Lidwala
Environmental & Planning Services

Eskom Holdings (SOC) Limited

Eskom

Draft Basic Assessment Report for the Proposed Retrofitting of the Existing Electrostatic Precipitators with Fabric Filter Plants at Grootvlei Power Station Units 2, 3 and 4, Mpumalanga Province

DEA Reference Number:
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Lidwala Consulting Engineers (SA) (Pty) Ltd

Randburg Office:
11th Church Avenue, Ruiterhof, Randburg, 2194,
PO Box 4221, Northcliff, 2115.
Tel: 0861 543 9252

Pretoria Office:
1415 Moulton Avenue, Waverley, Pretoria, 0186,
PO Box 32497, Waverley, Pretoria, 0135,
Tel: 0861 543 9252

Nelspruit Office:
39 Ehmke Street Nelspruit, 1200
PO Box 2930, Nelspruit, 1200.
Tel: 0861 543 9252

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environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:	
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.

2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.

3. Where applicable **tick** the boxes that are applicable in the report.

4. An incomplete report may be returned to the applicant for revision.

5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.

6. This report must be handed in at offices of the relevant competent authority as determined by each authority.

7. No faxed or e-mailed reports will be accepted.

8. The report must be compiled by an independent environmental assessment practitioner.

9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.

10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

11. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section? **YES**

If YES, please complete the form entitled "Details of specialist and declaration of interest" for appointment of a specialist for each specialist thus appointed:
Any specialist reports must be contained in Appendix D.

The following specialists have assisted with the compilation of this assessment:

- Francois Malherbe – Noise Specialist (Francois Malherbe Acoustic Consulting)
- Dawie Jansen van Vuuren – Visual Specialist (MetroGIS)
- Renee von Gruenewaldt – Air Quality Specialist (Airshed Planning Professionals)

The specialist reports and the associated specialist declaration forms are included in **Appendix D.**

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail[1]:

On the 31st of March 2010, Notice 248 was published, by the Department of Environmental Affairs (DEA), in terms of the National Environmental Management: Air Quality Act (Act 39 of 2004), providing new Minimum Emission Standards. The new standards require that all existing power stations conform to a standard of 100mg/Nm^3 (Nm^3 = Normalised cubic meter, 101,325kPa, 0°C, normalised to 10% reference O_2, on a dry basis) by 2015.

The purpose of the proposed project is to retrofit the existing particulate emission abatement technology, Electrostatic Precipitators (ESPs), with more effective particulate emission abatement technology, Fabric Filter Plants (FFPs), that will allow the Grootvlei Power Station to meet the new particulate emission standard. The project involves the retrofitting of the existing ESPs at Units 2, 3 and 4 with FFPs utilising a pulse jet cleaning technology that will fit into the existing ESP casings, with a 1.1 meter extension of height in the overall casing. The cross-section area of the existing casing remains unchanged.

Producing electricity from coal starts when coal is pulverised in mills into a fine powder before it is blown into boilers. Due to the heat in the boiler, the coal particles combust to generate heat to turn water into steam. The steam is used to turn the turbine. The turbine turns a coil made of copper wire (the rotor) which is inside a magnet (the stator), which together make up the generator. The generator produces an electric current, which is sent to the grid for distribution.

[1] Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description.

One of the emission wastes from the power generation process is ash (particulate matter). The gases travel to the emission abatement technology (which will be FFPs at all units after the retrofit) where 99.9% of the particulates are removed before the gas is released to the atmosphere through the smoke stack.

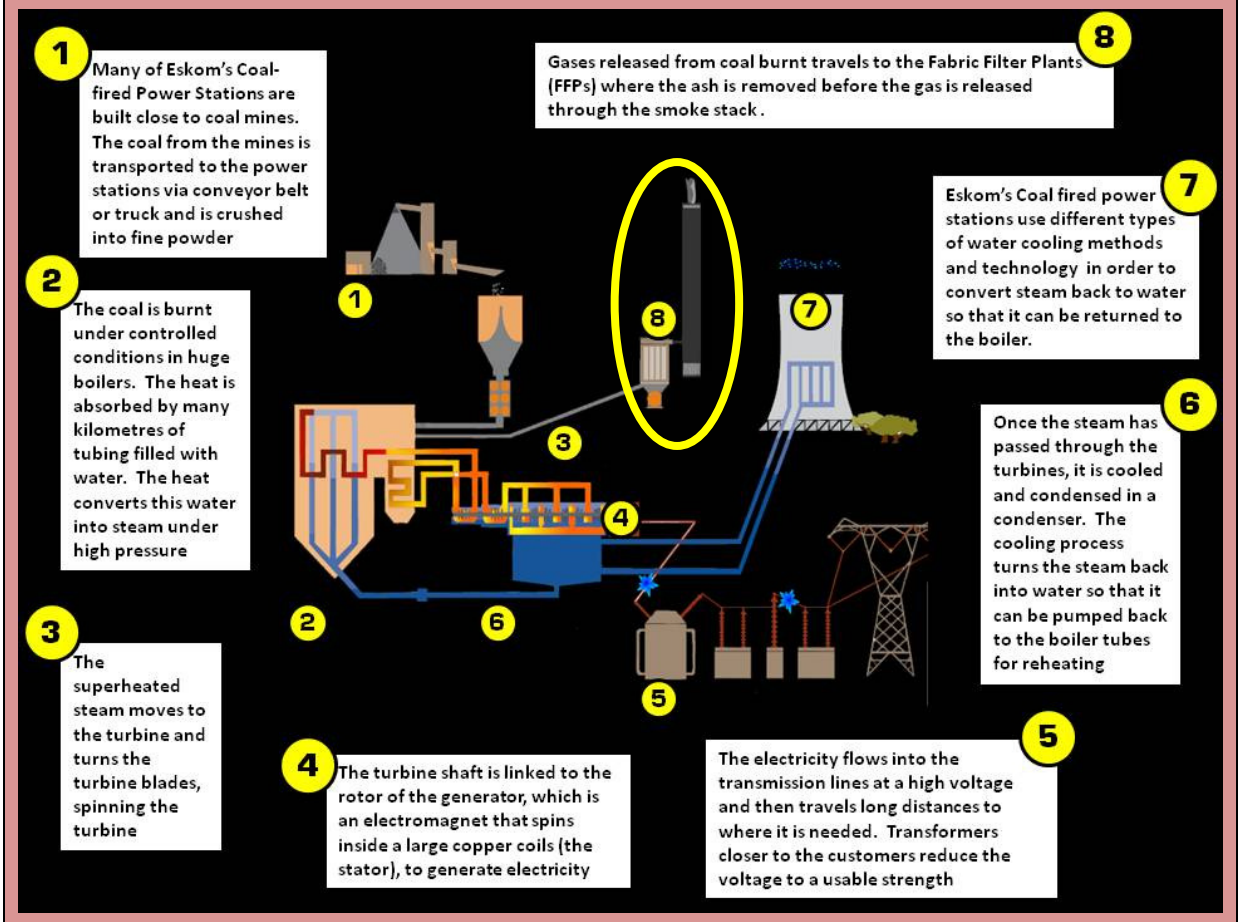


Figure 1: Generic schematic representation of how electricity generation in a coal-fired power station works. This Basic Assessment is focussing on step 8

The current scope of the Basic Assessment (BA) process includes:

- The retrofitting of the existing ESP technology with new Fabric Filter Plants on units 2, 3 and 4, within the borders of the existing ESP Casings, while extending the height of the casing with 1.1 meters.
- The construction of a new compressor house
- A new concrete driveway to the new compressor house
- Replacing of the existing ID Fans with higher capacity ID Fans
- The construction of a new fabrication workshop and contractors yard within the power station's perimeter

During construction the existing ESP technology will be removed from the existing concrete casing (**Figure 2**) and the material either recycled or disposed at a licensed waste disposal facility, in line with the station's waste management procedures and processes. The FFP technology will be

installed inside the existing casing and upgrades will be included around the casing. These upgrades include the installation of new larger ID fans in the same location as the existing fans, however the existing foundations will be strengthened/reinforced. In addition a compressor house will be constructed at a vacant piece of land (**Figure 3**) and for the duration of construction the contractor will have a construction and contractor's yard (including a new fabrication workshop) at their disposal.

Figure 2: Existing Concrete ESP Casing within which the new Fabric Filter Plant will be installed, while extending the height of the casing with 1.1 meters.

Figure 3: The area set aside for the construction of the proposed new compressor house (it is important to note that the entire area in the photo will not be utilised)

In terms of the EIA Regulations published in Government Notice R543 of 2 August 2010 in terms of Section 24 (5) of the National Environmental Management Act (Act No. 107 of 1998), certain listed activities as set out in Government Notice 1, GN R544 require environmental authorisation, through a Basic Assessment (BA) process, before they can proceed.

This proposed project activates a Listed Activity in accordance to these EIA Regulations, as reflected in the table below.

Act	Listing Notice	Listed Activity	Description
NEMA	No. R. 544	Activity 28	The expansion or changes to existing facilities for any process or activity where such expansion or changes will result in the need for a permit or license in terms of national or provincial legislation governing the release of emissions or pollution, excluding where the facility, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply ***(i.e. In terms of this project the change in air quality abatement technology will result in the need for Eskom to change the terms of their Air Quality Permit)***

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Paragraphs 3 – 13 below should be completed for each alternative

In terms of the potential alternatives the following applies:

Due to the existing power station infrastructure location and the proposed retrofitting methodology, there are no siting alternatives that can be considered as the location of the existing ESP's are behind the boiler house (**Figure 4**) and the methodology requires that the Fabric Filter Plant is installed within the existing ESP casings.

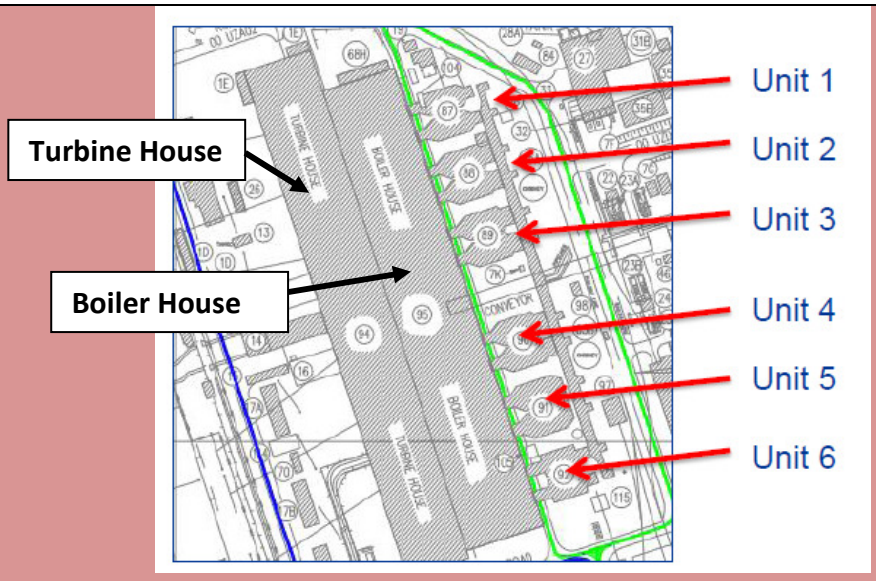


Figure 4: Location of the ESP units behind the boiler house. Unit 2, 3 and 4 fall within this Basic Assessment. Units 1, 5 and 6 have already been retrofitted during the Return to Service that started in 2005.

Due to the constraints with existing structures on site, the technology chosen has to fit within the existing casing of the existing ESP. Therefore no design layout alternatives are feasible and the FFP will be installed inside the existing ESP casing. The FFP will however, result in a height increase of 1.1m.

In terms of technology alternatives there are only two alternatives available. The first is the proposed FFP technology which is to install a Fabric Filter Plant in order to reduce particulate emissions. The second is the "no-go" alternative where the status quo remains in place i.e. the ESP technology remains in use. In view of continuous environmental improvement of its operations, Grootvlei Power Station is motivating the change from ESP to FFP technology. **Table 1** below provides a brief comparison of the ESP and FFP technology.

Table 1: The difference between an Electrostatic Precipitator and a Fabric Filter Plant

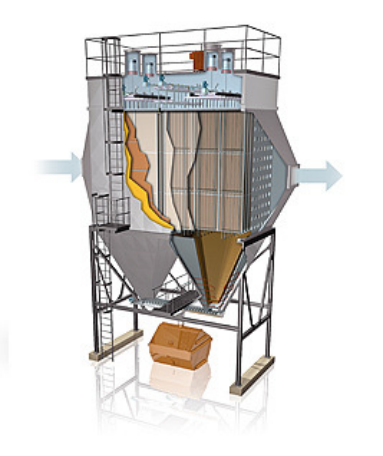
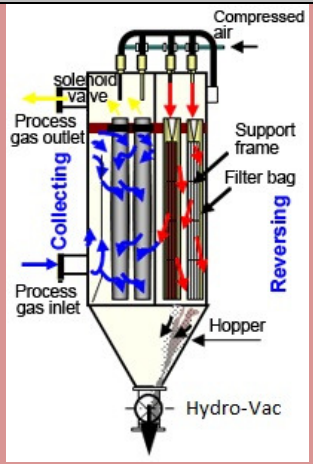
Electrostatic Precipitator	Fabric Filter Plant
	
The dust -laden process gas enters the electrostatic precipitator horizontally and is spread across the entire filter cross-section in a uniform flow profile by a gas distribution screen. By applying high voltage to the electrodes located between the collection plates, an electric field is created that charges the dust/ash particles. Passing through the electric field, the charged particles are transported by electric field strength to the collecting plates, where they agglomerate with previously separated dust particles and finally are dislodged off by the mechanical rapping system. The dislodged dust particles drop into the filter hopper and are removed via the dust handling system, and disposed of at the ash disposal facility.	A fabric filter plant consists of several filter bags made of filter cloth sewn into cylindrical shapes and support frames that support the filter cloth. Process gas is filtered on the surface of the filter cloth, and purified gas flows out. The collected dust is removed from the filter cloth through cleaning methods such as the pulse-jet method, whereby high pressure jets of compressed air are pulsed into the filter bags causing the dust collected on the outside of the bags to drop into the filter hopper and are removed via the dust handling system, and disposed of at the ash disposal facility.

Figure 5: Inside a typical fabric filter plant

3. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.
List alternative sites, if applicable.

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1[2] (preferred or only site alternative) **(approximate centre point)**	**26°**	**46‘ 8.86”**	**28°**	**29‘ 48.16”**
Alternative S2 (if any)	°	‘	°	‘
Alternative S3 (if any)	°	‘	°	‘

~~**In the case of linear activities:**~~

~~**Alternative:**~~	~~**Latitude (S):**~~		~~**Longitude (E):**~~	
~~Alternative S1 (preferred or only route alternative)~~				
~~• Starting point of the activity~~	~~°~~	~~‘~~	~~°~~	~~‘~~
~~• Middle/Additional point of the activity~~	~~°~~	~~‘~~	~~°~~	~~‘~~
~~• End point of the activity~~	~~°~~	~~‘~~	~~°~~	~~‘~~
~~Alternative S2 (if any)~~				
~~• Starting point of the activity~~	~~°~~	~~‘~~	~~°~~	~~‘~~
~~• Middle/Additional point of the activity~~	~~°~~	~~‘~~	~~°~~	~~‘~~
~~• End point of the activity~~	~~°~~	~~‘~~	~~°~~	~~‘~~
~~Alternative S3 (if any)~~				
~~• Starting point of the activity~~	~~°~~	~~‘~~	~~°~~	~~‘~~
~~• Middle/Additional point of the activity~~	~~°~~	~~‘~~	~~°~~	~~‘~~
~~• End point of the activity~~	~~°~~	~~‘~~	~~°~~	~~‘~~

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:		**Size of the activity:**
Alternative A1[3] (preferred activity alternative)	**Three units**	**1000 m² (existing)**
	Compressor house	**250 m² (new)**
	Workshop	**2000 m² (new)**
~~Alternative A2 (if any)~~		~~m²~~
~~Alternative A3 (if any)~~		~~m²~~

~~or, for linear activities:~~

~~**Length of the**~~

[2] “Alternative S..” refer to site alternatives.
[3] “Alternative A..” refer to activity, process, technology or other alternatives.

	activity:
Alternative:	
Alternative A1 (preferred activity alternative)	m
Alternative A2 (if any)	m
Alternative A3 (if any)	m

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	m^2
Alternative A2 (if any)	m^2
Alternative A3 (if any)	m^2

5. SITE ACCESS

Does ready access to the site exist? **(FFPs and Fabrication Warehouse)**	**YES**	
Does ready access to the site exist? **(New Compressor House)**		**NO**
If NO, what is the distance over which a new access road will be built	**10 m**	

Describe the type of access road planned:

A short 10m, 2-lane paved road will be built to access the new compressor house

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

6. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

6.1 the scale of the plan which must be at least a scale of 1:500;
6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
6.4 the exact position of each element of the application as well as any other structures on the site;
6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
6.6 all trees and shrubs taller than 1.8 metres;
6.7 walls and fencing including details of the height and construction material;
6.8 servitudes indicating the purpose of the servitude;
6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):

- rivers;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;

- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or invested with alien species);

6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and

6.11 the positions from where photographs of the site were taken.

7. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form. It must be supplemented with additional photographs of relevant features on the site, if applicable.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

9. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	**R 640.1 Million**
What is the expected yearly income that will be generated by or as a result of the activity?	**0**
Will the activity contribute to service infrastructure?	**YES**
Is the activity a public amenity?	**YES**
How many new employment opportunities will be created in the development phase of the activity?	**918**
What is the expected value of the employment opportunities during the development phase?	**R 171 Million**
What percentage of this will accrue to previously disadvantaged individuals?	**50%**
How many permanent new employment opportunities will be created during the operational phase of the activity?	**0**
What is the expected current value of the employment opportunities during the first 10 years?	**0**
What percentage of this will accrue to previously disadvantaged individuals?	**N/A**

9(b) Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

NEED:			
1.	Was the relevant provincial planning department involved in the application?	**YES**	
2.	Does the proposed land use fall within the relevant provincial planning	**YES**	

	framework?		
3.	If the answer to questions 1 and / or 2 was NO, please provide further motivation / explanation:		

DESIRABILITY:			
1.	Does the proposed land use / development fit the surrounding area?	**YES**	
2.	Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area?	**YES**	
3.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	**YES**	
4.	If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation:		
5.	Will the proposed land use / development impact on the sense of place?		**NO**
6.	Will the proposed land use / development set a precedent?		**NO**
7.	Will any person's rights be affected by the proposed land use / development?		**NO**
8.	Will the proposed land use / development compromise the "urban edge"?		**NO**
9.	If the answer to any of the question 5-8 was YES, please provide further motivation / explanation.		

BENEFITS:			
1.	Will the land use / development have any benefits for society in general?	**YES**	
2.	Explain:		
	The proposed development will reduce the Particulate Matter emissions from the Grootvlei Power Station due to the installation of a higher efficiency air quality abatement technology. The improved air quality will be a positive impact for the surrounding area and the environment. The implementation of the new technology will also assist Eskom through improved compliance with the relevant Minimum Emission Standards.		
3.	Will the land use / development have any benefits for the local communities where it will be located?	**YES**	
4.	Explain:		
	The installation of the FFP will reduce Particulate Matter emissions from the power station, reducing the potential for health impacts to the local Community. There will also be limited employment opportunities during the construction phase.		

10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:	Administering authority:	Date:
Constitution of South Africa (Act No. 108 Of 1996)	**National Government**	**1996**
Environment Conservation Act (Act No. 73 Of 1989)	**National Department of Environmental Affairs**	**1989**
National Environmental Management Act (Act No. 107 Of 1998)	**National Department of Environmental Affairs**	**1998**
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	**National Department of Environmental Affairs**	**2004**
National Environmental Management: Waste Act (Act No. 59 of 2008)	**National Department of Environmental Affairs**	**2008**
Occupational Health and Safety Act (Act No. 85 Of 1993)	**Department of Health**	**1993**
National Environmental Management Amendment Act No. 8 of 2004	**National Department of Environmental Affairs**	**2004**

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES**
If yes, what estimated quantity will be produced per month?	
Steel – in total	**340 tons**
Concrete – in total	**1200 tons**
Cables – in total	**4.54 tons**
Transformers – in total	**8**

How will the construction solid waste be disposed of (describe)?

Waste will be disposed of in accordance with the Grootvlei Power Station's waste management procedures. These procedures have been attached in Appendix G

Where will the construction solid waste be disposed of (describe)?

Waste will be disposed of in accordance with the Grootvlei Power Station's waste management procedures. These procedures have been attached in Appendix G

Will the activity produce solid waste during its operational phase?	**YES**
If yes, what estimated quantity will be produced per month?	
Bags – every 36000 operational hours per unit	**9744 bags**

How will the solid waste be disposed of (describe)?

Waste will be disposed of in accordance with the Grootvlei Power Station's waste management procedures. These procedures have been attached in Appendix G

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

Waste will be disposed of in accordance with the Grootvlei Power Station's waste management procedures. These procedures have been attached in Appendix G

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	**YES**

If yes, inform the competent authority and request a change to an application for scoping and EIA.

The waste filter bags are classified as hazardous waste and will be disposed of at a licensed hazardous waste site (i.e. Holfontein) in accordance with the power station's waste procedures.

Is the activity that is being applied for a solid waste handling or treatment facility?	**NO**

If yes, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	**NO**
If yes, what estimated quantity will be produced per month?	
Will the activity produce any effluent that will be treated and/or disposed of on site?	**Yes**
If yes, what estimated quantity will be produced?	
Oil – per unit during maintenance cycles – once every 72 months	**600 Litres**
Additional Ash from new FFPs	**Approx. 1.39 tons per hour extra**

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

It is estimated that with the retrofitting of the existing ESPs to FFPs an additional 1.39 tons of ash per hour will be captured by the process and disposed of at the existing ash disposal facilities, which are capacitated, and as per current practice.

Will the activity produce effluent that will be treated and/or disposed of at another facility?	**NO**

If yes, provide the particulars of the facility:

Facility name:	
Contact person:	
Postal address:	
Postal code:	
Telephone:	Cell:
E-mail:	Fax:

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

Grootvlei Power Station utilises a wet ash disposal system. This process will not be changed and will continue to operate as it is as present.

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	**YES**
If yes, is it controlled by any legislation of any sphere of government?	**YES**

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

The power station has an existing air quality license – however the retrofitting of the three ESPs with FFPs will require Eskom to amend their existingair quality licence. An air quality specialist has been consulted to identify the impact of the retrofitting activities. The specialist report is included in Appendix D.

If no, describe the emissions in terms of type and concentration:

11(d) Generation of noise

Will the activity generate noise?	**YES**
If yes, is it controlled by any legislation of any sphere of government?	**YES**

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

A noise specialist was consulted to provide an opinion as to whether the retrofitting would change the existing noise generated on site. It is anticipated that the retrofitting is very unlikely to cause any measurable change in the total noise emissions from the power station. The noise opinion is included in Appendix D

If no, describe the noise in terms of type and level:

12. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

municipal	water board	groundwater	river, stream, other dam or lake	**the activity will not use water**

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate

the volume that will be extracted per month:

Does the activity require a water use permit from the Department of Water Affairs?

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

13. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

Eskom has a energy efficiency drive within the organization. Within the design processes followed by the organization, multiple considerations are taken on energy efficiencies. High focus areas are medium voltage motors and plant lighting.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

No alternative energy sources are available for this activity.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A):	**1**

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? **YES**

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed:
All specialist reports must be contained in Appendix D.

Property description/physical address:

Grootvlei Power Station

- **SG CODE: T0IR00000000045700000**
- **FARM NO: 457**
- **FARM NAME: 457 IR**
- **PORTION: 00000**
- **MAJOR REGION: IR**
- **MUNICIPALITY: Balfour**
- **PROVINCE: Mpumalanga**

(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.

In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.

Current land-use zoning: **Agricultural**

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to , to this application.

Is a change of land-use or a consent use application required?	**NO**
Must a building plan be submitted to the local authority?	**NO**

Locality map:

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.) The map must indicate the following:

- an indication of the project site position as well as the positions of the alternative sites, if any;
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection)

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	1:50 1:20	–	1:20 1:15	–	1:15 – 1:10		1:10 1:7,5	–	1:7,5 – 1:5		Steeper 1:5	than		

Alternative S2 (if any):

Flat	1:50 1:20	–	1:20 1:15	–	1:15 – 1:10		1:10 1:7,5	–	1:7,5 – 1:5		Steeper 1:5	than		

Alternative S3 (if any):

Flat	1:50 1:20	–	1:20 1:15	–	1:15 – 1:10		1:10 1:7,5	–	1:7,5 – 1:5		Steeper 1:5	than		

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

~~2.1 Ridgeline~~
~~2.2 Plateau~~
~~2.3 Side slope of hill/mountain~~
~~2.4 Closed valley~~
~~2.5 Open valley~~
2.6 Plain
~~2.7 Undulating plain / low hills~~
~~2.8 Dune~~
~~2.9 Seafront~~

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

	Alternative S1:	Alternative S2 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)	NO		
Dolomite, sinkhole or doline areas	NO		
Seasonally wet soils (often close to water bodies)	NO		
Unstable rocky slopes or steep slopes with loose soil	NO		
Dispersive soils (soils that dissolve in water)	NO		
Soils with high clay content (clay fraction more than 40%)	NO		
Any other unstable soil or geological feature	NO		
An area sensitive to erosion	NO		

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

4. GROUNDCOVER

Indicate the types of groundcover present on the site:

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition[E]	Natural veld with scattered aliens[E]	Natural veld with heavy alien infestation[E]	Veld dominated by alien species **(at the Workshop site)**	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil **(at the Workshop site)**

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that does currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

5.1 Natural area
~~5.2 Low density residential~~
5.3 Medium density residential
~~5.4 High density residential~~
5.5 Informal residential[A]
~~5.6 Retail commercial & warehousing~~
~~5.7 Light industrial~~
~~5.8 Medium industrial[AN]~~
~~5.9 Heavy industrial[AN]~~
5.10 Power station
~~5.11 Office/consulting room~~
~~5.12 Military or police base/station/compound~~
~~5.13 Spoil heap or slimes dam[A]~~
~~5.14 Quarry, sand or borrow pit~~
5.15 Dam or reservoir
~~5.16 Hospital/medical centre~~
~~5.17 School~~
~~5.18 Tertiary education facility~~
~~5.19 Church~~
~~5.20 Old age home~~
5.21 Sewage treatment plant[A]
~~5.22 Train station or shunting yard[N]~~
5.23 Railway line[N]
~~5.24 Major road (4 lanes or more)[N]~~
~~5.25 Airport[N]~~
~~5.26 Harbour~~
~~5.27 Sport facilities~~
~~5.28 Golf course~~
~~5.29 Polo fields~~
~~5.30 Filling station[H]~~
~~5.31 Landfill or waste treatment site~~
~~5.32 Plantation~~
5.33 Agriculture
~~5.34 River, stream or wetland~~
~~5.35 Nature conservation area~~
~~5.36 Mountain, koppie or ridge~~
~~5.37 Museum~~
~~5.38 Historical building~~
~~5.39 Protected Area~~
~~5.40 Graveyard~~
~~5.41 Archaeological site~~
~~5.42 Other land uses (describe)~~

The following photos provide some insight into the land use character of the surrounding area

If any of the boxes marked with an "N "are ticked, how will this impact / be impacted upon by the proposed activity?

If YES, specify and explain:
The railway line will in no way impact on or be impacted on by the proposed FFP retrofitting activities at the Grootvlei power station.

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity?

If YES, specify and explain:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.

If YES, specify and explain:

6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or palaeontological sites, on or close (within 20m) to the site?	**NO**
If YES, explain:	
If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.	
Briefly explain the findings of the specialist:	
Will any building or structure older than 60 years be affected in any way?	**NO**
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	**NO**

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

(a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  (i) the site where the activity to which the application relates is or is to be undertaken; and
  (ii) any alternative site mentioned in the application;
(b) giving written notice to—
  (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  (v) the municipality which has jurisdiction in the area;
  (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  (vii) any other party as required by the competent authority;
(c) placing an advertisement in—
  (i) one local newspaper; or
  (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
(e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  (i) illiteracy;
  (ii) disability; or
  (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

(a) indicate the details of the application which is subjected to public participation; and
(b) state—

(i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
(ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
(iii) the nature and location of the activity to which the application relates;
(iv) where further information on the application or activity can be obtained; and
(iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

An advert notifying the public of the Basic Assessment Process and the Basic Assessment Report review were placed in the following newspapers:

- **Heidelberg & Nigel Rekord**
- **Heraut Newspaper**

A copy of the advert is included in Appendix G.

Site notices have also been erected at the power station.

The Basic Assessment report was placed at the following public places for review from 10 July 2012 to 7 August 2012:

- **Balfour Public Library**
- **Grootvlei Power Station Main Gate Reception**
- **Lidwala Website (www.lidwala.com)**
- **Eskom EIA website (http://www.eskom.co.za/c/44/environmental-impact-assessments/)**

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

The comment and response report will be compiled during the report review period and will be included in the Final Basic Assessment Report

6. AUTHORITY PARTICIPATION

Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input.

List of authorities informed:

- **Mpumalanga Department of Economic Development, Environment and Tourism**
- **Department of Agriculture, Forestry and Fisheries**
- **Department of Labour**
- **Department of Water Affairs (National and Provincial)**
- **Dipaleseng Local Municipality**
- **Gert Sibande District Municipality**

List of authorities from whom comments have been received:

No Comments have been received to date. All comments received during the report review period will be included in the comment and response report to be included in the Final Basic Assessment Report.

7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation to the extent and in the manner as may be agreed to by the competent authority. Proof of any such agreement must be provided, where applicable.

Has any comment been received from stakeholders? **NO**

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

Stakeholders on the Database were sent a copy of the Background Information Document and have been informed of the review of the Draft Basic Assessment Report. The Database is included in Appendix G.

No Comments have been received to date. All comments received during the report review period will be included in the comment and response report to be included in the Final Basic Assessment Report.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

No comments have been received as yet. However, similar projects undertaken by Eskom regarding the retrofitting of FFP's identified the following main issues:

- **Air Quality**
- **Job Creation**

The final list of issues will be included in the Final BAR.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report as Annexure E):

The following responses can be provided at this stage:

- **Air Quality – it is anticipated that the existing Ground Level Concentrations of 4 µg/m³ will be reduced by 73% to 1.08 µg/m³ once the retrofitting is complete**
- **Job Creation – It is anticipated that a total of 918 employment opportunities will be made during the development of the project, of which approximately 50% are anticipated to be allocated to previously disadvantaged**

2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

Alternative (preferred alternative)

The impacts below are discussed in more detail in the significance rating table (Table 2).

Direct impacts:

- **Planning and Design Phase**
  - **No impacts anticipated**
- **Construction Phase**
  - **Noise**
  - **Air Quality – dust**

- Social – Job creation
- Waste generation and spills

- **Operational Phase**
  - Noise
  - Air Quality (positive impact)
  - Waste – Generation and Spills
  - Social – Job Creation (positive impact)
- **Decommissioning Phase**
  - Noise
  - Air Quality – Dust
  - Social – Job Creation (positive impact)
  - Waste generation and spills

Indirect impacts:

- **Planning and Design Phase**
  - No impacts anticipated
- **Construction Phase**
  - No impacts anticipated
- **Operational Phase**
  - Health
  - Legal Compliance
- **Decommissioning Phase**
  - No impacts anticipated

Cumulative impacts:

- **Planning and Design Phase**
  - No impacts anticipated
- **Construction Phase**
  - No impacts anticipated
- **Operational Phase**
  - Air Quality
  - Waste
- **Decommissioning Phase**
  - No impacts anticipated

No-Go Alternative

In the event that the existing ESPs in Units 2, 3, and 4 are not retrofitted to new Fabric Filter Plants the status quo will remain and the power station will not be able to meet the more stringent particulate Minimum Emission Standards.

In accordance with Regulation 31 of Government Notice R.543, promulgated in terms of section 24 of the National Environmental Management Act, 1998 (Act 107 of 1998), Lidwala were required to assess the significance of potential impacts in terms of the following criteria:

- **Cumulative impacts;**

- **Nature of the impact;**
- **Extent and duration of the impact; and**
- **Probability of the impact occurring.**

Issues were assessed in terms of the following criteria:

- **The nature, a description of what causes the effect, what will be affected and how it will be affected;**
- **The physical extent, wherein it is indicated whether:**
  - **1 - the impact will be limited to the site;**
  - **2 - the impact will be limited to the local area;**
  - **3 - the impact will be limited to the region;**
  - **4 - the impact will be national; or**
  - **5 - the impact will be international;**
- **The duration, wherein it is indicated whether the lifetime of the impact will be:**
  - **1 - of a very short duration (0–1 years);**
  - **2 - of a short duration (2-5 years);**
  - **3 - medium-term (5–15 years);**
  - **4 - long term (> 15 years); or**
  - **5 - permanent;**
- **The magnitude of impact on ecological processes, quantified on a scale from 0-10, where a score is assigned:**
  - **0 - small and will have no effect on the environment;**
  - **2 - minor and will not result in an impact on processes;**
  - **4 - low and will cause a slight impact on processes;**
  - **6 - moderate and will result in processes continuing but in a modified way;**
  - **8 - high (processes are altered to the extent that they temporarily cease); or**
  - **10 - very high and results in complete destruction of patterns and permanent cessation of processes;**
- **The probability of occurrence, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale where:**
  - **1 - very improbable (probably will not happen;**
  - **2 - improbable (some possibility, but low likelihood);**
  - **3 - probable (distinct possibility);**
  - **4 - highly probable (most likely); or**
  - **5 - definite (impact will occur regardless of any prevention measures);**
- **the significance, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high; and**
- **the status, which is described as either positive, negative or neutral..**

The significance is determined by combining the criteria in the following formula:

S = (E+D+M)*P; where

S = Significance weighting
E = Extent

D = Duration
M = Magnitude
P = Probability

The significance weightings for each potential impact are as follows:

- **< 30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area),**
- **30 - 60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),**
- **> 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).**

Table 2: Significance rating Table

PLANNING AND DESIGN PHASE	
Nature of the phase	The Planning and design phase will be limited to site visits and planning meetings. All the sites contemplated within this project area accessible from existing access roads. The proposed project involves the retrofitting of the existing ESPs with FFPs within the existing encasements (with some minor modification). The project, however, does require the existing emissions license to be amended.
Direct Impacts	
No direct impacts are anticipated during this phase.	
Indirect Impacts	
The only indirect impact that this project will have is the requirement to amend the existing emissions license which therefore triggered this Basic Assessment Process.	
Cumulative Impacts	
No cumulative impacts are anticipated during this phase.	

CONSTRUCTION PHASE									
Nature of the phase	During construction the existing ESP technology will be removed from the existing concrete casing. The retrofit will be done by removing the roof of the concrete casing and entering from above, via cranes placed adjacent to the ESP casing. The FFP technology will be installed inside the existing casing – although the existing casing will be extended vertically, by 1.1 m. Additional developments that will be included to the site area, will include: * A new compressor house to be constructed. The compressor house will be a concrete/brick building with a steel roof enclosure which is no more than 18,5m x 22,0 m in dimensions at the back of unit 3, between the new FFP plant and the existing road at the back of the station. The reason for building the compressor house behind unit 3 is because additional compressors are required for the Fabric Filter Plant. * A new concrete driveway (22 m wide, 10 m long) which is the width of the compressor house, will extend to the road, which is roughly 4m away * The current ID Fans will also need to be upgraded through minor increase in plinth size as described in the next bullet – no additional foundation footprint will be disturbed as a result of this (just minor increase in plinth size as described in the next bullet); * The existing concrete plinths will be cut-off at grade level and a new plinth will be constructed at the same location to support the new ID fan (size will be no more than 20% bigger than the current plinth). * There will be a requirement of new transformers feeding station boards A and B. These transformers will replaced the existing transformer, hence being installed in the same location.. The plinth for the transformers may be increased by no more than 10% with associated new bund walls. During construction, the contractor will have a contractor's yard which will consist of a new fabrication workshop which is 76m x 20m in size (concrete slab, masonite building with a steel roof). The site workshop will be used to do most of the fabrication and sub-assemblies prior to the construction. By erecting a workshop like this on site it will make the logistics much easier as much reduced abnormal transport will be required to transport pre-fabricated structures from Gauteng to site.								
Direct Impacts									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Noise	**Nature of impact:**	The construction activities will result in some additional noise that may affect workers on site. This noise could result from increased construction traffic, welding, grinding, materials handling etc. The construction phase also includes the decommissioning of parts of the existing structures.							
	without	1	2	2	4	**20**	**Low**	-	high
	with	1	2	0	2	**6**	**Low**	-	high
	Mitigation proposed	Ensure that all workers are issued with and use the correct PPE on site, especially with regards to ear plugs. In addition all construction areas should be designated as noisy areas.							

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
Air Quality: Dust	**Nature of impact:**	It is anticipated that the construction activities will generate dust on the construction site							
	without	1	2	4	4	**28**	**Low**	-	high
	with	1	2	2	3	**15**	**Low**	-	high
	Mitigation proposed	Ensure that all workers are issued with the correct PPE as per the power station's Health and Safety procedures. Areas where construction activities area taking place should be designated as "dusty" areas. Where practically possible dust suppression measures should be put in place.							
Social: Job Creation	**Nature of impact:**	Approximately 918 jobs will be created during the construction period of which 50% will be allocated to Previously disadvantaged individuals							
	without	2	2	4	3	**24**	**Low**	+	high
	with	2	2	6	4	**40**	**Medium**	+	high
	Mitigation proposed	Ensure that local contractors are utilised as far as possible, this will optimise the positive impact on the local communities							
Waste: Generation	**Nature of impact:**	Construction waste will be generated, not only from the new construction that takes place but also from the decommissioning of existing facilities and structures. This waste includes steel, concrete, oil, cables etc.							
	without	1	2	4	5	**35**	**Medium**	-	high
	with	1	2	2	3	**15**	**Low**	-	high
	Mitigation proposed	All waste must be managed and disposed of in accordance with the power station's waste procedures.							
Indirect Impacts									
No indirect impacts are anticipated during this phase									
Cumulative Impacts									
No cumulative impacts are anticipated during this phase. The industrial levels of noise to which Eskom comply are not anticipated to increase and therefore there will be no cumulative noise impact.									

OPERATIONAL PHASE									
Nature of the phase	During the operational phase the FFPs will filter the air from the unit 2, 3 and 4 boilers and remove the ash from the flue gas prior to the gas being emitted from the stack. The ash captured is collected in the hoppers and transported via the ash disposal system to the ash dam. The waste handling facilities for the ash and the additional filter bags is existing and operational. The fact that most of the infrastructure and facilities are existing limits the operational impacts.								
Direct Impacts									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Noise	**Nature of impact:**	The new FFPs require an upgraded ID fan which will change the ambient noise. However, the change in noise as a result of the retrofitting project is anticipated to be unmeasurable and not audible. Refer to noise report for more detailed information.							
	without	1	4	2	2	**14**	**Low**	-	high
	with	1	4	0	1	**5**	**Low**	-	high
	Mitigation proposed	In order to ensure that the ambient noise does not change it recommended that all machinery is maintained in good working order and operating within allowable limits. The power station must also ensure that all employees continue to wear the relevant PPE for noisy areas.							
Waste: Generation	**Nature of impact:**	Every 36000 operational hours per unit the fabric filter bags must be changed. This will result in an increase of hazardous waste generation at the power station. The additional ash captured in the process will also result in an increase in waste generation, but this will be disposed of at the ash dams, which are developed for it.							
	without	1	4	6	3	**33**	**Medium**	-	high
	with	1	4	2	2	**14**	**Low**	-	high
	Mitigation proposed	Ensure that fabric filter bags are disposed of in line with the power station's hazardous waste procedures. The fabric filter bags must be disposed of at a licensed hazardous waste site such as Holfontein. The additional ash captured must be transported via the existing ash disposal system.							
Waste: Spillage	**Nature of impact:**	Spillage of filtered ash could occur during the handling of waste such as a tear in a filter bag as it is replaced							
	without	1	2	4	3	**21**	**Low**	-	high
	with	1	1	2	2	**8**	**Low**	-	high
	Mitigation proposed	Ensure that the procedures for FFP dusting as well as for bag inspection and replacement are followed at all times. Ensure that procedures are in place in the event that a spill is noted.							

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
Air Quality: Emissions	**Nature of impact:**	The operation of the FFPs will reduce the particulate emissions from the power station substantially. For details in this regard refer to the Air quality study in Appendix D. This reduction in particulate emissions will result in Eskom being able to consistently meet the new minimum emission standards at Grootvlei power station.							
	without	2	4	6	4	**48**	**Medium**	+	high
	with	2	4	6	4	**48**	**Medium**	+	high
	Mitigation proposed	The FFPs must be operated according to the FFP operating procedures and it must be ensured that all maintenance is conducted in line with the station's existing maintenance procedures.							
Social: Job Creation	**Nature of impact:**	On the whole the project will not create any new permanent jobs at the power station. However when the filter bags are required to be changed it is anticipated that some short term employment opportunities may be created in order to assist the power station staff replace the bags							
	without	2	2	4	3	**24**	**Low**	+	high
	with	2	2	2	4	**24**	**Low**	+	high
	Mitigation proposed	Ensure that local HDI contractors or individuals are considered for any opportunities that may be created in the future							
Indirect Impacts									
Health: Human, animal and plant	**Nature of impact:**	The reduction of ambient emissions with the use of FFP technology will result in improved ambient air quality in the surrounding areas. This will indirectly result in the reduction of emission related health impacts on human, animals and plants.							
	without	2	4	4	4	**40**	**Medium**	+	high
	with	2	4	4	4	**40**	**Medium**	+	high
	Mitigation proposed	Due to the fact that this project would result in all 6 units now operating FFPS, no further mitigation measures can be recommended, besides ensuring the FFPs are maintained in a good working order at all times.							
Legal Compliance	**Nature of impact:**	The retrofitting of the last three units to FFP will enable Eskom to meet the more stringent particulate **minimum emission standards** therefore ensuring legal compliance							
	without	2	4	4	4	**40**	**Medium**	+	high
	with	2	4	4	4	**40**	**Medium**	+	high
	Mitigation proposed	Due to the fact that this project would result in all 6 units now operating FFPS, no further mitigation measures can be recommended, besides ensuring the FFPs are maintained in a good working order at all times.							

Cumulative Impacts									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Air Quality: Emissions	**Nature of impact:**	Units 1, 5 and 6 already have FFPs, and with the retrofitting of the last three units to FFP the positive improvement on the air quality will be noticeable.							
	without	2	4	6	4	**48**	**Medium**	+	high
	with	2	4	6	4	**48**	**Medium**	+	high
	Mitigation proposed	Due to the fact that this project would result in all 6 units now operating FFPS, no further mitigation measures can be recommended, besides ensuring the FFPs are maintained in a good working order at all times.							
Waste: Generation	**Nature of impact:**	It is estimated that an additional 1.39 tons of ash per hour will be captured by the process. This ash will be added to the existing **capacitated** ash disposal system for disposal on the ash dam at the power station. The additional volumes of ash are nominal in comparison to the overall ash volumes in the waste stream. In addition to the additional ash quantities there will also be an additional number of filter bags that will require disposal.							
	without	1	4	2	3	**21**	**Low**	-	high
	with	1	4	2	3	**21**	**Low**	-	high
	Mitigation proposed	The additional ash will be disposed utilising the existing ash disposal system and the additional fabric filter bags will be disposed of in accordance with the existing disposal procedures. No additional mitigation measures are required.							
Visual Impact	**Nature of impact:**	Due to the fact that the surrounding structures are taller than the ESP casing (even with the vertical increase of 1.1 m once the retrofit has been completed), there will be no visual impact as a result of the FFP retrofit project.							

DECOMMISSIONING PHASE									
Nature of the phase	The decommissioning phase of this project would involve the removal of the FFPs. This would involve the stripping of all materials, associated buildings, structures and concrete slabs. The impact would be closely related to those identified for the construction phase although it is likely that more waste may be generated. In terms of this project it is considered unlikely that the FFPs would be decommissioned in the very near future and that their decommissioning would co-inside with the decommissioning of the power station. However, it is more likely that the new site workshop maybe decommissioned in the event that it is not required once the construction phase has been completed.								
Direct Impacts									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Noise	**Nature of impact:**	The decommissioning activities will result in some additional noise that may affect workers on site. This noise could result from increased construction traffic, welding, grinding, materials handling etc. The construction phase also includes the decommissioning of parts of the existing structures.							
	with	1	2	4	4	**28**	**Low**	-	high
	without	1	2	2	2	**10**	**Low**	-	high
	Mitigation proposed	Ensure that all workers are issued with and use the correct PPE on site, especially with regards to ear plugs. In addition all construction areas should be designated as noisy areas.							
Air Quality: Dust	**Nature of impact:**	It is anticipated that the construction activities will generate dust on the construction site							
	with	1	2	4	4	**28**	**Low**	-	high
	without	1	2	2	3	**15**	**Low**	-	high
	Mitigation proposed	Ensure that all workers are issued with the correct PPE as per the power station's Health and Safety procedures. Areas where construction activities area taking place should be designated as "dusty" areas. Where practically possible dust suppression measures should be put in place.							
Social: Job Creation	**Nature of impact:**	Approximately 918 jobs will be created during the construction period of which 50% will be allocated to Previously disadvantaged individuals							
	with	2	2	4	3	**24**	**Low**	+	high
	without	2	2	6	4	**40**	**Medium**	+	high
	Mitigation proposed	Ensure that local contractors are utilised as far as possible, this will optimise the positive impact on the local communities							

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
Waste: Generation	**Nature of impact:**	Construction waste will be generated, not only from the new construction that takes place but also from the decommissioning of existing facilities and structures. This waste includes steel, concrete, oil, cables etc.							
	with	1	2	4	5	**35**	**Medium**	-	high
	without	1	2	2	3	**15**	**Low**	-	high
	Mitigation proposed	All waste must be managed and disposed of in accordance with the power station's waste procedures.							
Indirect Impacts									
No indirect impacts are anticipated during this phase									
Cumulative Impacts									
No cumulative impacts are anticipated during this phase									

3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

With the retrofitting of the units from the existing ESPs to FFPs the particulate emissions from the stacks of the Grootvlei Power Station will be reduced, resulting in significantly improved air quality in the surrounding areas. This, coupled with the possibility of a number of short term employment opportunities for local labour, results in a number of positive environmental impacts as a result of the project.

It is clear from the above significance ratings (Table 2) that the positive impacts significantly outweigh the negative impacts of this project.

All the negative impacts such as noise, waste generation and dust can be adequately mitigated in order to reduce the impact.

The site is the existing casing of the existing ESPs, the only change will be an increase in height by 1.1m. The new workshop and compressor house are also located on brown field areas within the power station complex. There are no sensitive environmental areas near the site or the power station in general and there are sufficient existing procedures in place to ensure that any potential impact is prevented.

The power station currently successfully operates 3 units that each have FFP's and the addition of a further 3 FFP's at the remaining units will only serve to improve the power station's emissions.

It is recommended that the preferred FFP technology be approved for the proposed project.

No-go alternative (compulsory)

In the event that the existing ESPs in Units 2, 3, and 4 are not retrofitted to new Fabric Filter Plants the status quo will remain and the power station will not be able to reduce the particulate emissions as well as not meet the more stringent particulate emission limits.

Therefore, it is considered that leaving the power station as it is without FFPs would be more detrimental to the environment due to the fact that the existing air quality conditions would not improve. Further, this alternative would result in non-compliance with conditions of the air quality licence. Such contravention would not give support to Eskom's objective on "reduction of environmental footprint"

The no-go alternative is therefore not considered as feasible option for this project.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	**YES**

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

It is recommended that the proposed FFP technology and associated retrofit process be approved for the proposed project.

It is further recommended that the project proceed in line with the existing procedures at the power station as well as the attached EMP.

Is an EMPr attached? The EMPr must be attached as Appendix F.	**YES**

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

The Site / Locality Plan is attached in Appendix A

Appendix B: Photographs

Site photographs are attached in Appendix B

Appendix C: Facility illustration(s)

The Facility illustrations are included in Appendix C

Appendix D: Specialist reports (including Terms of Reference)

Air Quality Study
Visual Impact Opinion
Noise Impact Opinion

Appendix E: Comments and responses report

Not yet applicable – No comments have been received as yet. The Comment and Response Report will be included in the Final BAR

Appendix F: Environmental Management Programme (EMPr)

The EMP is attached in Appendix F

Appendix G: Other information

Public Participation information is included in Appendix G1
The existing Waste Procedures for Grootvlei Power Station are included in Appendix G2