCPP) uses a gas turbine generator to generate electricity and the waste heat is used to make steam to generate additional electricity via a steam turbine. The CCPP is one of the most efficient power generating facilities to convert either natural gas (liquid or gas forms), or a mixture of natural gas and hydrogen to mechanical power or electricity. The general process followed by the operation of a CCPP which increases energy efficiency of a power resource and electrical output is described below:

1. A gas turbine burns fuel, which will be either natural gas or a mixture of natural gas and hydrogen.
  - The gas turbine compresses air and mixes it with fuel which is combusted to produce high temperature combustion gases. The high temperature combustion gases pass through a gas turbine resulting in the rotation of the turbine blades.
  - The rotational movement of the turbine blades at a high speed drives a generator which converts a portion of the energy produced by the rotational blades into electricity.
2. A heat recovery system captures exhaust heat.
  - The exhaust waste heat generated from the gas turbine enters the Heat Recovery Steam Generator (HRSG).
  - The HRSG captures exhaust heat from the combustion gases to produce high temperature and pressure steam.
3. Delivery of additional electricity through the operation of a steam turbine.
  - Steam produced from the HRSG is delivered to the steam turbine that sends its energy to the generator drive shaft, where it is converted into additional electricity making the power plant energy efficient.



**Figure 1:** Schematic of Combined Cycle Gas-fired Power Generation Process

The proposed CCPP will generate up to 2000MW using natural gas (LNG, or similar), or a mixture of natural gas and hydrogen. The number and capacity of gas and steam turbines is dependent on the final layout of the plant.

Gas-fired and combined cycle power plants may also be regarded as a key technology to improve power production to meet demand, and for decarbonisation, as it reduces the carbon footprint of electricity compared with coal and oil-fired power plants. It may also complement the implementation of renewable energy sources, as it balances power supply from renewable sources and stabilises electricity grids.<sup>1</sup>



## Environmental Impact Assessment Process

The development of the 2000MW Phakwe Richards Bay Gas Power 3 CCPP, and associated infrastructure requires Environmental Authorisation (EA) from the National Department of Forestry, Fisheries and the Environment (DFFE), in consultation with the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (EDTEA) in accordance with the National Environmental Management Act (No. 107 of 1998) (NEMA), as read with the EIA Regulations, GNR 324-327 of 4 December 2014, as amended. In this regard, the application for EA for the CCPP is subject to the completion of a Scoping & EIA process. An EIA process is an effective planning and decision-making tool. It allows the environmental consequences of a proposed development to be identified and appropriately managed. It also provides the opportunity for the developer to be forewarned of potential environmental issues, and facilitates dialogue with I&APs.

In accordance with the requirements of the EIA Regulations, the Applicant has initiated the EIA process for the project, and has appointed Savannah Environmental as the independent consultant to undertake the required comprehensive, independent environmental studies. These studies will aim during the course of the EIA process to identify and assess potential environmental impacts and propose appropriate mitigation measures to inform an EA and an Environmental Management Programme (EMP). I&APs will be actively involved throughout the EIA through the public consultation process.

## Potential Environmental Impacts Associated with the Proposed Project

A high-level evaluation of the project site has been undertaken in order to identify specialist studies required to assess potential impacts associated with the project. Based on this study, as well as results from the DFFE online screening tool and an understanding of the project scope at this stage in the process, the following potential environmental impacts are expected to be associated with the project:

- Impacts on ecology including flora, fauna, avifauna
- Impacts on wetlands and freshwater resources
- Impacts on soil and land capability
- Impacts on air quality
- Impacts on climate change
- Health impacts
- Impacts on heritage resources (i.e. archaeology and palaeontology)
- Impacts on ambient noise levels
- Visual impacts
- Traffic impacts
- Impacts on the socio-economic environment

Specialist studies will be undertaken as part of the EIA process to assess the above-mentioned impacts. These studies will identify and assess potentially significant direct, indirect and cumulative impacts based on existing information, on-site field observations and investigations and input from the public participation process. Mitigation measures and recommendations to minimise potentially significant impacts will be identified and included in the site specific EMP.

## Public Participation Process

The sharing of information forms the basis of the public participation process and offers I&APs the opportunity to become actively involved in the EIA process. The public participation process aims to ensure that:

- Information containing all relevant facts in respect of the application is made available to I&APs for review.
- I&AP participation is facilitated in such a manner that they are provided with reasonable opportunity to comment on the proposed project.
- Adequate review periods are provided for I&APs to comment on the findings of the Scoping and EIA processes.

In order to ensure effective participation, the public participation process includes the following:

- Identifying I&APs, including affected and adjacent landowners and occupiers of land, and relevant Organs of State.
- Placing site notices at the affected properties.
- Placing advertisements in local newspapers announcing the EIA process and availability of various reports, and inviting comment.
- Live read radio announcements announcing the EIA process and availability of various reports, and inviting comment.
- Compiling and maintaining a database of I&APs throughout the EIA process.
- Notifying registered I&APs of the commencement of the EIA process, and distributing a Background Information Document (BID).
- Notifying registered I&APs of relevant milestones throughout the EIA process.
- Notifying registered I&APs of the release of the Scoping and EIA Assessment reports for 30-day public review periods.
- Holding consultation meetings with I&APs at various intervals throughout the process applicable to provide an opportunity for I&APs to engage with the EIA project team. Meetings will be held via an appropriate virtual platform or face-to-face where sanitary conditions can be maintained and compliance with COVID-19 Regulations can be assured.
- Notifying registered I&APs of DEFF's final decision on whether to grant or refuse Environmental Authorisation (EA), and the manner in which such a decision may be appealed.

The restrictions enforced in terms of Government Gazette 43096 which placed the country in a national state of disaster limiting the movement of people to curb the spread of the COVID-19 virus has placed some limitations on the commencement and undertaking of the public consultation as part of an EIA process. Alternative means of undertaking consultation has been designed and will be implemented by Savannah Environmental to ensure that I&APs are afforded sufficient opportunity to raise comments on the project through an interactive web-based platform readily available and accessible to any person illustrating interest in the project and enables the public participation process to be undertaken in line with Regulations 41 to 44 of the EIA Regulations, 2014, as amended. Where access to this online platform is not possible by an I&AP, alternative arrangements for participation will be made.

Participation in the EIA process is encouraged from I&APs during the EIA process in order to ensure that potential impacts are considered within the environmental studies. Persons with special needs can contact the relevant contact person below.

#### **Your Responsibilities as an I&AP**

In terms of the 2014 EIA Regulations, as amended, your attention is drawn to your responsibilities as an I&AP:

- In order to participate in the EIA process you must register yourself on the project database.
- You must ensure that any comments regarding the proposed project are submitted within the stipulated timeframes.
- You are required to disclose any direct business, financial, personal or other interest you may have in the approval or refusal of the application for the proposed project.

#### **How to become involved**

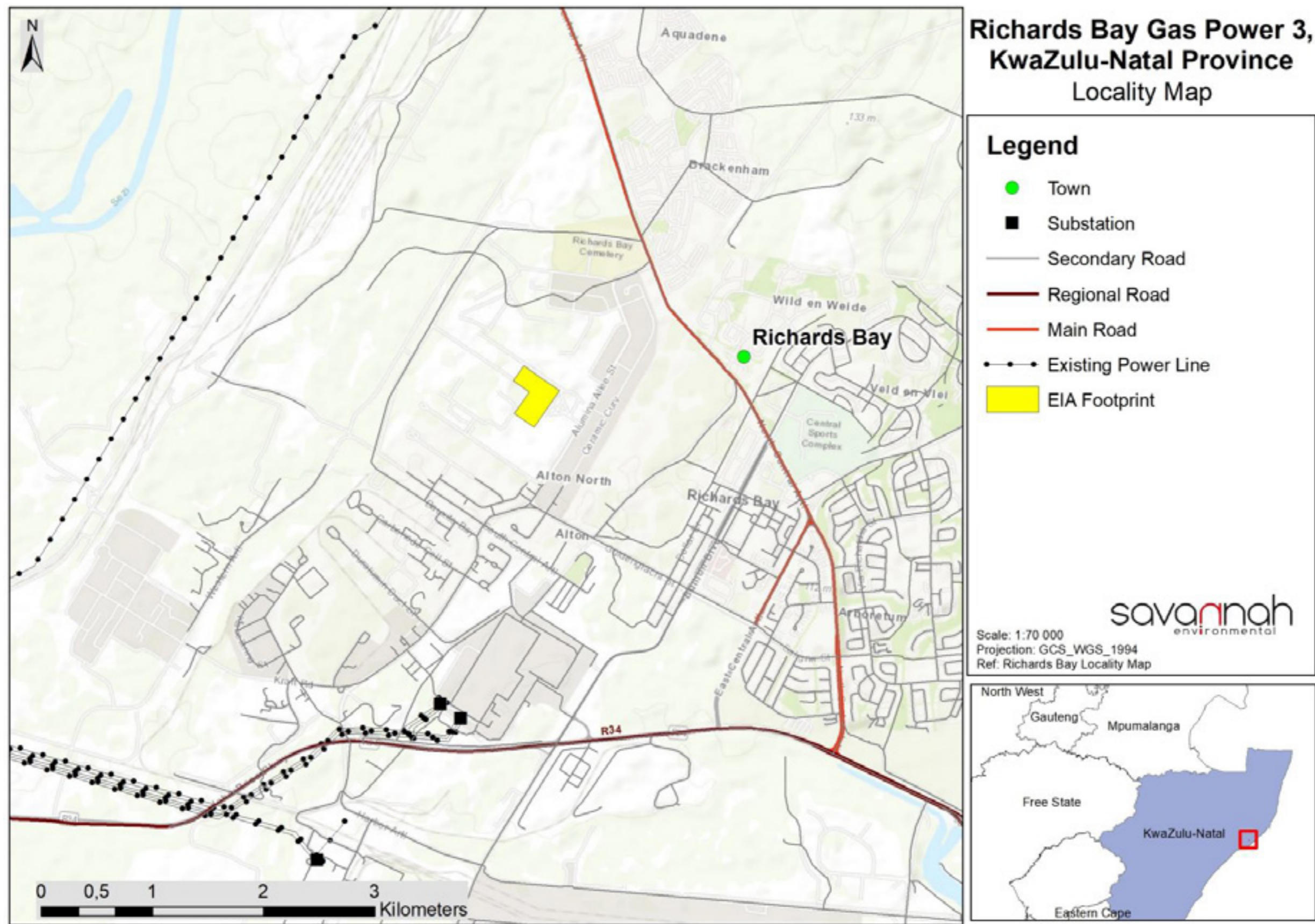
1. By responding by phone, fax or e-mail to the invitation for your involvement.
2. By returning the reply form to the relevant contact person.
3. By attending meetings to be held during the course of the process.
4. By contacting the consultants with queries or comments.
5. By reviewing and commenting on the Scoping, EIA and Basic Assessment Reports within the stipulated 30-day review periods.

If you consider yourself an I&AP for this project, we urge you to make use of the opportunities created by the public participation process to provide comment, raise issues and concerns which affect and/or interest you, or request further information. Your input forms a key element of the EIA process.

By completing and submitting the accompanying reply form, you automatically register yourself as an I&AP for the proposed project, and are ensured that your comments, concerns, or queries raised regarding the project will be noted. Please note that all comments received will be included in the project documentation. This may include personal information.



Figure 2: Locality map showing the location of the 2000MW CCPP site proposed in the Richards Bay IDZ





## COMMENTS AND QUERIES

Direct all comments, queries or responses to:

*Savannah Environmental*  
*Nicolene Venter*  
P.O. Box 148, Sunninghill, 2157  
Tel: 011 656 3237  
Fax: 086 684 0547  
Email: [publicprocess@savannahsa.com](mailto:publicprocess@savannahsa.com)

To view project documentation, visit  
[www.savannahSA.com](http://www.savannahSA.com)





**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND  
PUBLIC PARTICIPATION PROCESSES  
THE RICHARD BAY GAS-TO-POWER 3 2000MW COMBINED CYCLE POWER PLANT,  
RICHARDS BAY IDZ ZONE 1F, RICHARDS BAY, KWAZULU-NATAL PROVINCE  
REGISTRATION & COMMENT FORM**

Return completed reply form to: **Nicolene Venter** at *Savannah Environmental*

**Phone:** 011 656 3237

**Mobile:** 060 978 8396 (also include *please call me*)

**Fax:** 086 684 0547

**E-mail:** [publicprocess@savannahsa.com](mailto:publicprocess@savannahsa.com)

**Postal Address:** PO Box 148, Sunninghill, 2157

**Please provide your complete contact details:**

Name & Surname:			
Organisation & Designation:			
Postal Address:			
Telephone:		Fax:	
Cellphone:			
E-mail:			

**Would you like to register as an interested and affected party (I&AP)?** YES   
 (please tick the relevant box) NO

Note: You are required to register as an I&AP to receive further correspondence regarding the EIA process for the project and to comment on the Reports.

**Please state your interest in the project** (add additional pages if necessary):

**Please list your comments regarding the project** (add additional pages if necessary):

**Please provide contact details of other persons who you regard as a potential interested or affected party:**

Name & Surname:			
Organisation & Designation:			
Postal Address:			
Telephone:		Fax:	
Cell phone:			
E-mail:			