



Tutuka Power Station Minimum Emission Standards Postponement Application


Presented by: Tobile Bokwe
Date: 29 & 30 January 2018



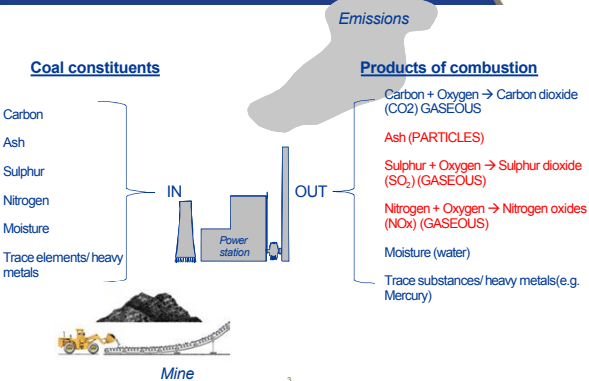
Location of Tutuka Power Station



Tutuka Power Station is one of Eskom's 15 coal fired power stations (2 of which are still being commissioned) which produce the electricity South Africa needs.



What happens when coal is burnt to generate electricity?




Coal constituents

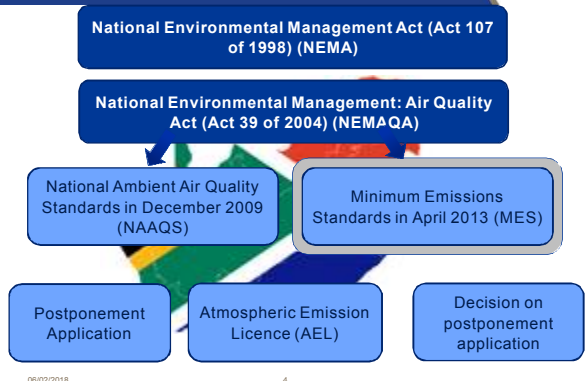
- Carbon
- Ash
- Sulphur
- Nitrogen
- Moisture
- Trace elements/ heavy metals

Products of combustion


- Carbon + Oxygen → Carbon dioxide (CO₂) (GASEOUS)
- Ash (PARTICLES)
- Sulphur + Oxygen → Sulphur dioxide (SO₂) (GASEOUS)
- Nitrogen + Oxygen → Nitrogen oxides (NO_x) (GASEOUS)
- Moisture (water)
- Trace substances/ heavy metals (e.g. Mercury)



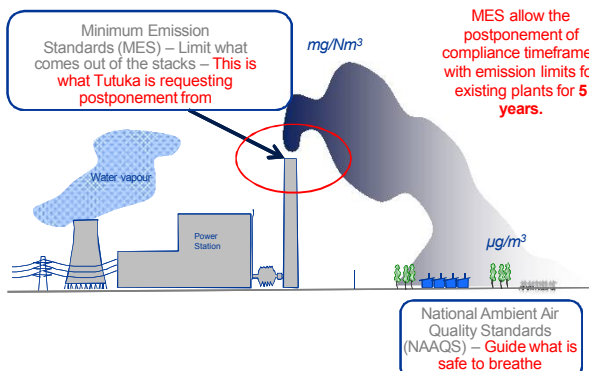
Most relevant legislation that guides the postponement applications



- National Environmental Management Act (Act 107 of 1998) (NEMA)
- National Environmental Management: Air Quality Act (Act 39 of 2004) (NEMAQA)
- National Ambient Air Quality Standards in December 2009 (NAAQS)
- Minimum Emissions Standards in April 2013 (MES)
- Postponement Application
- Atmospheric Emission Licence (AEL)
- Decision on postponement application




The Minimum Emission Standards versus the National Ambient Air Quality Standards



Minimum Emission Standards (MES) – Limit what comes out of the stacks – This is what Tutuka is requesting postponement from

MES allow the postponement of compliance timeframes with emission limits for existing plants for 5 years.

National Ambient Air Quality Standards (NAAQS) – Guide what is safe to breathe



Emission limits

The MES say:

Pollutant	From 1 April 2015	From 1 April 2020
PM	100	50
SO ₂	3500	500
NO _x	1100	750

- Tutuka is 30 years old and was not designed to comply with these emission limits.
- In 2014, Eskom requested postponement from 2015 limits.

Requested emission limits

Tutuka asked for:

Pollutant	Requested limits
PM	Time of application until 31 March 2024: 350 From 1 April 2024: 50
SO ₂	Time of application until decommissioning: 3400
NO _x	Time of application until 31 March 2025: 1200 From 1 April 2025: 750

National ambient air quality standards (NAAQS)
 $\mu\text{g}/\text{m}^3$

In 2014 Tutuka requested a:

- 1) PM limit of 350 mg/Nm³ and a
- 2) NO_x limit of 1200 mg/Nm³

until relevant technology is completely installed which would bring the station into compliance with the 2020 standards.

08/02/2018 7

Eskom's emissions reduction plan, and requested application

Table 1. Limits that were granted by the National Air Quality Officer

Pollutant Name	Maximum Release Rate (mg/Nm ³) expressed as on a daily average under normal conditions of 273K, 101.3 kPa, 10% Oxygen and dry gas	Date to be Achieved By	
		Date to be Achieved By	Average Period
PM	350	1 April 2015 to 31 December 2018	Daily
	200	1 January 2019 to 31 December 2019	Daily
	100	From 1 January 2020	Daily
SO ₂	3400	1 April 2020 to 31 December 2025	Daily
NO _x	1200	1 April 2015 to 31 March 2020	Daily

- As part of Eskom's emission reduction plan and for compliance purposes, Tutuka will install appropriate technology in each of its six units to meet the new plant standard levels for PM and NO_x emissions
- The installation of the technology will be done in phases (i.e. per unit), which will bring the station into full compliance with the new plant standards from 2024 for PM and 2025 for NO_x
- Eskom is again requesting a daily average PM limit of 350 mg/Nm³ and a daily average NO_x limit of 1200 mg/Nm³ as in its previous postponement application:

8

Previously committed timelines for the installation of relevant technology to reduce PM and NO_x emissions

Particulate Matter

2018/19 — 2019/20 — 2020/21 — 2021/22 — 2022/23 — 2023/24 →

1st Unit

2nd Unit

3rd Unit

4th Unit

5th Unit

6th Unit

Nitrogen Oxides

2019/20 — 2020/21 — 2021/22 — 2022/23 — 2023/24 — 2024/25 →

*risk of delay, different dates may appear in the application that is made to the authorities

9

What about the health of the people? Reducing exposure to air pollution

- Eskom acknowledges that its activities have an impact on ambient air quality, BUT ambient air quality is influenced by many different sources of pollution
- We breathe in air pollution from many different sources
- Poor air quality impacts on human health (respiratory/ lung and cardiac/ heart diseases) especially on the health of our women and children

10

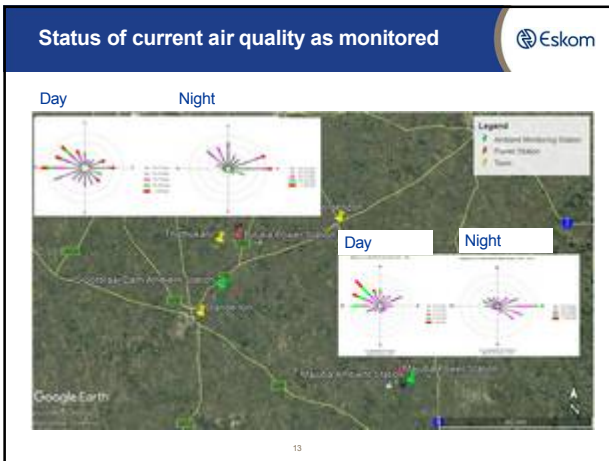
Status of current air quality as monitored

- Eskom is monitoring the air on the ground in two locations around Tutuka Power Station: Grootdraai Dam and Majuba Power Station (Grootdraai Dam is more representative of ambient air quality in the vicinity of Tutuka)
- The Majuba monitoring station is immediately downwind of Majuba Power Station, so it provides an indication of ambient air quality conditions in close proximity to a large power station such as Tutuka.
- For the past 3 years there have only been two non-compliances with the NAAQS measured, and this was in 2016 and 2017 at Majuba for the daily PM limit. There has been measured compliance with all other NAAQS for PM, NO₂ and SO₂ at the Majuba site.
- Contributing sources: dusty roads, industrial activity, household-level burning
- Lower data availability at the Grootdraai site makes it difficult to draw compliance related conclusions, it is expected though that there would be compliance with all parameters except for PM on occasion.

11

Status of current air quality as monitored

12



Status of current air quality as monitored

Table 2: overview of compliance status with ambient air quality standards from 2015-2017 [number of exceedances (allowed number of exceedances)]e

	Hourly			Daily			Annual		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
Grootdraai									
PM10	NA	NA	NA	1 (4)	1(4)	0(4)	0(0)	0(0)	0(0)
PM2.5	NA	NA	NA	-	-	-	0(0)	0(0)	0(0)
SO ₂	2(88)	2(88)	13(88)	0(4)	0(4)	0(4)	0(0)	0(0)	0(0)
NOx	0(88)	0(88)	0(88)	NA	NA	NA	0(0)	0(0)	0(0)
Majuba									
PM10	NA	NA	NA	7 (4)	5(4)	3(4)	0(0)	0(0)	0(0)
PM2.5	NA	NA	NA	-	-	-	0(0)	0(0)	0(0)
SO ₂	5(88)	12(88)	9(88)	1(4)	1(4)	0(4)	0(0)	0(0)	0(0)
NOx	0(88)	38(88)	0(88)	NA	NA	NA	0(0)	0(0)	0(0)

What about the health of the people?

- Health effects depend a lot on **how close** a person is to the source, rather than on **how big** the source of pollution is.
- So even though a cigarette makes **less smoke** than a power station, cigarette smoke causes **much more harm** than power station pollution because it is directly inhaled by a person into the lungs. Even the smoke that is inhaled when burning coal for cooking and heating causes harm.
- Air Quality offsets could reduce exposure to air pollution and positively impact on the health of community members affected by Eskom's emissions.
- Eskom is in the process of rolling this out.

Disability Adjusted Life Years attributed to selected risk factors

Rank	Risk factor	% total DALYs
1	Unsafe sex/STIs	31.5
2	Interpersonal violence (risk factor)	8.4
3	Alcohol harm	7.0
4	Tobacco smoking	4.0
5	High BMI (excess bodyweight)	2.9
6	Childhood and maternal underweight	2.7
7	Unsafe water sanitation and hygiene	2.6
8	High blood pressure	2.4
9	Diabetes (risk factor)	1.6
10	High cholesterol	1.4
11	Low fruit and vegetable intake	1.1
12	Physical inactivity	1.1
13	Iron deficiency anaemia	1.1
14	Vitamin A deficiency	0.7
15	Indoor air pollution	0.4
16	Lead exposure	0.4
17	Urban air pollution	0.3

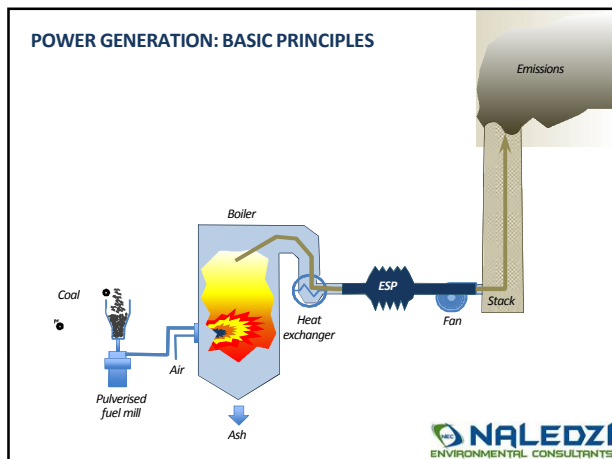

(Medical Research Council, 2008)

- ### Reducing exposure to air pollution
- Eskom plans to improve air quality in communities around Tutuka Power Station
 - Air pollution sources that affect communities around Tutuka Power Station will be identified; discussions held with residents to identify air pollution problems; and a community health survey will be conducted.
 - These efforts should result in an improvement in ambient air quality in addition to the improvement in air quality that will be achieved by upgrading the power stations with relevant abatement technology
 - The improvements in air quality are expected to reduce health impacts (particularly respiratory and cardiac illnesses) of these communities
 - Community members and the general public will be kept informed. Public meetings will take place.



ATMOSPHERIC IMPACT ASSESSMENT

Presented by Naledzi Environmental Consultants CC
Sean O'Beirne

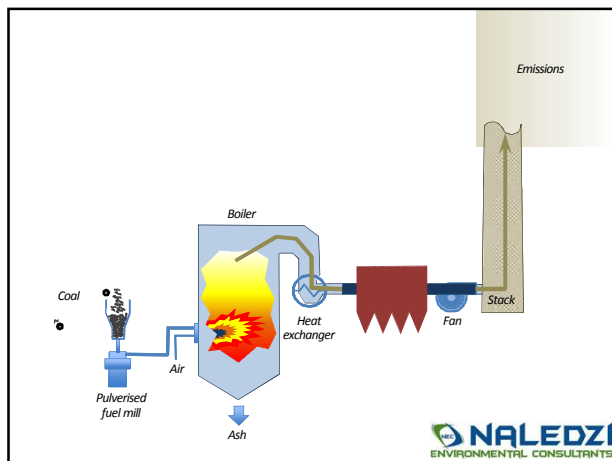
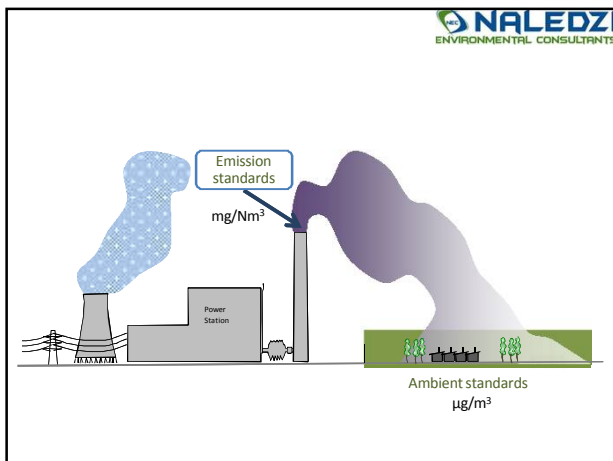




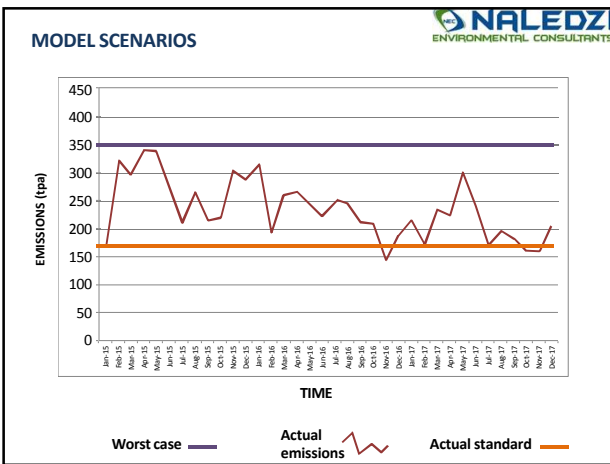
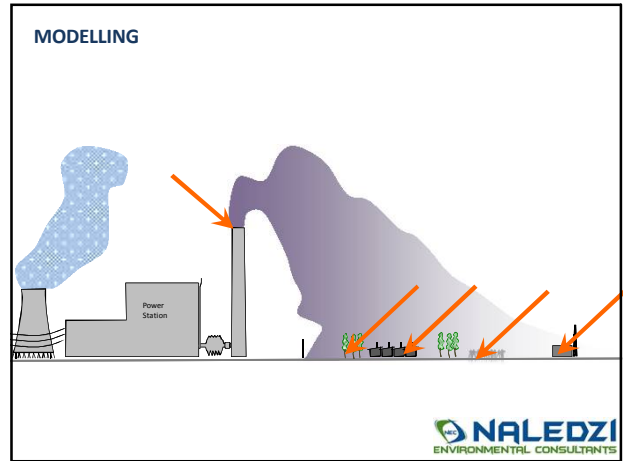
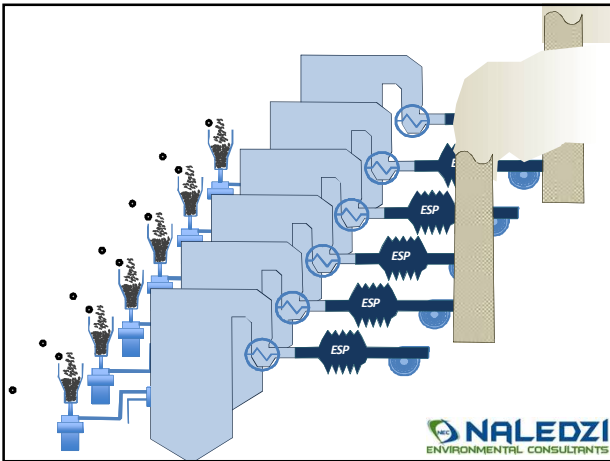
Ambient standards

Publication of National Ambient Air Quality Standards in December 2009

Emission standards

Publication of Listed Activities and Minimum Emission Standards in November 2013






**MES POSTPONEMENT APPLICATION
FOR Eskom's TUTUKA COAL-FIRED
POWER STATION**

PUBLIC PARTICIPATION PROCESS
1ST ROUND OF PUBLIC MEETINGS

**STANDERTON TOWN HALL, MONDAY,
29 JANUARY 2018**




DRAFT AGENDA

- ▶ **Welcome & Introductions**
- ▶ **Purpose of the Meeting**
- ▶ **Rules of the Meeting**
- ▶ **Background & Motivation for the application**
- ▶ **Atmospheric Impact Assessment Process**
- ▶ **Public Participation Process**
- ▶ **Discussion Session**
- ▶ **Way forward & Closure**



PURPOSE OF PUBLIC MEETING

- ▶ To provide information regarding the application
- ▶ Present the content of the Background Information Document for the application
- ▶ Provide I&APs the opportunity to seek clarity, comment and raise questions on the proposed approach to preparing the application
- ▶ To record comments, issues and concerns regarding the application




RULES OF THE PUBLIC MEETING

- ▶ Conduct oneself in a courteous and respectful manner
- ▶ The Agenda will not be deviated from unless agreed to prior
- ▶ Points of clarity are raised after the facilitator/ presenters have finished their presentations;
- ▶ Opportunity to raise questions and issues are provided for during the discussion session;
- ▶ State your name and interest in the project when raising a question / issue
- ▶ Each party must be allowed an chance to raise his/her comment / issue without interruption

**BACKGROUND & MOTIVATION
FOR APPLICATION**

Presented by Eskom
Tobile Bokwe



ATMOSPHERIC IMPACT ASSESSMENT

Presented by Naledzi Environmental Consultants CC
Sean O'Beirne

PUBLIC PARTICIPATION PROCESS

Presented by Naledzi Environmental Consultants CC
Desmond Musetsho and Marissa Botha

MES POSTPONEMENT APPLICATION PROCESS

Scoping Phase – 1st Round of Public Participation
12 January – 14 February 2018

- Press Advertisements and notices to announce the project - 12 January 2018
- Distribution of BID to Stakeholders for review - 12 January 2018
- Registration of I&APs – 15 January until 14 February 2018
- Present project at two public meetings – 29& 30 January 2018
- Provide opportunity for comment on approach – 15 January to 14 February 2018

Response
7 – 23 February 2018

- Distribute meeting minutes
- Acceptance of minutes
- Record comments in IRR
- Provide responses in IRR
- Consensus on approach

Atmospheric Impact Assessment Phase & 2nd Round of Public Participation
26 February – 9 April 2018

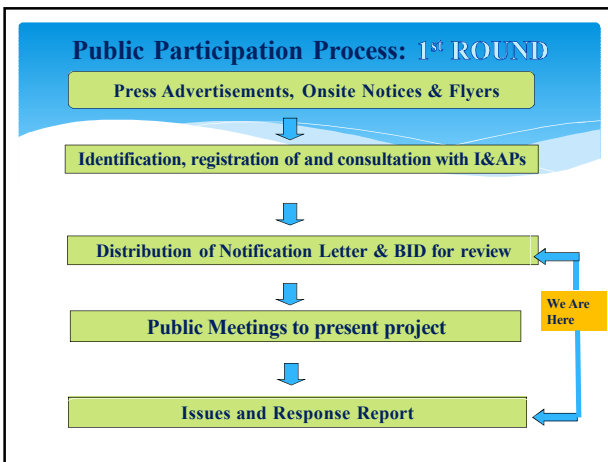
- Prepare Motivation, AIR, Public Participation Report – 5 January to 26 February 2018
- Press advertisements to announce availability of documents - 2 March 2018
- Availability of documentation for public review – 5 March to 6 April 2018
- Present results of AIR at two public meetings and facilitate comments - any dates between 12 to 16 March 2018
- Provide opportunity for comment on the motivation and AIR - 5 March until 6 April 2018

Response
19 March – 13 April 2018

- Distribute meeting minutes
- Acceptance of minutes
- Record comments on AIR
- Provide responses on AIR
- Concluded PPP Report

Decision Making Phase

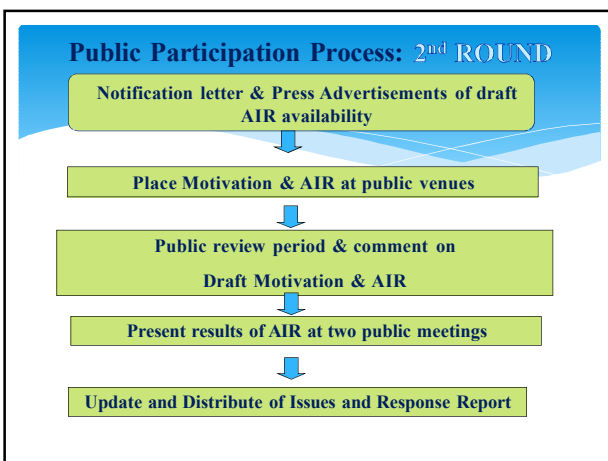
- Finalise Motivation, AIR and PP Report : 12 - 17 April 2018
- Submit Motivation, AIR and PP Report to National Air Quality Officer: 18 April 2018
- NAOO reach a decision on application: no legislated time frame
- Notify Applicant of decision: 5 days from date of decision
- Notify I&APs of decision: within 14 days from issuance of decision



Tasks completed - 1st Round of Public Participation

- ▶ Published press advertisements on 12 January 2018 in

Die Beeld	Daily Sun	Standerton Advertiser	Cosmos News
-----------	-----------	-----------------------	-------------
- ▶ Site notices were posted in the project area
- ▶ BIDs were made available at public venues for review at Standerton -, Thuthukani -, Morgenzon Public Libraries (15 Jan until 14 Feb 2018);
- ▶ On 12 January 2018 ward councillors and Lekwa Municipality were briefed on the application
- ▶ Ward Councillors and ward structures were provided with flyers to distribute in the project area (Morgenzon, Thuthukani and Standerton)
- ▶ Public Meetings have been scheduled for 29 & 30 January 2018 in Standerton and Thuthukani



WAY FORWARD

- ▶ Prepare, distribute and finalise the meeting minutes
- ▶ Minutes available for comment - 7 days
- ▶ Prepare an Issues and Response Report
- ▶ Prepare draft Motivation & AIR
- ▶ Notify public of start of 2nd Round of public participation

OUR CONTACT DETAILS

Naledzi Environmental Consultants
Suite #320, Postnet Library Gardens
Private Bag X9307, POLOKWANE, 0700

Marissa/Desmond/Sean
Phone: (015) 296 3988
Cell: 084 226 5584/0834101477
Fax: (015) 296 4021
E-mail: botham@naledzi.co.za

Who is an I&AP / Stakeholder

- ▶ Surrounding landowners
- ▶ Local people affected by the application
- ▶ Local and district government
- ▶ Organs of state
- ▶ NGO's
- ▶ Any person, groups of persons interested or affected by the application