

Funded by the EU Delegation to South Africa



BOSA

TRANSMISSION PROJECT

APPENDIX 2

AIR QUALITY MANAGEMENT PLAN
REVISION 1.0

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List of Acronyms

AQMP	Air Quality Management Plan	ESIA	Environmental and Social Impact Assessment
BOSA	Botswana-South Africa	ESMP	Environmental and Social Management Plan
BPC	Botswana Power Corporation	IFC	International Finance Corporation
DBSA	Development Bank of Southern Africa	DBSA	Development Bank of Southern Africa
DEA	Department of Environmental Affairs	NEM:AQA	National Environmental Management: Air Quality Act 2008 (Act No. 39 of 2008)
ECO	Environmental Control Officer	NEM:WA	National Environmental Management: Waste Act 2008 (Act No. 58 of 2008)
EO	Environmental Officer	SAPP	Southern African Power Pool
OHSA	Occupational Health and Safety Act 1993 (Act (Act No. 85 of 1993)	PPE	Personal Protective Equipment

Glossary of Terms

Definition of terms provided in the National Environmental Management: Air Quality Act, 2008 (Act No. 39 of 2008)

- Air pollution** means any change in the composition of the air caused by smoke, soot, dust (including fly ash), cinders, solid particles of any kind, gases, fumes, aerosols and odorous substances;
- Greenhouse gas** means gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation. and includes carbon dioxide, methane and nitrous oxide:

INTRODUCTORY NOTE

This plan has been prepared in terms of the requirements of the Department of Environmental Affairs (DEA) in their acceptance of the Final Scoping Report prepared for the proposed Botswana-South Africa (BOSA) Transmission Interconnection Project (the “Project”) to alleviate the current electricity supply constraints and contribute towards energy security of supply in the long run by enhancing the distribution of electricity in the region.

This Plan must be read in conjunction with the ESMP and should be implemented throughout the lifecycle of the project and/or where relevant. In terms of implementation, the Developer (Eskom or BPC) will be responsible for appointing a qualified Environmental Control Officer (ECO) to visit the site as stipulated in the ESMP to ensure implementation of this plan and other relevant authorisations and permits. A copy of this Plan must be maintained on site, and all the Contractor’s employees working at the site, including sub-contractors must be trained to ensure compliance with this Plan. Changes to the Plan must be approved by the ECO, and updates and reasons for the changes incorporated into the plan.

SECTION 1

1 Introduction

1.1 Background to the Project

The Southern African Power Pool (SAPP) has identified the Botswana-South Africa (BOSA) Transmission Interconnection Project as one of the energy pool initiatives to alleviate the current electricity supply constraints and contribute towards energy security of supply in the long run between South African and Botswana. Given the transborder nature of the project, both Eskom of South Africa and the Botswana Power Corporation (BPC) will subsequently be the beneficiaries of the project. The proposed transmission line stretches between the Mafikeng area in South Africa and Gaborone in Botswana for approximately 210 km.

The subject of this Plan is Air Quality Management for the project.

1.2 Purpose and Scope

The **purpose** of Air Quality Management Plan (AQMP) is to protect the health of human receptors (both staff on site and people living close to the site) as well as the health and status of receptors that are specific to natural and built environments.

The **scope** of this plan includes:

- Identification of all possible sources of air pollution;
- Control of potential emissions;
- Measures to minimise environmental impact from emissions;
- Ensuring compliance with environmental legislative requirements; and
- Describing procedures for dealing with non-compliance, if identified.

1.3 Objectives

To guide the means by which the Contractor will ensure the following:

- To maintain good air quality and comply with the ambient air quality standards; and
- Ensure air pollutants from site do not interfere or disturb environmental, economic or social activities in the vicinity of the construction site.

1.4 Major Sources of Air Quality Impacts

Construction sites involving heavy engineering generally are sources of **dust emissions** (*i.e. from loading/unloading of material, stockpiling of material, excavations, construction of access roads*). The air quality in construction areas and the immediate surroundings is inevitably negatively impacted on during construction activities – the severity of which is dependent on the magnitude and duration of the construction activities.

Other negative impacts to the ambient air quality are:

- **Exhaust emissions** from vehicles and plant; and
- **Unpleasant odours** from incorrect handling of putrescible wastes.

SECTION 2

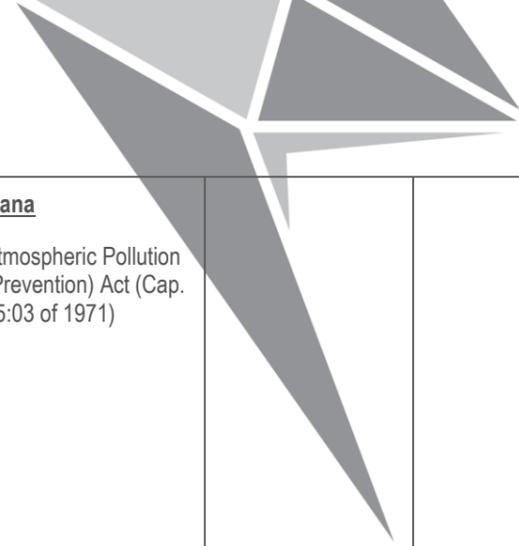
2 Air Quality Management

The table below presents a summary of the potential environmental impacts related to air quality, together with mitigation and management measures to mitigate such impacts.

Table 1: Air quality aspects and impacts with associated objectives and mitigation measures

ASPECT	POTENTIAL IMPACTS	MITIGATION MEASURES	PERFORMANCE INDICATORS/ OUTCOME TARGET	PROJECT PHASE	APPLICABLE PLANS, POLICIES & PROCEDURES	RESPONSIBLE PERSON	REPORTING, MONITORING AND AUDITING REQUIREMENTS
Dust Generation	Negative effects on households near the project site Nuisance Decreased road visibility	<ul style="list-style-type: none"> Areas having to be stripped of topsoil for construction purposes must be kept to a minimum and only stripped when work is about to take place. Dust suppression is to be conducted during construction, esp. during windy conditions. Dust suppression measures such as water or non-toxic chemical dust suppression can be used. Any chemicals utilised must be of a biodegradable nature and approved by the ECO. Plan the site activities so that machinery and dust generating activities are located as far as possible away from sensitive receptors (i.e. households). Stockpiles exceeding 3m in height are more likely cause dust during windy conditions. Limit the height and slope of material stockpiles to reduce wind entrainment. Exposed stockpiles can also be sprayed with water, covered or orientated such that they are protected from wind erosion. Establish and enforce vehicle speed limits on haul roads and construction camp to reduce the generation of dust. 	<ul style="list-style-type: none"> No complaints from site staff, surrounding landowners and / or communities about dust. 	CONSTRUCTION & DECOMMISSIONING	<p>International:</p> <ul style="list-style-type: none"> IFC EHS General Guidelines (2007), Section 1.1 – Air Emissions and Ambient Air Quality IFC EHS General Guidelines (2007), Section 2.0 & 4.2 – Occupational Health and Safety IFC EHS General Guidelines (2007), Section 4.1– Environment: Air Quality <p>South Africa</p> <ul style="list-style-type: none"> National Environmental Management: Air Quality Act, No. 39 of 2004 (NEMAQA) as amended NEMAQA: National Framework for Air Quality Management (2012) Occupational Health and Safety Act, No. 85 of 1993 (OHSA) 	<p>Implementation:</p> <p>Contractor and EO</p> <p>Verification:</p> <p>Site Manager and ECO</p>	<p>Reporting:</p> <ul style="list-style-type: none"> Dust conditions in the working areas must be reported by all personnel to the Site Manager or EO immediately. Record dust events on site that have resulted in a complaint and check if it has resulted from a failure to implement daily dust control measures activities on site, as well as those specifically required during windy conditions. <p>Monitoring frequency:</p> <ul style="list-style-type: none"> Dust conditions must be monitored by the Contractor on a daily basis <p>Auditing requirements:</p> <ul style="list-style-type: none"> Implementation of this Plan shall be audited at the commencement of works and on a quarterly basis throughout construction works. An independent ECO must be appointed to undertake site verification audits/ inspections on a monthly basis. Audit reports will be submitted to the client and relevant Competent Authority as and when required. <p>Training:</p> <ul style="list-style-type: none"> The Contractor must ensure that all personnel are trained about the requirements of this Plan and they are competent to identify and respond to air quality impacts. <p><i>(Refer to Section 5 of the ESMP for the detailed information on the training programmes and requirements).</i></p>

		<ul style="list-style-type: none"> All access roads must be adequately compacted and periodically graded and maintained. No overloading of fine material must be permitted and where necessary the truck loads transporting fine material must be covered with a tarpaulin to prevent dust. Any dust complaints received from the community must be recorded, promptly investigated and addressed. Disturbed areas no longer used or required for construction purposes shall be re-vegetated immediately. 			<ul style="list-style-type: none"> National Dust Control Regulations (GNR 827) of 2013 North West Air Quality Management Plan (AQMP) <p>Botswana</p> <ul style="list-style-type: none"> Atmospheric Pollution (Prevention) Act (Cap. 65:03 of 1971) 		
Emission of noxious fumes and greenhouse gases from the construction vehicles	<p>Decrease in air quality</p> <p>Constant exposure to engine exhaust hazardous emissions which can adversely affect human health</p> <p>Contributing influence to global warming.</p>	<ul style="list-style-type: none"> Plant and equipment to function at an optimal level. Where possible low sulphur containing diesel to be used. All vehicles and equipment must be maintained and serviced according to manufacturer's specifications. Avoid unnecessary idling of vehicle engines while parked. Appropriate PPE must be worn at all times. 	<ul style="list-style-type: none"> No complaints from site staff, surrounding landowners and communities about hazardous emissions from site. 	CONSTRUCTION & DECOMMISSIONING	<p>International:</p> <ul style="list-style-type: none"> IFC EHS General Guidelines (2007), Section 1.1 – Air Emissions and Ambient Air Quality IFC EHS General Guidelines (2007), Section 2.0 & 4.2 – Occupational Health and Safety <p>South Africa</p> <ul style="list-style-type: none"> National Environmental Management: Air Quality Act, No. 39 of 2004 (NEM:AQA) NEM:AQA - National Framework for Air Quality Management (2012) Occupational Health and Safety Act, No. 85 of 1993 (OHSA) North West Air Quality Management Plan (AQMP) 	<p>Implementation:</p> <p>Contractor and EO</p> <p>Verification:</p> <p>Site Manager and ECO</p>	<p>Reporting:</p> <ul style="list-style-type: none"> Incidents of excess pollutant emissions on site must be reported by all personnel to the Site Manager or EO immediately and recorded in the Site Records. <p>Monitoring frequency:</p> <ul style="list-style-type: none"> Construction vehicles must be inspected weekly to ensure they are in optimal working order. <p>Auditing requirements:</p> <ul style="list-style-type: none"> Implementation of this Plan shall be audited at the commencement of works and on a quarterly basis throughout construction works. An independent ECO must be appointed to undertake site verification audits/ inspections on a monthly basis. Audit reports will be submitted to the client and relevant Competent Authority as and when required. <p>Training:</p> <ul style="list-style-type: none"> The Contractor must ensure that all personnel are trained about the requirements of this Plan and they are competent to identify and respond to air quality impacts. <p><i>(Refer to Section 5 of the ESMP for the detailed information on the training programmes and requirements).</i></p>



					<p>Botswana</p> <ul style="list-style-type: none"> Atmospheric Pollution (Prevention) Act (Cap. 65:03 of 1971) 		
Unpleasant odours	<p>Nuisance to local communities and land owners in close proximity to construction area</p> <p>Development of Respiratory problems.</p>	<ul style="list-style-type: none"> Putrescible waste must be handled, stored and disposed of before it can generate odours. Open burning of solid waste should not be allowed. Chemical toilets and/or sewage tanks must be emptied / serviced at a frequency as agreed between the Engineer and the Contractor and in accordance with health and safety standards. Proof of this must be provided be filed on site for auditing purposes. 	<ul style="list-style-type: none"> No complaints from site staff, surrounding landowners and communities of unpleasant odours are received. 	<p>CONSTRUCTION & DECOMMISSIONING</p>	<p>International:</p> <ul style="list-style-type: none"> IFC EHS General Guidelines (2007), Section 1.1 – Air Emissions and Ambient Air Quality IFC EHS General Guidelines (2007), Section 4.1– Environment: Air Quality <p>South Africa</p> <ul style="list-style-type: none"> National Environmental Management: Air Quality Act, No. 39 of 2004 (NEMAQA) National Environmental Management: Waste Act, No 59 of 2008 (NEM:WA) <p>Botswana</p> <ul style="list-style-type: none"> Waste Management Act (Cap. 65:06 of 1998) 	<p>Implementation:</p> <p>Contractor and EO</p> <p>Verification:</p> <p>Site Manager and ECO</p>	<p>Reporting:</p> <ul style="list-style-type: none"> Unpleasant odour on site must be reported by all personnel to the Site Manager or EO immediately. <p>Monitoring frequency:</p> <ul style="list-style-type: none"> Areas designated for temporary waste disposal must be inspected daily. <p>Auditing requirements:</p> <ul style="list-style-type: none"> Implementation of this Plan shall be audited at the commencement of works and on a quarterly basis throughout construction works. An independent ECO must be appointed to undertake site verification audits/ inspections on a monthly basis. Audit reports will be submitted to the client and relevant Competent Authority as and when required. <p>Training:</p> <ul style="list-style-type: none"> The Contractor must ensure that all personnel are trained about the requirements of this Plan and they are competent to identify and respond to air quality impacts. <p><i>(Refer to Section 5 of the ESMP for the detailed information on the training programmes and requirements).</i></p>