

## **11. PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT**

Potential environmental impacts (biophysical, social and economic) associated with the proposed Combined Cycle Gas Turbine (CCGT) power plant have been identified by the specialists as well as through the public participation process in the Environmental Scoping Study (ESS). All potentially significant impacts will be further investigated and assessed within the Environmental Impact Assessment (EIA) phase of the project through specialist studies. These studies will consider the sites identified in the scoping phase for detailed evaluation in the EIA phase, namely Sites 1; 3a and 3b. Each site will be investigated with its associated infrastructure. Mitigation measures will be proposed from each specialist field for each site, as a means to mitigate impacts, and these will be contained in the Environmental Management Plan (EMP) to be compiled during the EIA phase.

The EIA phase will aim to adequately investigate and address all potentially significant environmental issues in order to provide the Department of Environmental Affairs and Tourism (DEAT – the lead authority) and the Mpumalanga Department of Agriculture and Land Affairs (MDALA – commenting authority) with sufficient information to make an informed decision regarding the proposed project.

### **11.1. Approach to Undertaking the Environmental Impact Assessment Phase of the Project**

The following outlines the proposed approach to undertaking the EIA phase of the project. It is believed that the proposed approach will adequately fulfill the environmental authorities' requirements, the requirements of the EIA Regulations (2006) and the objectives of environmental best practice, so as to ensure transparency and to allow an informed decision regarding the proposed project to be made.

#### ***11.1.1. Authority Consultation***

- ***Pre-application Consultation***

Telephonic consultation with the DEAT was initiated prior to the commencement of the environmental studies for the project, in order to determine the lead authority for the project as well as specific authority requirements regarding the proposed project. During these consultations, it was determined that DEAT would be the lead authority, with MDALA acting as the commenting authority.

- ***On going authority consultation***

Ongoing consultation with all relevant authorities, including DEAT, MDALA, the Department of Water Affairs and Forestry (DWAF), the South African National Heritage Resources Agency (SAHRA), the local and district municipalities (Pixley ka Seme Local Municipality and Gert Sibande District Municipality) and councils, and all other authorities identified during the

Environmental Scoping Study (ESS) phase of the project (and further ones that may be identified during the EIA phase) will continue throughout the duration of the project. Authority consultation is therefore seen as a continuous process that takes place through the duration of the environmental investigations.

- ***Subsequent meetings with Authorities***

Authority meetings will be held during the public review period of the draft Environmental Scoping Report (ESR) and during the EIA phase of the project– so as to ensure the Authorities' continued understanding of the proposed project and to ensure that all requirements of the Authorities are received by the environmental team, and included in the EIA phase.

### ***11.1.2. Application for Authorisation***

An application for authorisation in terms of Section 24(5) read with Section 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), in respect of activities identified in terms of Government Notice R386 and Government Notice R387 of the said Act was submitted to DEAT on 25 October 2007 for consideration.

The application was followed, upon acceptance of the application, by the ESS phase of the project which aimed to identify potential significant impacts associated with the proposed project and to nominate preferred alternative sites for detailed consideration within the EIA phase of the project.

## **11.2. The Environmental Impact Assessment Process**

### ***11.2.1. Aims of the Environmental Impact Assessment Phase***

The EIA will aim to achieve the following:

- to provide a detailed assessment of the social and biophysical environments affected by the proposed project;
- to assess impacts on the study area in terms of environmental criteria;
- to identify and recommend appropriate mitigation measures for potentially significant environmental impacts; and
- to undertake a fully inclusive public participation process to ensure that I&AP issues and concerns are recorded and addressed.

## **11.3. Detailed Specialist Studies to be undertaken as part of the EIA**

As required in the EIA process, a suite of specialist studies (each study undertaken by a specialist in that field) were proposed due to identified potential significant impacts they could pose on the environment. As part of the site selection and scoping exercises, the team of specialists attended site visits and specialist discussions/workshop to ensure the scope of

each specialist was presented as accurate as possible. The outcome of the workshop was the need to further investigation of all identified issues into the EIA phase, as best-practice and a means to fully understand their implications.

Each of the specialists involved has an extensive experience in their field to undertake the proposed detail of studies. Curriculum Vitae of the specialist team are available on request.

A description of each proposed specialist study and its Terms of Reference is provided below.

- **Potential Impacts on Soils and Agricultural Potential**

***Specialist input: Garry Paterson – Agricultural Research Council***

The soils and agricultural potential study was omitted for the Scoping Study as the Social Impact Assessment dealt with issues relating to the temporary loss of cultivated land and grazing land due to construction activities. During the public participation process, the need for a detailed soils and agricultural potential was highlighted and requested. In the EIA phase a detailed study will be conducted to determine the soil types of each preferred sites along with the agricultural potential that will be lost at each preferred sites.

- **Potential Impacts on Hydrogeology**

***Specialist input: Mark Stewart – SRK Consulting***

It is envisaged that based on the input of the various specialists (biophysical, social and economic), a maximum of three sites will be evaluated during the EIA phase of the proposed study. The construction and operational activities of the proposed project could result in seepages which could cause pollution or impacts on the groundwater regime.

The aim of the groundwater study is to:

- investigate and establish the status of the groundwater quality and quantity, through literature review and site visit to establish baseline conditions;
- predict how the proposed development could impact this resource;
- investigate possible sources of the groundwater contamination;
- determine the source of the groundwater and its flow characteristics;
- propose feasible mitigation measures for implementation to prevent or minimise impacts on this resource;
- identify groundwater users and usage on a radius of 2km around the site, to advise Eskom about possible risk to this resource;
- provide an opinion on cumulative impacts due to the development;
- offer an opinion on site layout in each site;
- provide an opinion on the preferred site from the groundwater perspective – with and without mitigation; and
- compile a report that reflects the above, including relevant mapping.

During the EIA study additional site-specific groundwater data will be compiled. The data will be obtained from a hydrocensus on the selected sites. It is proposed that due to lack of hydrochemical data, groundwater samples will be collected from existing boreholes, where possible. Groundwater levels, borehole yields, and usage will be determined to assist in assessing possible impacts on the groundwater resources. This data plus additional CCGT details will be compiled in a groundwater risk assessment to aid in developing optimal mitigation and management plans to reduce the impact of the CCGT power plant on the groundwater regime.

- **Potential Impacts on Hydrology**  
***Specialist input: Kevin Burse – SRK Consulting***

The construction activities of the proposed project could result in overflows and water escaping to the surface natural resources. The operational phase will be guided by the Zero-Liquid-Effluent-Discharge philosophy adopted and complied with throughout Eskom operations.

This study will entail a thorough examination of the preferred sites from a hydrological perspective, making informed assessments as to the repercussions of the proposed CCGT power plant on the surface water resources locally and regionally with a view of both the primary and secondary effects.

The proposed Terms of Reference for the hydrology study follow:

- Source and review baseline information;
- site inspection to assess local hydrology;
- review water supply details to the CCGT plant – inter-catchment transfer schemes taken into account and incorporating an accurate water balance for the plant;
- assessing the local climate;
- pre- and post development description of the hydrology, focussing on mean annual runoff, peak flows and volumes, drainage density and water quality studies including sampling and utilising the DWAF databases;
- assessing the local infrastructure, including the dams in the vicinity, their size, their specific water uses and what the probability of breaking or not with the increased water supply needed in the area. The dams supplying the CCGT Plant will be included in the water balance as well. The stormwater flow reticulation design will be in the form of a network of drainage system. The infrastructure will also include a stormwater dam to capture the water temporarily to be sent off to the water treatment plant;
- controlling erosion, pollutants as well as industrial and domestic waste;
- assess if there are any fatal flaws or environmental conflicts;
- the downstream water users would need to be considered in terms of water availability, water quality and their ability to continue with their livelihoods;
- provide an opinion on cumulative impacts due to the development;
- offer an opinion on site layout in each site;
- provide an opinion on the preferred site from the hydrology perspective – with and without mitigation; and
- compile a report that reflects the above, including relevant mapping.

- **Potential impacts on Biodiversity (Terrestrial and Aquatic)**

- \* **Flora**

- Specialist input: Riaan Robbeson – Bathusi Environmental Consulting***

Considering the findings of the vegetation Scoping study it is likely that there will be impacts on the vegetation associated with the CCGT power plant. Areas that constitute pristine natural grasslands, rocky outcrops and riparian vegetation/areas are not regarded suitable for the proposed development. Conversely, the proposed sites that are characterised by, or situated in close proximity to transformed and degraded habitat will be regarded more suitable for the proposed development.

Floral aspects that will be taken into account in the EIA phase include:

- the potential/ confirmed presence of Red Data flora or fauna species;
- the presence of sensitive habitat types;
- untransformed regional vegetation types; and
- areas that are generally regarded as sensitive (ridges, outcrops, rivers, wetlands, etc.).

The Terms of Reference for the floristic impact evaluation is as follows:

- source and review baseline information;
- survey environmentally sensitive areas in order to verify results of the GIS modelling;
- survey representative areas in order to obtain a clear understanding of the nature of sensitivity in specific sites;
- survey the area for general floristic diversity (common species, Red Data floral species, alien and invasive plant species);
- describe the status and importance of any primary vegetation;
- conduct a basic slope sensitivity analysis;
- address all issues relating to cultural landscapes, including:
  - \* detailed site investigations;
  - \* sensitivity analysis;
  - \* Site descriptions and recommendations
- compile an ecological impact evaluation, taking the following aspects into consideration:
  - \* the relationship of potential impacts to temporal scales and spatial;
  - \* the severity of potential impacts;
  - \* the risk or likelihood of potential impacts occurring;
  - \* the degree of confidence placed in the assessment of potential impacts;
- map all relevant aspects;
- recommend preferred site variants based on results of the ecological impact evaluation;
- liaise with other specialists to create a holistic understanding of likely impacts on flora
- provide an opinion on cumulative impacts due to the development;
- offer an opinion on site layout in each site;
- provide an opinion on the preferred site from the floral specialist field – with and without mitigation; and
- compile a report that reflects the above, including relevant mapping.

\* **Fauna**

***Specialist input: Dewald Kamfer – Bathusi Environmental Consulting***

Areas that constitute pristine natural grasslands, rocky outcrops and riparian zones are not regarded suitable for the proposed development. Conversely, the proposed sample plots that are characterised by, or situated in close proximity to transformed and degraded habitat is regarded more suitable for the proposed development. Further detailed faunal studies will therefore, be undertaken at and in the vicinity of the nominated preferred sites during the EIA phase of the project in order to determine the probability of the potential impacts identified within the study area as well as the significance of these impacts and to propose appropriate mitigation.

The Terms of Reference for the faunal impact evaluation is as follows:

- survey environmentally sensitive areas in order to verify results of the GIS modelling;
- survey representative areas in order to obtain a clear understanding of the nature of sensitivity in specific sites;
- survey the area for general faunal diversity (common species, Red Data faunal species);
- assess the potential presence of Red List faunal species;
- address all issues relating to cultural landscapes, including:
  - \* detailed site investigations;
  - \* sensitivity analysis;
  - \* site descriptions and recommendations
- compile an ecological impact evaluation, taking the following aspects into consideration:
  - \* the relationship of potential impacts to temporal scales;
  - \* the relationship of potential impacts to spatial scales;
  - \* the severity of potential impacts;
  - \* the risk or likelihood of potential impacts occurring;
  - \* the degree of confidence placed in the assessment of potential impacts;
- map all relevant aspects; and
- recommend preferred site variants based on results of the ecological impact evaluation.

• **Potential Impacts on Wetlands**

***Specialist input: Paul da Cruz – SiVEST***

A wetland delineation study was omitted from the Scoping study but will be conducted in the EIA phase for the preferred sites. The wetland delineation would be based on the DWAF guidelines 'A practical field procedure for the identification and delineation of wetlands and riparian areas', which stipulates that consideration be given to 4 specific wetland indicators to determine the boundary of the wetland.

The aim of the detailed field investigations will be to:

- Accurately delineate wetland boundaries within the 3 site footprints. This will be done through the methodology espoused within the DWAF guidelines 'A practical field procedure for the identification and delineation of wetlands and riparian areas', which

stipulates that consideration be given to 4 specific wetland indicators to determine the boundary of the wetland.

- Verify the initial classification of hydro-geomorphic form undertaken in the Scoping phase through analysis of wetland characteristics relating to parameters such as hydrology, topography and soil type
- **Potential Impacts on Air Quality**  
***Specialist input: Raylene Watson and Rebecca Thomas – Bohlweki Environmental (Air Quality Unit)***

In terms of this Air Quality Scoping assessment, the following sources of current air pollution have been identified:

- stack, vent and fugitive emissions from the existing Majuba power station operations;
- Flaring at the UCG operations;
- agricultural activities on the surrounding farms;
- vehicle entrained dust and exhaust emissions;
- domestic fuel burning; and
- veld fires.

By placing the proposed CCGT power plant adjacent to or within close proximity to the existing Majuba power station (and associated infrastructure), it is anticipated that the impacts will remain more localised, as opposed to placing the proposed operations further away from the existing infrastructure, thus spreading the impacts over a larger area. The exact impacts, however, can only be known once detailed modelling is undertaken, which will take into account the manner and rates at which emissions are released. Various operational scenarios and the meteorological data selected for use will also provide a better indication of the proposed impacts at the site.

A comprehensive baseline assessment, based on meteorological and air quality data recorded in the region, will be conducted to characterise baseline atmospheric pollution levels in the region. Site specific atmospheric dispersion potentials will be reviewed.

In order to provide a better indication of the extent of the impacts expected from the proposed construction and operational phases of this development, a dispersion modelling study will need to be undertaken in the EIA phase. An emissions inventory of all sources in the vicinity of the proposed CCGT will be compiled. The modelling study will take into account the nature of each source type and their respective emission rates. Dispersion model results are to be obtained for emissions from the power station only, as well as for cumulative impacts of emissions from the power station and other sources in the vicinity.

A number of scenarios will be modelled in order to assess the impact of the CCGT on ambient air quality, including:

- baseline conditions
- CCGT operating for 8, 12, and 24 hours a day
- effect of different technologies (which affect plant configuration and emission rates)
- effect of gas composition (which affect emission rates)

- impact of normal operation, start-up, shut-down and upset conditions

Once these impacts have been quantified, appropriate management measures can be suggested to best mitigate the predicted impacts. These modelled results will similarly allow for the assessment of compliance to current South African Ambient Air Quality Standards.

The following atmospheric pollutants are to be considered in the study:

- oxides of nitrogen
- sulphur dioxide
- carbon monoxide
- PM10
- volatile organic compounds

Technology and other options for air pollution mitigation are to be assessed for the CCGT. The effect of the emissions on human health and livestock is to be considered.

A recommendation is to be made on the most suitable site for the CCGT from an air quality perspective, based on the location of sources, and local meteorology and dispersion potential.

- **Potential Noise Impacts**

***Specialist input: Derek Cosijn – Jongen Keets Associates***

The major noise impacts are likely to occur during the construction phase and operational phases of the project at the preferred sites - will be assessed in detail during the EIA phase in which the level of significance of impact will be determined and feasible mitigation measures recommended. Detailed, site-specific mitigation and management measures will be developed for inclusion in the EMP in order to reduce the potential noise impact of the proposed CCGT power plant during the construction and operational phases.

The Terms of Reference for this study include:

- Collect baseline information on the noise levels in the area. This included identifying sources of noise pollution, accessing relevant data from other specialists and literature references, undertaking site visits for ground-truthing and taking necessary measurements);
- Establish the ambient noise levels at all sites (The National Noise Control Regulations and SANS 10103 should be used as the main guidelines for addressing the potential noise impact on this project);
- Determine the significance of noise impacts of the proposed development (this includes identifying potential noise source associated with construction and operation of the scheme; assess the impacts of such changes, establish the cumulative impacts resulting from such noise sources);
- Recommend mitigation measures to be implemented to minimise or eliminate the predicted noise impact on receptors;
- offer an opinion on site layout in each site;
- provide an opinion on the preferred site from the noise impact perspective – with and without mitigation; and



- compile a report that reflects the above, including relevant mapping.

- **Potential Social Impacts**

- ***Specialist input: Nonka Byker – Master-Q Research***

The points below outline the Terms of Reference for the studies to be carried out during the EIA Phase as part of the Social Impact Assessment.

- Undertake appropriate primary and secondary research to establish baseline socio-economic conditions at the sites and provide a profile of these;
- Determine activities that might be influenced by the development (both upstream and downstream);
- Establish how the proposed development accords with the local and regional planning framework;
- Determine if there are any other development proposals/policies being considered for approval in the study area and implications of the development on these;
- undertake social studies with respect to labour tenants should be done to much more detail within the EIA studies for future site selections by documenting the affected parties and determining costs and time to relocate such parties;
- advise on the initial phase whereby the cost and time for relocation of tenants for every site being considered are determined and taken into account for the selection of the final proposed site (This includes a detailed listing of all tenants affected per site and possible solutions i.e. monetary compensation or relocation to other land to be supplied by Eskom);
- the studies have to establish the number of communities, their stock, their employment status, any other assets they have because these would have impacts on any possible relocation;
- provide an opinion on the economic bearing towards the receiving environment, and this must be investigated;
- determine the cumulative impacts of the development, duration of the impacts;
- propose mitigation measures to reduce predicted negative impacts and enhance positive impacts;
- provide an opinion on the preferred site; and
- compile a report to reflect the above

In addition the following information gaps will be addressed during the EIA phase of the project:

- *Demographic change processes:*
  - \* determination of the expected population growth rate and how this would be influenced by the HIV infection rate in order to establish how the population would have expanded without the influx of construction workers and/or job seekers;
  - \* determination of the local residents' expectations in terms of the proposed project within the social realm, in order to better understand local residents' viewpoint on the proposed project and the potential risk for conflict and other forms of active and passive social mobilisation;

- \* the composition of the construction workforces in terms of size, skills levels, and origin;
  - \* the composition of the maintenance workforce and their activities;
  - \* the number of local employment opportunities; and
  - \* the expectations of the local communities in terms of employment opportunities.
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- *Economic change processes:*
    - \* the negotiation process with private landowners in terms of land acquisition, e.g. how compensation is calculated, when the process will take place, etc.
    - \* the local employment opportunities that will be created, both direct and indirect formal and informal job opportunities;
    - \* the expectations of the local communities in terms of employment opportunities; and
    - \* if available, the average period of employment and an outline of a typical salary package for unskilled labour.
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- *Empowerment and institutional change processes:*
    - \* the risk for attitude formation against the project (social mobilisation);
    - \* a settlement's ability to sustain an additional demand on municipal services and/or natural resources in the case of Daggakraal and Vlakplaats;
    - \* the negotiation process with private landowners in terms of land acquisition, e.g. how compensation is calculated, when and how the process will take place, etc.;
    - \* the capacity of the affected local municipality to be able to supply municipal services to both the construction site as well as the construction village (if a village is used to house construction workers); and
    - \* existing disaster management plans (if any) at power generating facilities such as Majuba power station.
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- *Socio-cultural change processes:*
    - \* the cultural dynamics of the existing settlements and their ability to accommodate and/or integrate workers from outside their community;
    - \* the current movement patterns of local residents e.g. do these residents move between Daggakraal and Vlakplaats, do they travel to Amersfoort for supplies, etc. Also, how do these residents move around, i.e. by motor vehicle, on foot, etc?
    - \* measures that are normally implemented at a construction site of this nature to secure the area and to control access;
    - \* the expected increase in noise levels as a result of the construction and operation of the proposed CCGT plant and associated infrastructure;
    - \* the daily activities of surrounding residents and their cultural attachment to the area;
    - \* the activities of maintenance workers and where these maintenance workers will be sourced from; and
    - \* the layout of the pipeline system, e.g. will it be above ground, how will it be secured, etc.

- *Geographical change processes:*
  - \* the size and number of expected construction and operational vehicles as well as which route(s) will be used to gain access to the various sites;
  - \* planned developments for the area; and
  - \* current and planned tourism activities and tourist destinations in the area.
  
- ***Micro-economic study***  
***Specialist input: Kayamandi Development Services***

The points below outline the variables that will be examined in the micro-economic study to be carried out during the EIA Phase:

- Level of education and education profile
- Employment status and/or means of livelihood
- Sources of employment, sector of employment, activities and uses of activities
- Employment and unemployment
- Social and economic linkages
- Migration
- Social pathologies
- Income levels,
- Types of skills
- Micro and macroeconomic structure
- Gross Geographic Product,
- Sectoral production,
- Growth rate,
- Employment and labour composition.

In addition the socio-economic cost will then be calculated on the basis of following aspects:

- loss/impact on primary and secondary resources (game lodges, nature reserves);
- loss of grazing land or other land use;
- loss of arable land;
- loss of irrigation land;
- loss of social facilities;
- loss of service infrastructure (existing and planned);
- loss of homesteads;
- water rights;
- mineral ownership; and
- other (services crossings, electrified railways, roads, airfields, dwellings)

- **Potential Visual Impacts**

***Specialist input: Dawie van Vuuren – MetroGIS***

An initial scanning level assessment of the above issues did not reveal any fatal flaws to be associated with the proposed CCGT plant. These issues should however still be investigated in greater detail in the EIA phase in order to scientifically motivate and/or identify any other mitigating/aggravating circumstances. The potential cumulative visual impact of the existing power station and the proposed project will also be addressed as a site-specific issue. Whereas the positioning of the CCGT facility within the alternative sites has not been determined yet, it is assumed that the closest possible location to the existing Majuba Power Station will be favourable from a visual point of view because of the existing visual impact.

As part of the EIA phase the following visual components will be integrated into a single visual impact matrix and spatially represented to arrive at more conclusive results:

- Visual distance/observer proximity to the facility (apply the principle of reduced impact over distance in a buffer analysis);
- 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) through use of tools like 3D modelling;
- Visually sensitive features (scenic features or attractions);
- General visual quality of the affected area;
- Visual absorption capacity of the natural 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;
- Offer an opinion on a preferred site from a visual perspective; and
- Produce a report with the above information.

- **Potential Impacts on Heritage**

***Specialist input: Johnny van Schalkwyk***

A full Phase 1 archaeological survey (including a walk-about of the footprints of the preferred sites and recording the presence of all heritage resources) of the selected sites in accordance with the requirements of Section 38(3) of the National Heritage Resources Act (Act 25 of 1999) will be conducted in the EIA phase. Site-specific, detailed management and mitigation measures will furthermore be compiled for inclusion in the Environmental Management Plan (EMP). The study should provide a map of the identified archaeological artefacts.

- **Potential Impacts on Risk**

***Specialist input: Mike Oberholzer - Riscom***

The risk assessment Terms of Reference for the EIA phase of the project include:

- provide a risk assessment associated with the materials to be stored or used in the construction and operation of the power station;
- provide an opinion on the consequences of a “worst-case” scenario impacts on the health of employees and surrounding communities;
- recommend appropriate mitigation measures to reduce or eliminate the risk;
- provide an opinion on site preference as far as risk is concerned;
- provide mapping where necessary; and
- compile a report reflecting results of the study (the report should clearly articulate if the installation would be considered a Major Hazardous Installation in accordance with legislation).

- **Potential Impacts on Traffic**

***Specialist input: Melanie Wright – SSI Engineers and Environmental Consultants***

In terms of traffic impacts, the following studies will be carried out in the EIA phase:

- Develop a baseline information on the current traffic status in the existing network in the area;
- Establish the fit of the traffic impact on any planning in the area;
- Review proposed road alignments (corridors) and advise Eskom as necessary;
- Impact of all traffic during both construction and operational phases;
- Liaise with other specialists to supplement with information from other areas;
- Provide an opinion on preference on the sites, from a traffic study point of view; and
- Compile a report to reflect on the above study, with appropriate mapping.

#### **11.4. Public Participation Process**

The primary aims for the public participation process include the following:

- serving as a structure for liaison and communication with I&APs for meaningful and timeous participation of I&APs;
- promoting transparency and an understanding of the proposed project and its potential environmental (social, economic and biophysical) impacts;
- accountability for information used for decision-making;
- assisting in identifying potential environmental (biophysical, social and economic) impacts associated with the proposed development;
- ensure inclusivity (the needs, interests and values of I&APs must be considered in the decision-making process); and
- encouragement of shared responsibility and a sense of ownership.

The public participation process during the EIA phase is outlined below:

#### **11.4.1. Advertising**

In compliance with the EIA Regulations, the commencement of the EIA phase of the project was advertised within the *Recorder* (local) and *City Press* (national) newspapers in the predominant languages (English, Afrikaans and Zulu) of the area. The primary aim of these advertisements was to ensure that the widest group of I&APs possible are informed of the project. Other advertisements to be placed during the course of the EIA phase of the project will relate to the availability of reports for public review, as well as the advertisement of dates of public meetings.

#### **11.4.2. Identification of and Consultation with I&APs and Key Stakeholders**

I&APs and Key Stakeholders have been identified during the ESS phase of the project. The identification of I&APs and Key Stakeholders will continue through into the EIA phase of the project as the public participation process is a continuous process that runs throughout the duration of an environmental investigation.

#### **11.4.3. I&AP Database**

The existing I&AP database provided by Eskom was utilised as a starting point. The identification of additional I&APs through existing contacts, responses to newspaper advertisements, networking and a proactive process to identify key I&APs within the nominated study area will continue in the EIA phase.

#### **11.4.4. Consultation and Public Involvement**

Consultation with I&APs is considered to be critical to the success of any EIA process. Therefore, one-on-one consultation, focus group meetings and public meetings with I&APs will be undertaken. The aim of this process will be to provide I&APs with details regarding the process and to obtain further comments regarding the proposed project. The information and comments gathered during these consultation sessions will also inform the detail of the studies to be undertaken at the EIA phase.

Minutes of all meetings held will be compiled and forwarded to all attendees. These minutes will also be included in the EIA Report. This consultation process will be on-going throughout the process.

- Open Day and Public Meeting

An Open Day and public meeting will be held during the review period of the draft Environmental Impact Report in order to inform I&APs of the proposed project. The primary aims of this meeting will be to:

- \* provide I&APs and stakeholders with information regarding the proposed CCGT and associated infrastructure;

- \* provide I&APs and stakeholders with information regarding the EIA process;
  - \* provide an opportunity for I&APs and stakeholders to seek clarity on the project;
  - \* record issues and concerns raised; and
  - \* provide a forum for interaction with the project team.
- **Focus Group Meetings**

The purpose of the Focus Group Meetings is to allow key stakeholders with specific issues to provide their views on aspects they would like addressed in the EIA process, and to facilitate the interaction of the key stakeholders and the project team. The meetings will allow for smaller groups of I&APs and/or representatives of larger interest groups or organisations who wish to play an active role in the process an opportunity for consultation.
  - **Key Stakeholder Workshop**

Key stakeholders will be invited by letter to attend a Key Stakeholder Workshop. The purpose is to workshop the proposed project with identified key role-players who operate at a strategic level. It is acknowledged that there are several key stakeholders and interest groups who are expected to take a keen interest in the proposed project, and it is considered to be an appropriate approach to engage these stakeholders in order to avoid potential challenges against the process at a later stage.

The primary aims of the Key Stakeholder Workshop will be to:

- \* disseminate/transfer information on the proposed project to stakeholders (including the findings of the environmental studies);
- \* address questions regarding the project and the EIA process;
- \* address issues and concerns raised by the key stakeholders;
- \* achieve a common understanding and consensus on the issues relating to the proposed project; and
- \* receive input regarding the proposed project.

Formal minutes of the key stakeholder workshop will be compiled and distributed to the attendees. These proceedings will also be included in the final EIA Report.

#### ***11.4.5. Social Issues Trail***

All issues, comments and concerns raised during the public participation process of the EIA process will be compiled into a Social Issues Trail. This Social Issues Trail will be incorporated as part of the reports produced in the phases of the EIA process.

### **11.5. Compilation of the Environmental Impact Assessment Report**

The EIA Report will be compiled to address the following:

- a detailed description of the proposed project and recommended development sites;
- detailed assessment of impacts identified which are determined to be potentially significant;

- recommendations regarding the mitigation of significant impacts; and
- to meet the requirements and to comply with the necessary legislation and Acts

The combination of the specialist studies into a consolidated report will allow for easy assessment of the potential environmental aspects. In order to evaluate the significance of the identified impacts, the following characteristics of each potential impact will be identified (Table 11.1):

**Table 11.1 Criteria for the classification of environmental impacts<sup>3</sup>**

CATEGORY	DESCRIPTION OF DEFINITION
Cumulative Impact	In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Nature	A brief written statement of the environmental aspect being impacted upon by a particular action or activity.
Extent (Scale)	The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a <i>local</i> scale, but low at a <i>regional</i> scale. <ul style="list-style-type: none"> <li>• Site</li> <li>• Local</li> <li>• Regional</li> <li>• National</li> <li>• International</li> </ul> <ul style="list-style-type: none"> <li>• The immediate vicinity of the project (radius ±100 m).</li> <li>• Within a radius of 10-12 km of the project.</li> <li>• Provincial (and parts of neighbouring provinces).</li> <li>• The whole of South Africa.</li> <li>• Beyond the borders of South Africa.</li> </ul>
Status	Denotes the perceived effect of the impact on the affected area. <ul style="list-style-type: none"> <li>• Positive (+)</li> <li>• Negative (-)</li> <li>• Neutral</li> </ul> <ul style="list-style-type: none"> <li>• Beneficial impact.</li> <li>• Deleterious or adverse impact.</li> <li>• Impact is neither beneficial nor adverse.</li> </ul> <p>It is important to note that the status of an impact is assigned based on the <i>status quo</i> – i.e. should the project not proceed. Therefore not all negative impacts are equally significant.</p>
Duration	Indicates what the lifetime of the impact will be. <ul style="list-style-type: none"> <li>• Short-term</li> <li>• Medium-term</li> <li>• Long-term</li> </ul> <ul style="list-style-type: none"> <li>• 0 - 10years</li> <li>• 11 - 20 years</li> <li>• Impact will cease after the operational life of the activity</li> </ul>

<sup>3</sup> Criteria for the classification of impacts are as per Regulation 32 of the EIA Regulations (July 2006) promulgated under the National Environmental Management Act (Act 107 of 1998)(as amended)



CATEGORY	DESCRIPTION OF DEFINITION
<ul style="list-style-type: none"> <li>Permanent</li> </ul>	<ul style="list-style-type: none"> <li>Permanent</li> </ul>
Probability <ul style="list-style-type: none"> <li>Improbable</li> <li>Probable</li> <li>Highly probable</li> <li>Definite</li> </ul>	Describes the likelihood of an impact actually occurring. <ul style="list-style-type: none"> <li>Possibility of the impact materialising is very low</li> <li>Distinct possibility that the impact will occur</li> <li>Most likely that the impact will occur</li> <li>Impact will occur regardless of any preventative measures (i.e. mitigation)</li> </ul>
Intensity <ul style="list-style-type: none"> <li>Low</li> <li>Medium</li> <li>High</li> </ul>	Describes whether an impact is destructive or benign. <ul style="list-style-type: none"> <li>Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected</li> <li>Effected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way</li> <li>Natural, cultural and social functions and processes are altered to extent that they temporarily or permanently cease</li> </ul>
Significance <ul style="list-style-type: none"> <li>Low</li> <li>Medium</li> <li>High</li> <li>Very High</li> </ul>	The significance of an impact is determined through a synthesis of <u>all</u> of the above aspects. <ul style="list-style-type: none"> <li>No influence on decision-making</li> <li>Will have an influence on decision-making unless mitigated</li> <li>Will have an influence on decision-making regardless of mitigation</li> <li>Fatal flaw (an impact that is unable to be mitigated to within an acceptable level. A fatal flaw can also be regarded as any problem, issue or conflict (real or perceived) that could result in a proposed project being rejected or stopped).</li> </ul>

The suitability and feasibility of all proposed mitigation measures will be included in the assessment of significant impacts. This will be achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented.

## 11.6. Review of the Environmental Impact Assessment Report

### 11.6.1. Public Review of the draft Environmental Impact Assessment Report

The draft EIA report will be made available at public places for public review and comment. A 30-day period will be allowed for this review process.

An advert indicating the availability of this report for public scrutiny will be placed in the predominant languages of the area within local and national newspapers. I&APs registered on the project database will be notified of the availability of this report by individual letter. Comments made to the draft EIA report during the public review period will be submitted to Bohlweki Environmental (the consultants).

After the public review period, all relevant comments and questions received from the public will be considered and responded to and included into the final EIA report. Changes to the final document may be presented in the form of an “amendment” document. Changes made to this “amendment” document will be submitted directly to the authorities (by the I&APs).

### **11.6.2. Authority Review of the Environmental Impact Assessment Report**

The draft EIA Report will simultaneously be made available to authorities (DEAT and MDALA) for review.

After the public review period, all relevant comments and questions received from the public will be considered and responded to and included into the final EIA report. This final document will be submitted to the authorities for final review and decision-making. Changes between the draft and final reports will be tracked so as to facilitate the review.

### **11.7. Environmental Authorisation**

On receipt of environmental authorisation (positive or negative) for the project, I&APs registered on the project database will be informed in writing of this environmental authorisation and its associated terms and conditions..

### **11.8. Environmental Management Plan**

A draft Environmental Management Plan (EMP) will be compiled for this project and submitted along with the draft EIA Report to the relevant authorities and simultaneously made available to the public for review and comment. The EMP will prioritise management principles for the construction, operation and maintenance phases of the proposed project. The EMP will be largely based on the recommendations of the specialist studies and the requirements as stipulated in Regulation 34 of the Environmental Impact Assessment Regulations, 2006. It will contain all the mitigation and management measures to which the project proponent must adhere during the life cycle of the project. The EMP will be finalised upon receipt of environmental authorisation, so as to ensure that any specific conditions of approval are addressed in the EMP.

The envisaged key milestones of the programme for the Environmental Impact Assessment (EIA) phase of the project are outlined in the table below. It is imperative that all parties involved in the project adhere to the project timeframes to avoid any delays to this strategically important project.

**Table 11.2 Key milestones of the programme for the EIA phase of the project**

KEY MILESTONE ACTIVITY	PROPOSED COMPLETION DATE
Finalisation of Environmental Scoping Report	April 2008
DEAT acceptance of the Environmental Scoping Report and Plan of Study to undertake the Environmental Impact Assessment	May 2008
Undertake further public participation – public meetings, focus group meetings, key stakeholder workshop	March 2008
Undertake detailed specialist studies	March – April 2008
Compile draft EIA Report and draft EMP	April 2008
Making draft EIA Report and draft EMP available to the public, stakeholders and authorities	May – June 2008
Public review period (30 days)	June – July 2008
Submit final EIA Report and EMP to authorities	Early August 2008
Authority review period	August – end November 2008
Issuing of authorization (positive or negative)	December 2008 - January 2009
Notify I&APs of authorisation	January 2009

### 11.9. Environmental Study Team

Details of the environmental study team and their fields of specialisation are provided in Table 11.3 below.

**Table 11.3 Proposed specialist team and their areas of expertise**

Name and Organisation	Specialist study to be undertaken
Malcolm Roods of Bohlweki Environmental	Project Director for the EIA process; review of EIA process documentation.
Prashika Reddy of Bohlweki Environmental	Project Manager for the EIA process. Management of specialist team. Compilation of all project documentation; assistance in public participation.
Nicolette Raats Bohlweki Environmental	Project Manager for the public participation process.
Sibongile Hlomuka and Gift Magangane of Bohlweki-SSI Environmental	Co-ordination of public participation process.
Garry Paterson of the ARC	Soils and Agricultural Potential
Mark Stewart and Kevin Burse of SRK Consulting	Hydrogeology and Hydrology
Riaan Robbeson and Dewald Kamfer of Bathusi Environmental Consulting (BEC)	Ecological assessment (flora & fauna)
Paul da Cruz – SiVEST	Wetland delineation study
Raylene Watson and Rebecca Thomas of Bohlweki-SSI Environmental (Air Quality Unit)	Air Quality Assessment

<b>Name and Organisation</b>	<b>Specialist study to be undertaken</b>
Derek Cosijn of Jongens Keet Associates	Noise Impact Assessment
Nonka Byker of MasterQ Research and Kayamandi Development Services	Social Impact Assessment and Micro-economic study
Dawie van Vuuren of MetroGIS	Visual Impact assessment and GIS mapping
Johnny van Schalkwyk	Heritage Impact Assessment
Mike Oberholzer of Riscom	Risk Assessment
Melanie Wright of SSI Engineers and Environmental Consultants	Traffic Impact Assessment