ESKOM GENERATION

Basic Social Assessment For The Proposed Installation Of A 500m^3 Bulk Storage Fuel Oil Tank At The Grootvlei Power Station In The Mpumalanga Province

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For:	SiVEST Environmental Division

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DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

BASIC SOCIAL ASSESSMENT AS PART OF THE BASIC ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED INSTALLATION OF A 500M^3 BULK STORAGE FUEL OIL TANK AT THE GROOTVLEI POWER STATION IN THE MPUMALANGA PROVINCE

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I, **Sean Smith**, declare that --

General declaration:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.

Signature of the specialist

MasterQ Research (Pty) Ltd

Name of company (if applicable)

2011-09-26

Date

I, **J.W. Nonka Byker**, declare that --

General declaration:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.

Signature of the specialist

MasterQ Research (Pty) Ltd

Name of company (if applicable)

2011-09-27

Date

EXECUTIVE SUMMARY

Eskom Generation proposes the installation of a new 500m^3 bulk storage fuel oil tank at the existing Grootvlei Power Station in the Mpumalanga Province. The installation of this tank will be in addition to the existing 6 tanks at the power station and will increase the fuel oil capacity from 560m^3 to 1060m^3. Two respective site alternatives have been identified, both of which are in close proximity to each other and within the boundaries of the current power station complex.

This report details the results of the Basic Social Assessment (BSA) that was undertaken by MasterQ Research as part of the Basic Environmental Assessment process that was undertaken by SiVEST Environmental Division.

The Grootvlei Power Station is located in the Dipaleseng Local Municipality (DLM), within the Gert Sibande District Municipality of the Mpumalanga Province. The DLM is located on the western border of the district with the Gauteng Province, which is the economic hub of South Africa. The Free State Province lies to the south of the DLM and to the east and northeast the municipality is enclosed by the Lekwa and Govan Mbeki Local Municipalities (both part of the Gert Sibande District). The DLM occupies a geographical area of approximately 2 619km^2.

Social characteristics within the DLM worth noting are:

- Approximately 30% of households do not have access to running piped water on their stands (within dwelling or yard area). The municipality has prioritised this issue;
- Grootvlei currently experienced a services backlog of 11% as regards water supply to residents;
- 3.6% of all households have no access to sanitation whatsoever (3.3% in Grootvlei);
- There is currently a backlog of 15 586 houses, which, according to the IDP, will be addressed in the next 5 years;
- In Grootvlei, 75% of people used electricity for cooking, heating and lighting in 2007;
- There is a municipal electricity backlog to 10 200 homes which will be tackled in the next 5 years through DLM's Electricity Supply Development Plan;
- Approximately 80% of residents have access to formal refuse removal;
- Of the 412km of surfaced roads in the municipality, 25% are in poor condition, and 30% have a poor structure. This problem is due to be addressed in the next financial year;
- The municipal area is located between Durban Harbour and Johannesburg, leaving it in a good position for economic growth. Furthermore, the upgrade of National Airport has been seen as a positive economic activity;
- Currently the municipality seeks to empower people through its Extended Public Works Programme [EPWP]; and
- Crime rates are relatively low indicating that the area is relatively safe.

In order to address the overall objective of this study, it was necessary to present a baseline profile of the local municipal area as the baseline would be maintained to a large degree (not taking into account variables outside of the project) in the event that a 'no go' option is implemented. Following

the baseline profile, the expected social impacts have been highlighted within the context of existing social impacts as the proposed project will take place within an operational power station.

Due to the fact that the proposed bulk storage fuel oil tank will be located within the existing Grootvlei Power Station facility that bears existing social impacts, there are no additional social impacts foreseen that would require mitigation. In summary:

Demographical changes: It is assumed that a small assembly team would be required as opposed to a large construction team and that this team's presence would have no bearing whatsoever on the size of the surrounding community.
Geographical changes: The tank will be located within the existing Grootvlei Power Station and will therefore not lead to any land use change in the surrounding area.
Economic changes: The presence of the tank might enhance the capacity of the power station, which in turn might create additional job opportunities. This could have a positive economic impact, but the impact cannot be managed or enhanced at this level or through this project.
Institutional and Empowerment changes: No additional municipal services will be required due to the presence of the tank.
Socio-cultural changes: The presence of the tank within the Grootvlei Power Station will not be noticed by surrounding landowners or local residents who are accustomed to the presence of the power station itself.

There are not fatal flaws from a social perspective or any social sensitive areas which favours one site alternative over the other.

ESKOM GENERATION

GROOTVLEI BULK STORAGE FUEL OIL TANK

BASIC SOCIAL ASSESSMENT

Contents

1. INTRODUCTION

Eskom Generation proposes the installation of a new 500m^3 bulk storage fuel oil tank at the existing Grootvlei Power Station in the Mpumalanga Province. The installation of this tank will be in addition to the existing 6 tanks at the power station and will increase the fuel oil capacity from 560m^3 to 1060m^3. Two respective site alternatives have been identified, both of which are in close proximity to each other and within the boundaries of the current power station complex.

This report details the results of the Basic Social Assessment (BSA) that was undertaken by MasterQ Research as part of the Basic Environmental Assessment process that was undertaken by SiVEST Environmental Division.

1.1. Scope of Study

The main objective of the BSA is to identify issues and concerns in terms of the social environment. Secondary objectives included the following:

- Obtain baseline information on the social conditions currently characterising the study area with regards to geographical, demographical, economic, institutional/legal and empowerment, and socio-cultural change processes;
- Present a baseline description of the areas that will be derived from secondary data collection;
- Identify possible social impacts (direct, indirect and cumulative) that may result from the construction and operation phases of the project;
- Identify any gaps in knowledge; and
- Formulate recommendations regarding a preferred site location.

1.2. Specialist Qualifications

This report was compiled by Mr Sean Smith and reviewed by Ms Nonka Byker, both of MasterQ Research.

Mr Smith holds a Bachelor of Social Science honours degree in psychology and has completed the coursework component of a master's degree specialising in psychological research methods and methodologies. He has experience in academic, market-related, corporate, industrial, and social research. He has recently become involved in the field of Social Impact Assessments, Environmental Management Frameworks, and Social and Labour Plans.

Ms Byker holds a B.Psych (Adult Mental Health) from the University of Pretoria and is a social impact assessment specialist with approximately 4 years' experience in this field. She specialises in the assessment of potential social impacts, which includes the collection and analysis of data and superimposing a proposed project on a baseline social profile to determine the potential social impacts from which mitigation measures can be developed. In total she has approximately 11 years' experience in the social development field, of which 7 years were spent as a public participation

consultant. Ms Byker is registered with the Health Professions Council of South Africa (HPCSA) and is a member of the International Association for Impact Assessment South African Affiliate (IAIAsa).

Some of the Social and Socio-Economic Impact Assessments that MasterQ Research have been involved with as social and economic specialists, include amongst others, the following projects:

Date	Project	EAP
July 2009 - ongoing	**Social Impact Assessment** for the proposed Trekkopje Mine access road in the Arandis area, Erongo Region, Namibia	Turgis Consulting for AREVA Resources
July 2009 – ongoing	**Social Impact Assessment** and **Micro Economic Impact Assessment** for the proposed 140MW Open Cycle Gas Turbine (OCGT) demonstration plant and associated Underground Coal Gasification (UCG) plant in the Amersfoort area, Mpumalanga Province	Bohlweki-SSI Environmental for Eskom Generation & Transmission
March 2009 – ongoing	**Socio-Economic Impact Assessment** on the Bus Rapid Transport (BRT) system, section 6 along Oxford Road in the City of Johannesburg, Gauteng Province	Bohlweki-SSI Environmental for Eskom Generation & Transmission
February 2009	**Socio-Economic Impact Assessment** for the proposed town development with associated infrastructure and services in Steenbokpan, Limpopo Province	Enviro-Solution for the Steenbokpan Development Consortium
January 2009 - ongoing	**Social Impact Assessment** for the establishment of a Coal Fired Power Station, and its associated infrastructure (a substation and transmission power lines) in the Musina area, Limpopo Province	Arcus Gibb for Mulilo Power
January 2009 - ongoing	**Social Impact Assessment** for the proposed upgrading of the existing Welgedacht Water Care Works to facilitate a capacity extension of up to 100ml/d, in the Ekurhuleni Metropolitan Municipality area, Gauteng Province	Savannah Environmental for ERWAT
January 2009 – ongoing	**Social Impact Assessment** for the proposed provision of wastewater infrastructure to improve quality of effluent discharge from the Hartebeesfontein Water Care Works, in the Ekurhuleni Metropolitan Municipal area, Gauteng Province	Savannah Environmental for ERWAT
November 2008 – January 2009	**Economic Impact Assessment** for the proposed Kyalami Transmission Project	Savannah Environmental for Eskom Generation & Transmission

Date	Project	EAP
October 2008 – November 2008	**Social Impact Assessment** for the proposed Bravo Integration Project, Govan Mbeki Local and Delmas Local Municipalities, Mpumalanga Province; Kungwini Local Municipality, City of Tshwane, Ekurhuleni Metro and City of Johannesburg, Gauteng Province	Cymbian Socio-Environmental Consultants for Eskom Generation & Transmission
April 2008 – April 2009	**Social Impact Assessment** for the proposed liquid fuels transportation infrastructure from the Milnerton refinery area to the Ankerlig power station in the Atlantis Industrial area, City of Cape Town, Western Cape	Bohlweki-SSI Environmental for Eskom Generation & Transmission

1.3. Limitations and Assumptions

- This study was carried out with the information available to the specialists at the time of executing the study, within the available timeframe and budget. The sources consulted are not exhaustive and additional information which might strengthen arguments or contradict information in this report might exist. Due to the limited budget available for this study, the specialists were unable to conduct a site visit.
- The specialists did endeavour to take an evidence-based approach in the compilation of this report and did not intentionally exclude scientific information relevant to the assessment.
- It was assumed that the motivation for, and the ensuing planning and feasibility studies of the project were done with integrity, and that the information provided to date by the project proponent, the independent Environmental Assessment Practitioner (EAP) and the public participation consultant was accurate.
- Areas that might yield socio-economic sensitivities have been identified through a desktop study in Google Earth™. The areas that have been marked are the sensitive areas visible to the socio-economic specialists at the time of the study, which are in close proximity to the proposed three sites under investigation. However, the sensitivity map is not meant as a final, all-inclusive indication of sensitive areas, as it is possible that more sensitive areas might be found during the EIA Phase when a more detailed assessment will be undertaken.
- The statistics that informed this report were primarily taken from Census 2001 and the more recent Community Survey 2007 (CS). The comparative analyses of these sets of data should only be regarded as an indication of broad trends in the area, because of the South African Statistics Council's (SASC) concerns about data integrity in CS. The SASC was concerned about the following regarding CS:
    - Institutional population is merely an approximation to 2001 numbers and not new data;
    - Unemployment in the Community Survey is higher and less reliable because of questions that were asked differently;
    - Income includes unreasonably high income for children – presumably misinterpretation of the question, listing parents' income for the child; and

    - Distribution of households by province has very little congruence with the General Household Survey or last census.
- A number of systematic errors were observed in the statistical data, which included:
    - An underestimate of men relative to women;
    - An underestimate of children younger than 10 years;
    - An excess of those aged 85+, in particular among men;
    - Missing women aged 20–34 from the Coloured population;
    - Misdistribution of the population by province;
    - Excess of people aged 10–24 in Western Cape and Gauteng;
    - A shortfall of women aged 20–34 in Free State, KwaZulu-Natal and Limpopo.

The SASC states (2008): *"In the absence of a comprehensive sampling frame, it is difficult to determine whether the differences are due to sampling error, biases or the reality that has changed beyond our expectations. There may be other variables that will require similar warnings after further interrogation."*

1.4. Legislative Context

The following legislation and regulatory documents are relevant to the BSA:

- Constitution of the Republic of South Africa (Act No. 108 of 1996);
- The Occupational Health and Safety Act (Act No. 85 of 1993);
- National Environmental Management Act (NEMA), No. 107 of 1998, as amended and Environment Conservation Act, No. 73 of 1989, as amended;
- The Environmental Impact Regulations of 21 April 2006;
- Relevant Labour Relations legislation.

1.4.1. Constitution of the Republic of South Africa (Act No. 108 of 1996)

The Constitution mostly relates to human rights with the intention of establishing "a society based on democratic values, social justice and fundamental human rights", which should be achieved through the promotion of human dignity, equality and the advancement of human rights and freedoms. Some of the human rights that are explicitly stated in the Constitution are a person's right to equality, freedom of expression and association, political and property rights, housing, healthcare, education, access to information, and access to courts.

The Constitution is made up of a preamble, fourteen chapters each relating to a specific topic, and seven schedules. Of these fourteen chapters, chapter 2 (The Bill of Rights) is mostly applicable to the implementation and management of social mitigation measures.

The Bill of Rights outlines detailed provisions on civil, political, social and economic rights. According to the Bill of Rights, it is therefore illegal to discriminate against any person on any of the following grounds:

- Race and colour;
- Sexual orientation (be that heterosexual, homosexual or transsexual);
- Marital status (be that single, married, divorced or widowed);
- Gender in terms of social and cultural ascribed gender roles, e.g. not permitting women to work on a construction team because she is a woman;
- Sex, relating to the physical differences between men and women;
- Pregnancy;
- Age;
- Disability;
- Ethnic origin;
- Culture, e.g. traditional practices;
- Language;
- Religion, conscience, belief; and
- Birth.

1.4.2. The Occupational Health and Safety Act (Act No. 85 of 1993)

The occupational health and safety act outlines the clear responsibilities of employers and employees alike in ensuring that a safe work environment is created and maintained at all times. The creation of a safe work environment also applies to any and all work equipment that is required in carrying out assigned duties.

Noteworthy to consider is the fact that this act stipulates that a health and safety representative has to be appointed where a workforce consists of 20 or more people. A health and safety representative has to be a fulltime employee and there should be at least one such a representative per every 50 employees or part thereof, either per workplace of per section of the workplace. Where a workplace has more than one health and safety representative, a health and safety committee should be formed that meets at least once every 3 months. Health and safety representatives should carry out the following functions in terms of this act:

- Review the effectiveness of health and safety measures;
- Identify potential hazards at the workplace that could lead to potential major incidents;
- Examine the causes of incidents at the workplace, in collaboration with the employer;
- Investigate any complaints made by employees in terms of health and safety aspects at the workplace;
- Provide feedback to the health and safety committee on the aspects mentioned above;
- Provide feedback to the employer on matters relating to the health and safety of employees at the workplace; and
- Inspect all aspects relating to the safety of the workplace, including the workplace itself, any plants, machinery, articles, health and safety equipment, etc. at intervals agreed upon with the employer.

1.4.3. National Environmental Management Act (NEMA), No. 107 of 1998, as amended

The National Environmental Management Act (NEMA) promotes citizens' right to an environment that is not harmful to their health and wellbeing. This right is closely linked to the Constitution where clause 32 of the Bill of Rights stipulates that current and future generations have a right to a healthy environment. NEMA defines the environment as the natural environment as well as the physical, chemical, aesthetic and cultural properties that influences a person's health and well-being.

Noteworthy to consider is the fact that this act stipulates that a health and safety representative has to be appointed where a workforce consists of 20 or more people. A health and safety representative has to be a fulltime employee and there should be at least one such a representative per every 50 employees or part thereof, either per workplace of per section of the workplace. Where a workplace has more than one health and safety representative, a health and safety committee should be formed that meets at least once every 3 months. Health and safety representatives should carry out the following functions in terms of this act:

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- Inspect all aspects relating to the safety of the workplace, including the workplace itself, any plants, machinery, articles, health and safety equipment, etc. at intervals agreed upon with the employer.

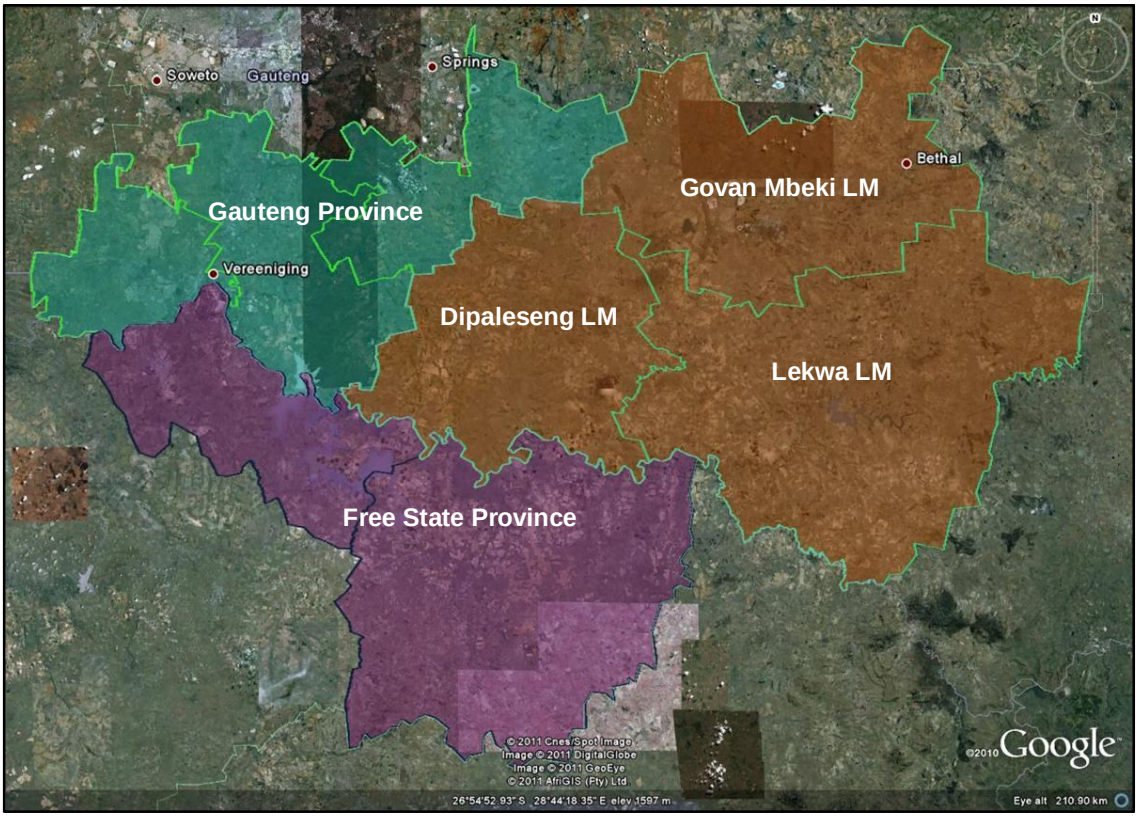
2. TECHNICAL DETAILS OF THE PROJECT

This section describes the information relevant to the study area and the project.

2.1. Site Location and Description

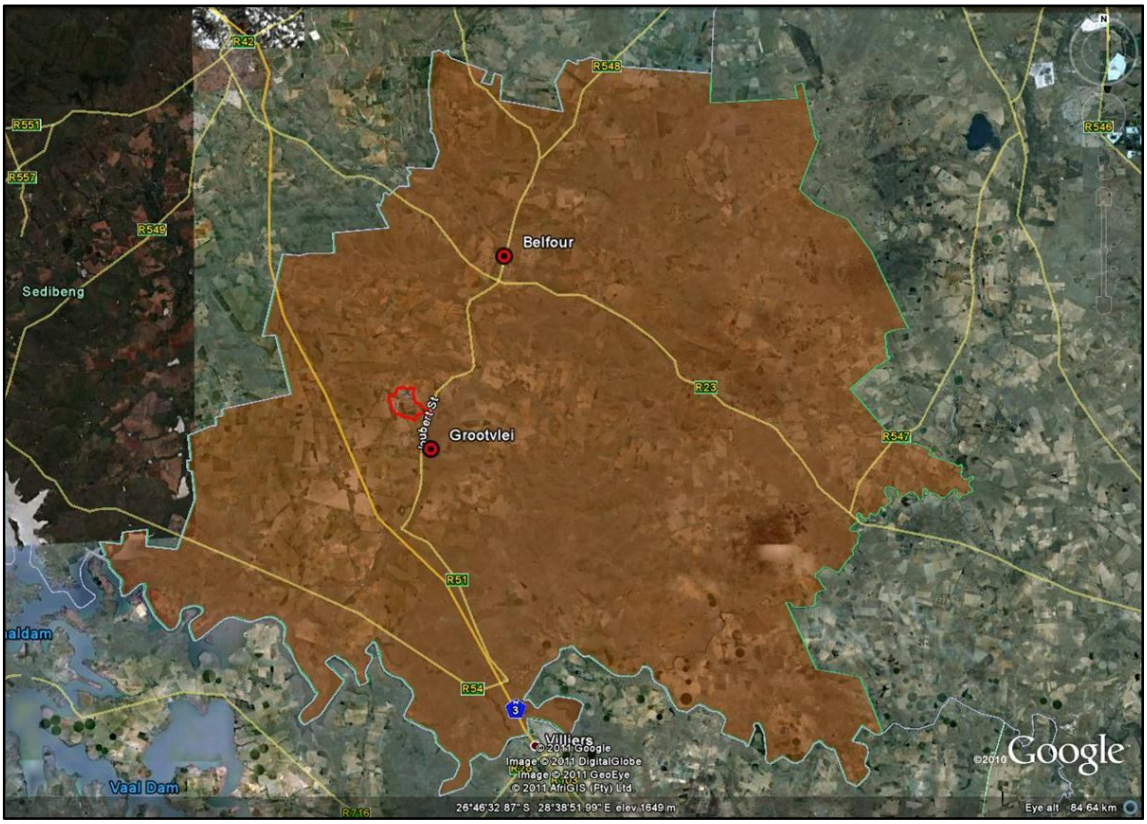
The Grootvlei Power Station is located in the Dipaleseng Local Municipality (DLM), within the Gert Sibande District Municipality of the Mpumalanga Province. The DLM is located on the western border of the district with the Gauteng Province, which is the economic hub of South Africa. The Free State Province lies to the south of the DLM and to the east and northeast the municipality is enclosed by the Lekwa and Govan Mbeki Local Municipalities (both part of the Gert Sibande District). The DLM occupies a geographical area of approximately 2 619km^2. The location of DLM in relation to its surroundings is reflected in figure 2.1 below.

Figure 2.1: *The Dipaleseng Local Municipality within its local context*



The actual power station is located off the R51 north of Grootvlei. Belfour, which is the main centre of the DLM, lies approximately 14km north-northeast of the power station (refer to Figure 2.2).

Figure 2.2: *Location of Grootvlei Power Station within the Dipaleseng Local Municipality*



Social characteristics within the DLM worth noting are:

- Approximately 30% of households do not have access to running piped water on their stands (within dwelling or yard area). The municipality has prioritised this issue;
- Grootvlei currently experienced a services backlog of 11% as regards water supply to residents;
- 3.6% of all households have no access to sanitation whatsoever (3.3% in Grootvlei);
- There is currently a backlog of 15 586 houses, which, according to the IDP, will be addressed in the next 5 years;
- In Grootvlei, 75% of people used electricity for cooking, heating and lighting in 2007;
- There is a municipal electricity backlog to 10 200 homes which will be tackled in the next 5 years through DLM's Electricity Supply Development Plan;
- Approximately 80% of residents have access to formal refuse removal;
- Of the 412km of surfaced roads in the municipality, 25% are in poor condition, and 30% have a poor structure. This problem is due to be addressed in the next financial year;
- The municipal area is located between Durban Harbour and Johannesburg, leaving it in a good position for economic growth. Furthermore, the upgrade of National Airport has been seen as a positive economic activity;
- Currently the municipality seeks to empower people through its Extended Public Works Programme [EPWP]; and
- Crime rates are relatively low indicating that the area is relatively safe.

2.2. Technical Description and Site Options

The Grootvlei Power Station consists of 6 coal fired units rated at 200MW. These different drum boilers are fired with pulverised fuel (PF) via individual coal milling plants. The fuel oil is used to start up and shut down these boilers. The fuel oil plant supplies oil to the burners of all six boiler units via a common 4 inch supply duct. The used fuel oil returns to the fuel oil plant via a 5 inch circulation duct. Oil tankers deliver fuel oil on daily basis to the station. The fuel oil is predominantly supplied by Sasol from any of their two supply depots, namely the Sasol refinery and the Sasol depot. The fuel oil in the Grootvlei Power Station is stored in six storage tanks. Five tanks have a capacity of 97m³ and one with capacity of 75m³, so the total existing capacity at the Grootvlei Power Station is 560m³. Each tank is fitted with an outflow heater, located inside the take-off of each tank. Each tank is fitted with a drain line that features an isolating valve for draining sediment that accumulates at the bottom of the tanks.

Eskom is now proposing the installation of a 7th bulk fuel oil storage tank at the Grootvlei Power Station, this one with a capacity of 500m³. After the additional proposed tank has been installed the total capacity will be 1 060 m³. Two alternative site locations have been identified where the 7th proposed tank could be installed. Both alternatives are adjacent to existing tanks so that the proposed new tank can be linked to the existing tanks and discharge to the same line as the existing tanks. Figure 2.3 below gives an indication of the location of the two site alternatives within the Grootvlei Power Station.

Figure 2.3: *Site Alternatives*

3. BASELINE PROCESSES AND EXPECTED IMPACTS

In order to address the overall objective of this study, it was first necessary to present a baseline profile of the local municipal area as the baseline would be maintained to a large degree (not taking into account variables outside of the project) in the event that a 'no go' option is implemented. Following the baseline profile, the expected social impacts have been highlighted within the context of existing social impacts as the proposed project will take place within an operational power station. Where it was deemed necessary, mitigation measures was proposed.

This section was structured as per the following social change processes (cf. Vanclay, 2002):

- **Demographic processes**: the composition of the local community;
- **Geographic processes**: land use patterns;
- **Economic processes**: the way in which the local people make a living and the economic activities in the society;
- **Institutional and Legal processes**: the role and efficiency of the local authority and other service providers in the area in terms of their capacity to deliver services to the local area; and
- **Socio-cultural processes**: How the local population behave, interact and relate to each other, their environment, and the belief and value systems that guide these interactions.

3.1. Demographical Processes

Demographical processes relate to the number of people and the composition of a community. This includes an overview of the population size, the race, age, gender and educational profile of a population as well as household compositions.

3.1.1. Baseline Demographic Processes

Between 2001 and 2007, the DLM saw a decline in its local population, while the province witnessed growth of approximately 1.6% annually.

Table 3.1: *Population size & growth in MP & DLM*

Area	2001 Population	2007 Population	% Annual Growth	2011 Estimate
DLM	38 619	37 880	-0.38%	37 022
MP	3 365 885	3 643 435	1.6%	3 926 217

Sources: Census 2001 % CS 2007

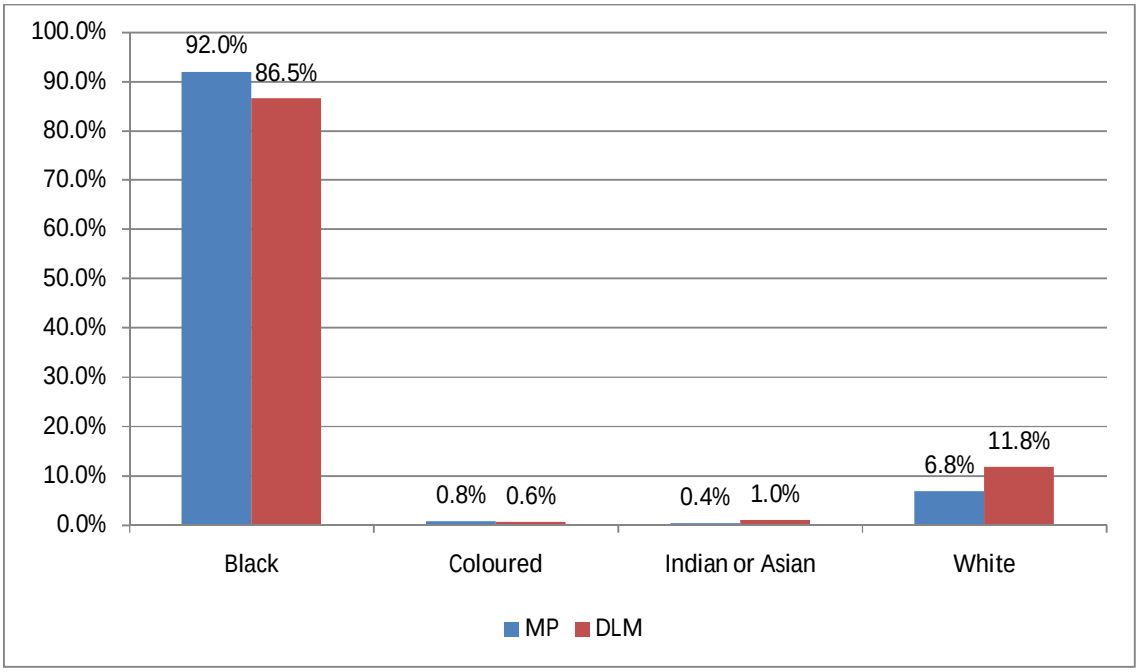
By 2011 it is estimated, based on the trends between 2001 and 2007, that the DLM will have a population that will have declined to 37 022 people, while Mpumalanga's will have increased to 3 926 217.

In terms of gender, males and females are to be found in similar proportions in both the province and in the LM. The province's gender breakdown shows that 48.6% of the population was male and

51.4% female (in 2007), while the DLM's shows that 49.4% of the population was male and 50.6% female (in 2007).

Figure 3.1 below illustrates the racial distributions of both the province and the DLM in 2007.

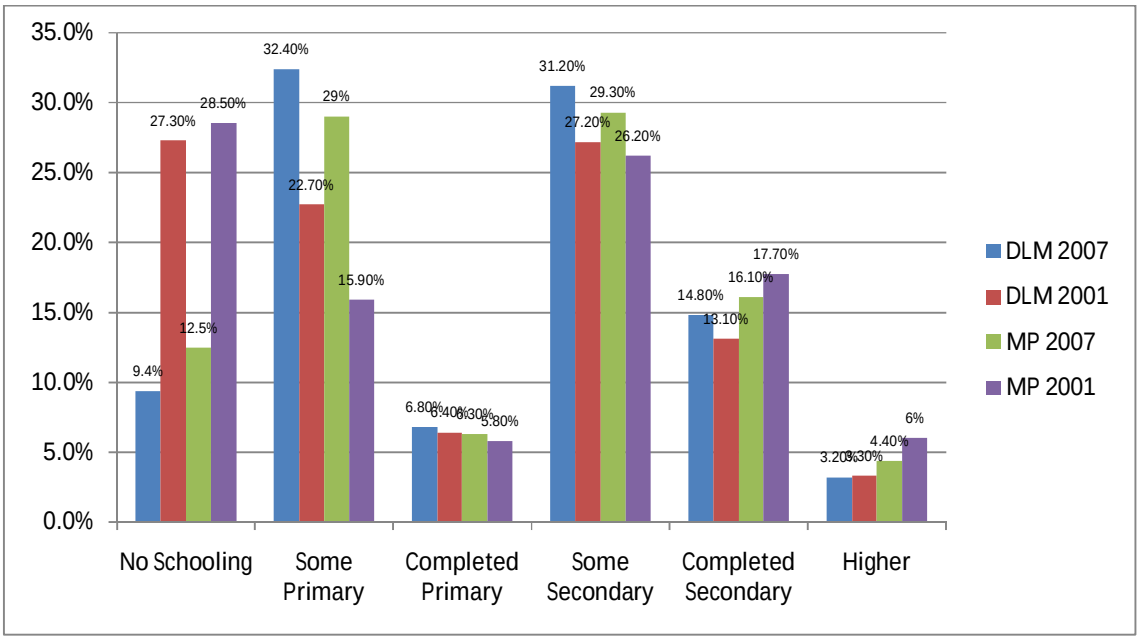
Figure 3.1: *Demographic breakdown in MP & DLM by race*



As can be observed from in the graph above, the Black racial group dominates the population in both Mpumalanga and Dipaleseng. This group is followed by the White racial group, while the Coloured and Indian/Asian groups show a scarce presence.

The education profile of the DLM and MP has generally improved between 2001 and 2007 in both geographical areas. In particular, the proportion of persons with no exposure to the education system whatsoever has decreased markedly in both areas.

Figure 3.2: *Education profile in PLM & MP in 2001 & 2007*



Sources: Census 2001 & CS 2007

In terms of household statistics the tables below provide an indication of local tenure statuses, and dwelling types in Dipaleseng by 2001 and 2007.

Table 3.2: *Dwelling types in DLM in 2001 & 2007*

	Formal	Informal
Dipaleseng 2001	65.1%	34.9%
Dipaleseng 2007	55.5%	44.5%

Sources: Census 2001 & CS 2007

Table 3.3: *Tenure statuses in DLM, 2001 vs. 2007*

	Tenure Status	
	DLM	
	2001	2007
Owned and fully paid off	53.5%	67.3%
Owned but not yet paid off	7.0%	9.4%
Rented	17.6%	8.7%
Occupied Rent-free	21.9%	14.6%

3.1.2. Expected Demographical Impacts

ISSUE	Demographic Change Processes
DISCUSSION	Demographic processes refer to impacts on the nature, composition, and size of the local community. Because this project only involves the installation of a fuel tank it is not foreseen that a lengthy construction process with a large construction team is required.
EXISTING IMPACT	The Grootvlei Power Station is an operational power station which implies that there are employees who move in and out of the station area on a daily basis. As the largest employer in the immediate area surrounding the power station, most people live in the area because of the power station – its presence has therefore already gradually changed the demographic profile of the area since the power station was returned to service.
PREDICTED IMPACT	It is not foreseen that the project would have any bearing in changing the number and composition of the local population as it is unlikely that an installation team in addition to employees moving in and out of the power station would be noticed.
MITIGATION MEASURES	None required
FURTHER ASSESSMENTS REQUIRED	None
CUMULATIVE EFFECT	None

3.2. Geographical Processes

Geographical processes relate to land use patterns and infrastructure in the area.

Land use is defined as “the way land is developed and used in terms of the types of activities allowed (agriculture, residences, industries, etc.) and the size of buildings and structures permitted. Certain types of pollution problems are often associated with particular land uses, such as sedimentation from construction activities.”

Another definition of land use is as follows: “Patterns of land use arise naturally in a culture through customs and practices, but land use may also be formally regulated by zoning, other laws or private agreements such as restrictive covenants.”

3.2.1. Baseline Geographical Processes

The Grootvlei Power Station is surrounded mostly by farmland and unoccupied areas. Two exceptions are small human settlements to the South (approximately 3km away) and to the West

(directly adjacent to the Power Station). It is not expected that the installation of the new oil tank would affect these communities in any discernible way as 6 similar (but smaller) tanks currently exist on site and, in the context of the other processes and structures at the Power station, this presence of such a tank would likely be negligible.

3.2.2. Expected Geographical Impacts

ISSUE	Geographical Change Processes
DISCUSSION	Geographical processes refer to land use in an area and how a project can influence the way in which land is or can be utilized, which in turn can affect people's wellbeing.
EXISTING IMPACT	The Grootvlei Power Station has been in operation for 42 years with land uses surrounding the power station adapting to its presence and vice versa.
PREDICTED IMPACT	The tank will not bring about a change to land use in the area as it will be located within the Grootvlei Power Station area and therefore no impacts are foreseen as a result of the installation of the tank.
MITIGATION MEASURES	None required
FURTHER ASSESSMENTS REQUIRED	None required
CUMULATIVE EFFECT	None foreseen

3.3. Economic Processes

Economic processes relate to the way in which people make a living and the economic activities within that society. The employment status within any given area gives an indication of the economic stability of such an area and also serves as an indicator of such an area's general well-being.

3.3.1. Baseline Economic Processes

Income levels are generally low, approximately one quarter of the population is unemployed, and the main forms of employment are in primary industries, manufacturing, and construction. Socially speaking, the industries of importance are those from which the greatest employment is sourced. The table below summarises the significance of each industry for both DLM and MP.

Table 3.4: *Regional industries of employment*

Industry	% Employment MP - 2001	% Employment MP - 2007	% Employment DLM - 2001	% Employment DLM - 2007
Agriculture, hunting, fishing, forestry	20.6%	9.5%	34.7%	24.6%
Mining & Quarrying	8.9%	8.9%	0.6%	0%
Manufacturing	13.0%	17.5%	9.6%	22.9%
Electricity, gas, and water supply	2.3%	2%	1.8%	8.8%
Construction	7.5%	8.6%	11.3%	14%
Wholesale & Retail Trade	16.9%	17.1%	19.3%	14.5%
Transport, Storage, & Communication	4.4%	4.9%	3.9%	7.9%
Financial & Business Services	6.5%	12.4%	5.0%	4.8%
Community & Social Services	19.9%	19.1%	13.9%	2.5%

Sources: Census 2001 & CS 2007

It is evident that the primary sources of employment provincially primary industries, community services, wholesale & retail trade, and manufacturing. The major sources of employment within the LM are similar with primary industries and manufacturing dominating the profile.

It has been shown above that certain sectors provide more employment than others but what is also important is the proportion of persons employed overall. The table below summarises employment statistics provincially and within DLM for those aged 15 to 65.

Table 3.5: *Employment statistics in MP & DLM – 2001 vs. 2007*

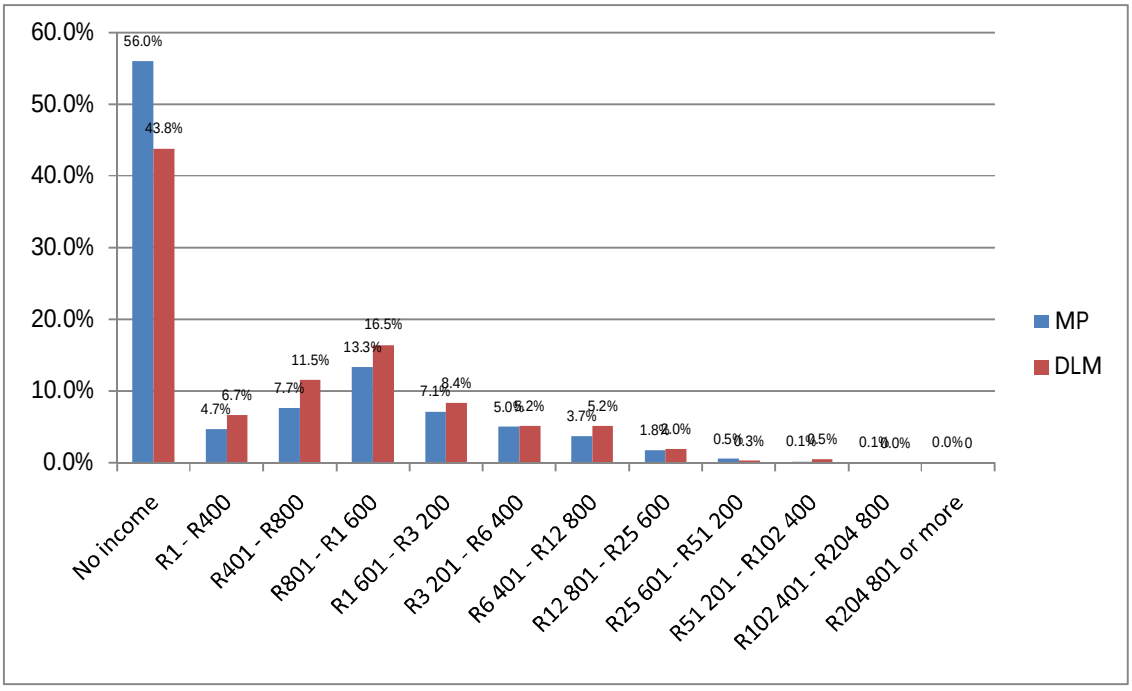
Employment Status	MP - % 2001	MP - % 2007	DLM - % 2001	DLM - % 2007
Employed	30.9%	40.1%	31.5%	42.8%
Unemployed	23.4%	20%	26.6%	26%
Not Economically Active	45.6%	39.9%	41.9%	31.2%

Sources: Census 2001 & CS 2007

As can be seen from the table above, employment statistics improved in Mpumalanga to a figure of 40.1% and in DLM to a figure of 42.8%. This may, in part be due to marked decreases in the proportion of non-economically active people in both regions.

Finally for this section is an indication of income categories locally. The income per capita is generally low in both areas, with a large number of people earning no income, or very little income. In terms of monthly income, figure 3.3 below provides an indication of the income of those aged 15 to 65 in both the province and the LM in 2007.

Figure 3.3: *Income profiles for MP & DLM*



Source: CS 2007

It must be noted that those sampled in the distribution above were aged 15 – 65, meaning that many may be non-earners because they are still within the school system or are retired. Nonetheless,

income levels are still low in both areas even when non-earners are considered. The DLM has a lower proportion of non-earners than does the MP and in both areas the most common income category (for those who are earning money us is the R800 – R1600 range.

3.3.2. Expected Economic Impacts

ISSUE	Economic Change Processes
DISCUSSION	Economic processes refer to the ways in which the socio-economic status quo may be altered as a result of the presence of this project. Such alterations include income changes, employment impacts, and industrial changes and so on.
EXISTING IMPACT	The existing impacts on the economy relate to job availability at the Grootvlei Power Station; incoming and outgoing logistical factors surrounding the operation of a power station; and the regional and national positive impacts of electricity generation for South Africa's population.
PREDICTED IMPACT	The proposed tank would, through its facilitation role as another oil tank in the generation of electricity, contribute to regional and national electrical production/generation. This could lead to direct formal job opportunities through expansion processes at the existing facility and/or through work for contractors, which in turn would have a positive economic impact.
MITIGATION MEASURES	Due to the potential nationwide implications of job creation and economic growth, the impact would not be a manageable impact or one that can be enhanced at this level.
FURTHER ASSESSMENTS REQUIRED	None required
CUMULATIVE EFFECT	None foreseen

3.4. Empowerment & Institutional Processes

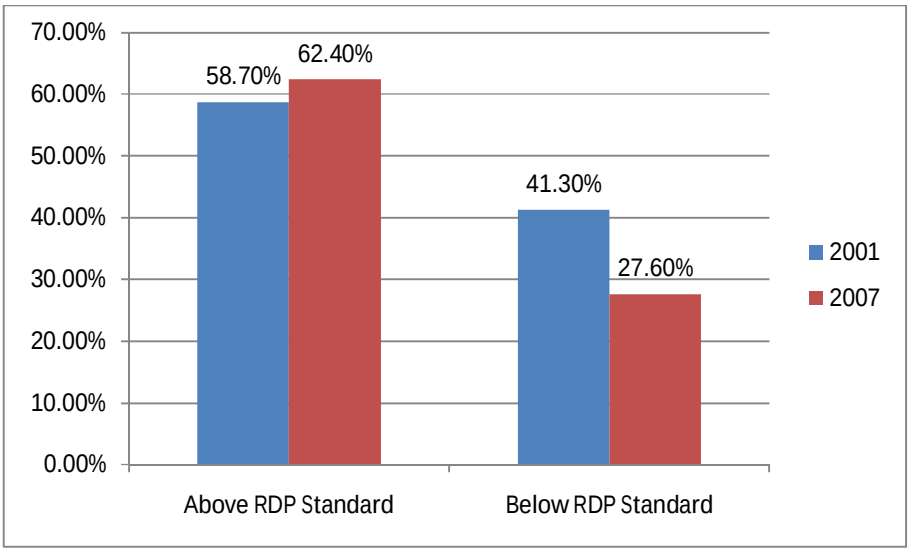
Empowerment and Institutional Processes refers to people's ability to become actively involved and influence the decision making process in terms of the project, and also the efficiency and operation of local authorities and other significant organisations.

3.4.1. Baseline Empowerment & Institutional Processes

This section will provide an overview of current municipal service profiles in order to show what the institutional status quo is and how this relates to empowerment locally.

In terms of sanitation facilities there have been visible improvements between 2001 and 2007 with many more local people accessing services in line with RDP standard (which states that all persons should have access to a VIP flush latrine with ventilation).

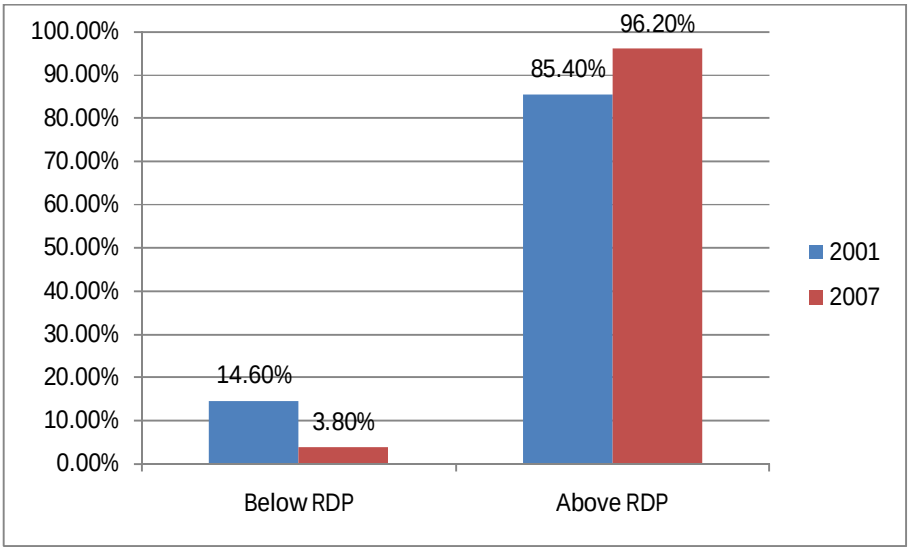
Figure 3.4: *Sanitation in DLM*



Sources: Census 2001 & CS 2007

As with sanitation, water access for most households improved significantly between 2001 and 2007 such that only 3.8% of persons accessed water facilities below RDP standard by 2007 (RDP standard requires that all persons access piped water no further than 200m from their stand).

Figure 3.5*: water access in DLM, 2001 vs. 2007*



Sources: Census 2001 & CS 2007

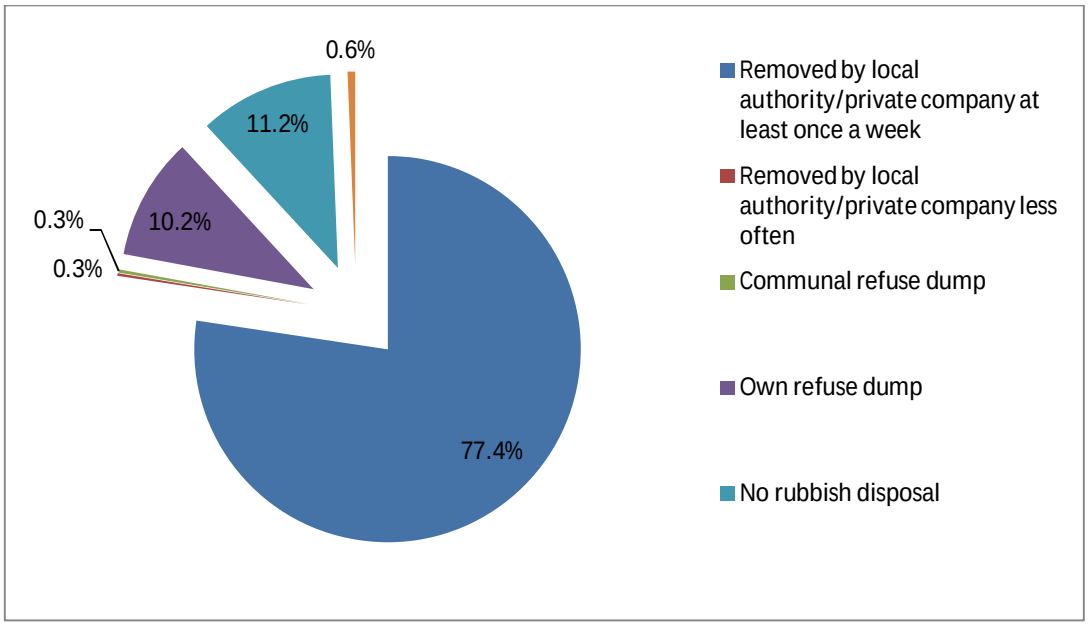
The table below indicates the proportion of the population using various energy sources for vital household functions by 2007 in the DLM. It is evident that while electricity is the most preferred energy source in general, it is not necessarily as widely accessed as would be needed by local people particularly for heating and cooking.

***Table 3.6**: Energy sources used for cooking, heating & lighting by 2007 in DLM*

Energy Source	Cooking	Lighting	Heating
Electricity	57.3%	78.6%	40.4%
Gas	0.6%	0%	1%
Paraffin	11.6%	1.9%	8.7%
Wood	4%	N/A	5.9%
Coal	24.5%	N/A	42%
Animal Dung	1.8%	N/A	1%
Solar	0%	0.3%	0%
Candles	N/A	19.1%	N/A
Other	0.2%	0.2%	1%

Source: CS 2007

Finally, the graph below provides a breakdown of the state of refuse removal services in DLM:



The graph above indicates that the majority of households' refuse is removed once a week, although 21.4% of all people either have no rubbish disposal or have their 'own refuse dump' which is an area of concern.

3.4.2. Expected Empowerment & Institutional Impacts

ISSUE	Empowerment & Institutional Change Processes
DISCUSSION	Empowerment and institutional changes refer to the need for housing due to the introduction of the project to the local area and with this the related need for additional need for municipal services.
EXISTING IMPACT	The Grootvlei Power station is currently one of the, presumably, largest users of municipal services.
PREDICTED IMPACT	It is not foreseen that the installation of an additional tank would significantly elevate the municipal services used at the power station or that there would be a significant need for housing during any of the project phases.
MITIGATION MEASURES	None required
FURTHER ASSESSMENTS REQUIRED	None required
CUMULATIVE EFFECT	None foreseen

3.5. Socio-Cultural Processes

Socio-cultural processes relate to the way in which humans behave, interact and relate to each other and their environment, as well as the belief and value systems which guide these interactions.

3.5.1. Baseline Socio-Cultural Processes

The population of the LM within which The Grootvlei Power Station is located, is estimated to be approximately 37 000 people. Of this population the vast majority are Black/African people (86.5%) with IsiZulu and Sesotho being the most prominent spoken languages. Overall then, approximately 32 000 local people are Black/African people who are of the Zulu or Sotho cultures and whose home languages are IsiZulu and Sesotho.

Today South Africa consists of an estimated 7 million SeSotho speakers. The Sotho people of Southern Africa consist of the remnants of other tribes that migrated South around the 5th century and who were subsequently scattered by wars and raids (particularly by the Zulus). The main group in South Africa is the BaSotho who were gathered together from various Sotho people under the Chief

Moshesh in 1822 and subsequently paid temporary allegiance to King Shaka. The Sotho people today inhabit large areas of South Africa, particularly Lesotho and the Free-State.

BaSotho men have traditionally worked on mines and in heavy industry in South Africa, while these people are also known for their immensely skilled artisans and craftsmen and women. The language is one which is made up of a variety in which suffixes and prefixes are used to alter meaning in sentence construction. Like the other indigenous South African languages it is a tonal language, in which the sentence structure tends to be governed by the noun.

Zulu people on the other hand have a rather different history, culture, and language. They arose in the late 18th century from the hundreds of small clans occupying the northern regions of KwaZulu-Natal on the eastern seaboard of South Africa. There was always a struggle between the clans for grazing rights and conflict was commonplace but took the form of shouted insults and some assegai throwing. This changed with Shaka, an illegitimate son of a local chief, evicted, with his mother from his own clan. Shaka was born in 1787 and grew to be strong and fearless. He changed tactics and developed the short stabbing spear. Conflicts now assumed a deadly nature and Shaka swept all before him. He was contemporaneous with Napoleon and finally conquered a far greater area.

The Zulus then came in contact with the white man and suffered reverses at his hands, firstly with the Voortrekkers and some thirty years later, against the British. At each engagement, their warriors proved to be brave soldiers.

The nation was then broken up and some Zulus assisted both the Boers and the English during the Boer War of 1899 - 1902. Promises of emancipation made to them by the British were not honoured and a growing resentment grew during the years between union (1910) and the advent of the Afrikaner Nationalists in 1948.

After secession from the Commonwealth in 1960, the Zulus joined with other black groups in the struggle against apartheid until the first democratic elections in 1994.

3.5.2. Expected Socio-Cultural Impacts

ISSUE	Socio-Cultural Change Processes
DISCUSSION	The main socio-cultural change process within the context of this project would be that of sense of place as there are it is not expected that there would be a large influx of people from other areas that would interact with locals.
EXISTING IMPACT	The existing power station facility can be considered as ‘a part of place’ as it has been in operation for 42 years.
PREDICTED IMPACT	Most residents living around the power station will be unaware of the presence of an additional bulk storage fuel oil tank. In addition the tank will be placed to similar existing tanks. It is therefore expected that the tank would not impact on sense of place.

ISSUE	Socio-Cultural Change Processes
MITIGATION MEASURES	None required.
FURTHER ASSESSMENTS REQUIRED	None.
CUMULATIVE EFFECT	None foresee.

4. CONCLUSIONS AND RECOMMENDATIONS

Due to the fact that the proposed bulk storage fuel oil tank will be located within the existing Grootvlei Power Station facility that bears existing social impacts, there are no additional social impacts foreseen that would require mitigation. In summary:

Demographical changes: It is assumed that a small assembly team would be required as opposed to a large construction team and that this team's presence would have no bearing whatsoever on the size of the surrounding community.
Geographical changes: The tank will be located within the existing Grootvlei Power Station and will therefore not lead to any land use change in the surrounding area.
Economic changes: The presence of the tank might enhance the capacity of the power station, which in turn might create additional job opportunities. This could have a positive economic impact, but the impact cannot be managed or enhanced at this level or through this project.
Institutional and Empowerment changes: No additional municipal services will be required due to the presence of the tank.
Socio-cultural changes: The presence of the tank within the Grootvlei Power Station will not be noticed by surrounding landowners or local residents who are accustomed to the presence of the power station itself.

There are not fatal flaws from a social perspective or any social sensitive areas which favours one site alternative over the other.

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