Eskom	Matimba Power Station annual emission report	Matimba Power Station

Title: **Matimba Power Station annual emission report for 2024/2025 financial year**

Document Identifier:	**RP/247/059**
Plant Location:	**N/A**
Area of Applicability:	**Matimba Power Station**
Functional Area Applicability:	**Environment**
Revision:	**1**
Total Pages:	**22**
Report Date:	**May 2025**
Disclosure Classification:	**Controlled**

Compiled by	Reviewed by	Functional Responsibility	Authorized by
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Date: 15-05-2025	Date: 15- 05- 2025	Date: 16.05.2025	Date: 2025/05/16

Content

1. Introduction

This annual emissions report is prepared as per the requirements of Section 7.7.3 of the Matimba Power Station's Atmospheric Emission License (AEL) "*The License Holder must complete and submit to the Licensing Authority, an annual Report. The report must include information for the year under review (i.e., annual year end of the company). The report must be submitted to the licensing authority not later than 60(sixty) days after the end of each reporting period"*, as well as in terms other reporting requirements listed in the Minimum Emission Standards. The emissions are for Matimba's 2024/2025 financial year, which covers the period from 1 April 2024 to 31 March 2025. The data presented in the report is the verified emissions of particulates, SO_2 and NO_x (as NO_2), as measured by installed CEMS. Greenhouse gas reporting is done in accordance with the National Greenhouse Gas Reporting Regulations.

Table 1: Name, description and reference number of plant as specified in the AEL

Name of facility	Eskom Holdings SOC Limited Matimba Power Station
Description of facility	Electricity generation
Enterprise registration number	2002/015527/30
AEL reference number	H16/1/13-WDM05
AEL Issue Date and Validity	27 September 2022 – 27 September 2026

2. Annual emission information

2.1. Annual consumption rates

Figure 1 and Figure 2 below indicates the monthly coal and fuel oil consumption rates, respectively, in tons for the 2024/2025 financial year.

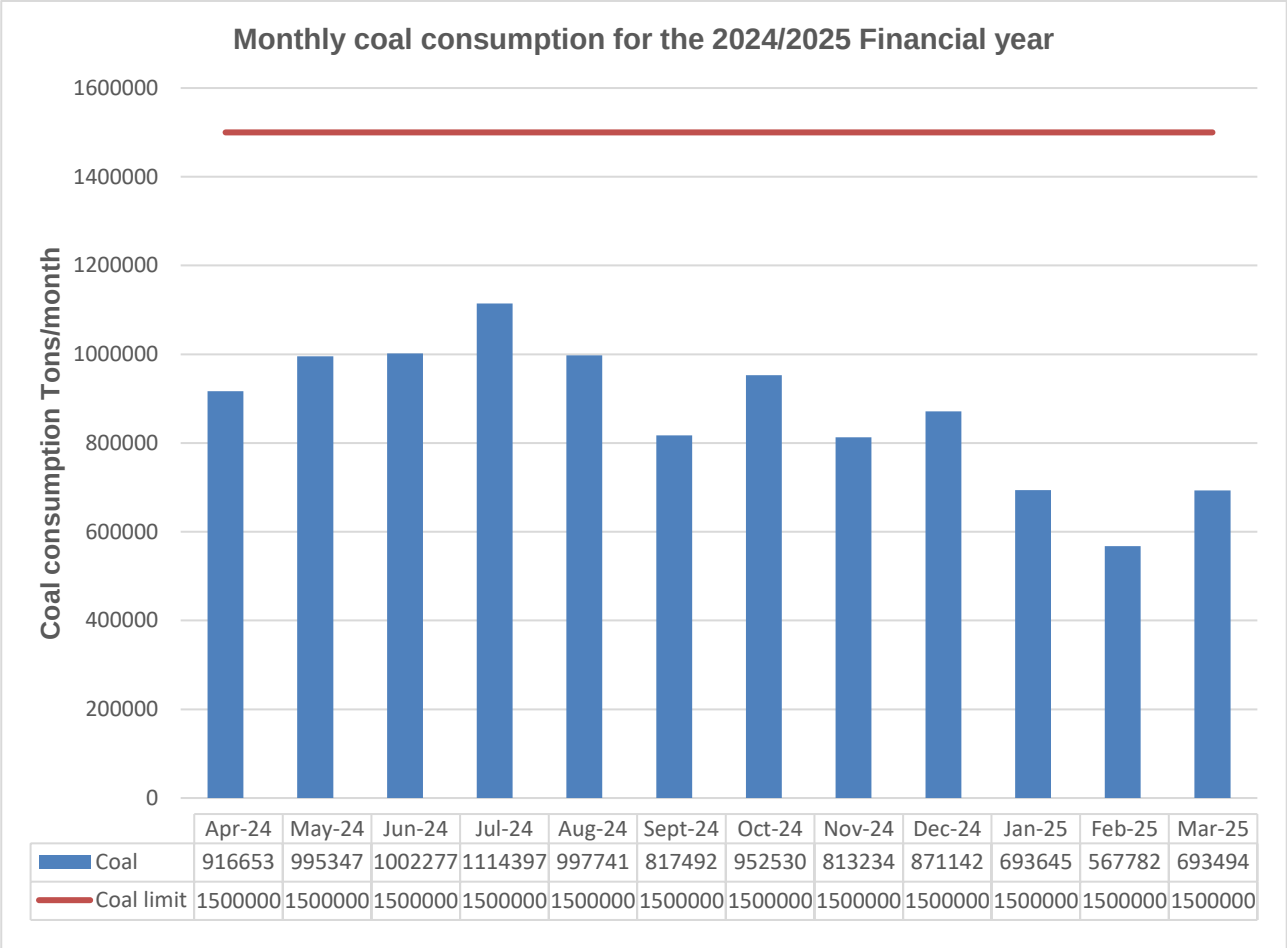
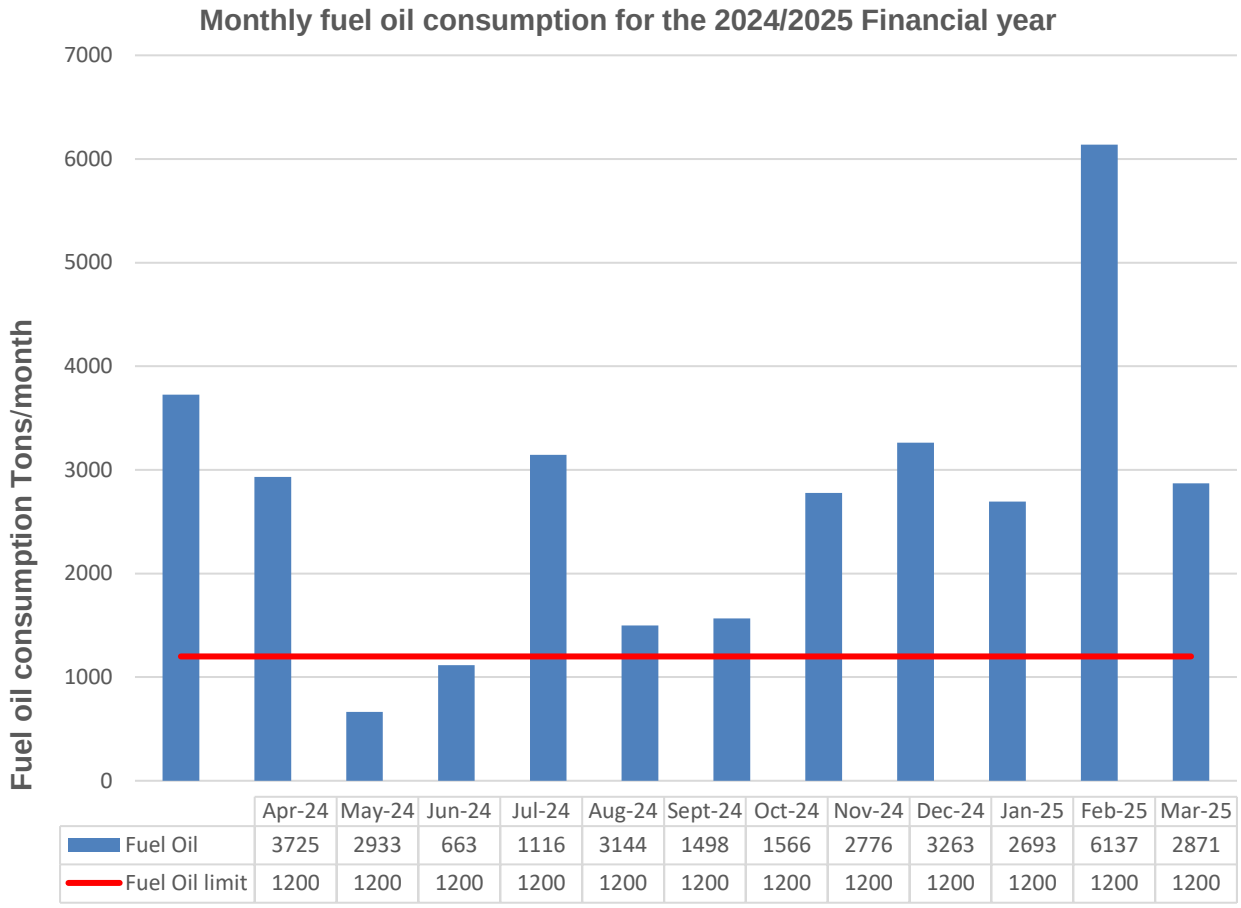


Figure 1: Coal consumption for 2024/2025 financial year

Monthly coal consumption for the whole reporting period remained below the limit of 1 500 000 Tons per month.



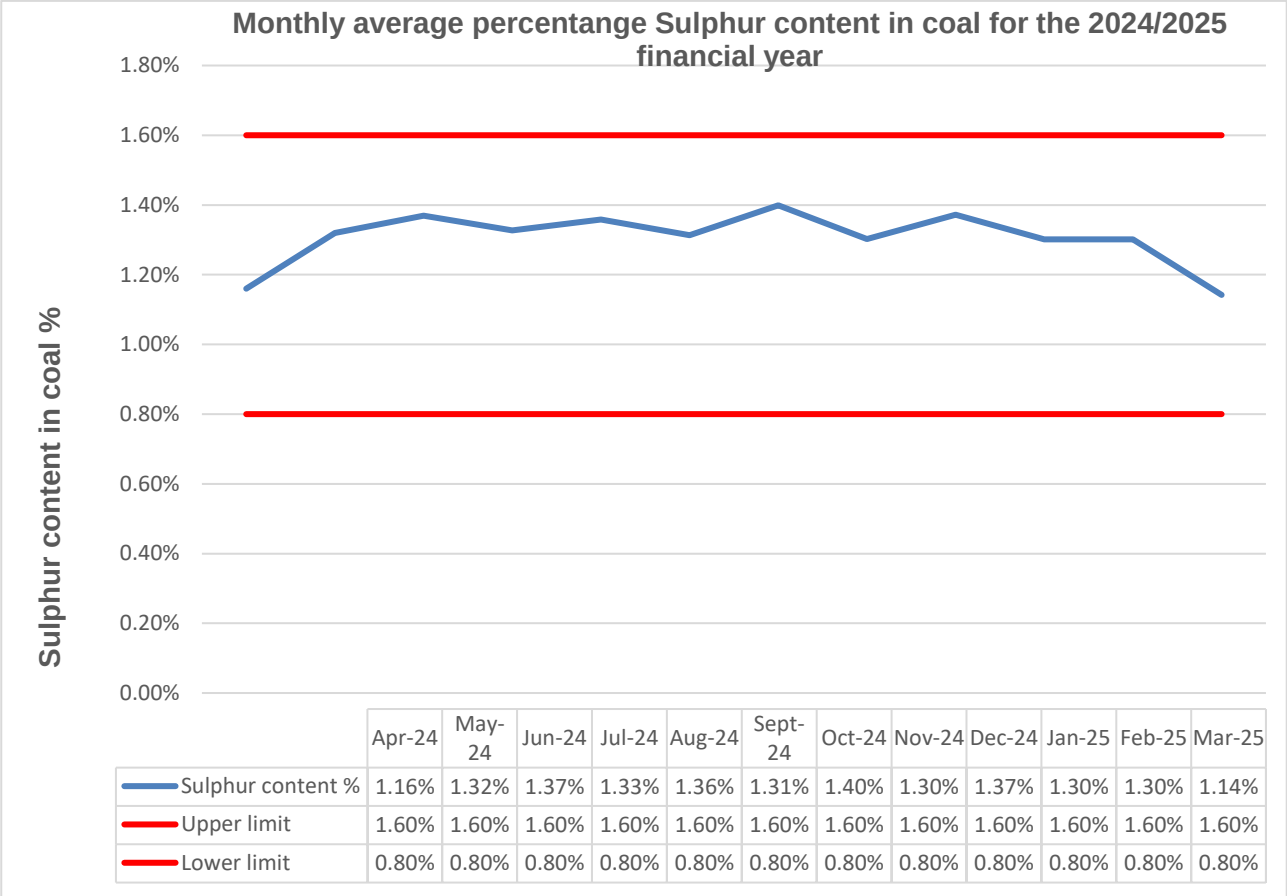
	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sept-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25
Fuel Oil	3725	2933	663	1116	3144	1498	1566	2776	3263	2693	6137	2871
Fuel Oil limit	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200

Figure 2: Fuel oil consumption for 2024/2025 Financial year

Matimba Power Station exceeded the monthly fuel oil usage limit of 1200 Tons per month in the month of April 2024, May 2024, August 2024 to January 2025.The increased usage of fuel oil was due to multiple start-ups that had to be done after several unplanned unit trips and planned outages of units and the plants defects that resulted in operating with constant combustion support with fuel oil.

2.2. Energy source characteristics

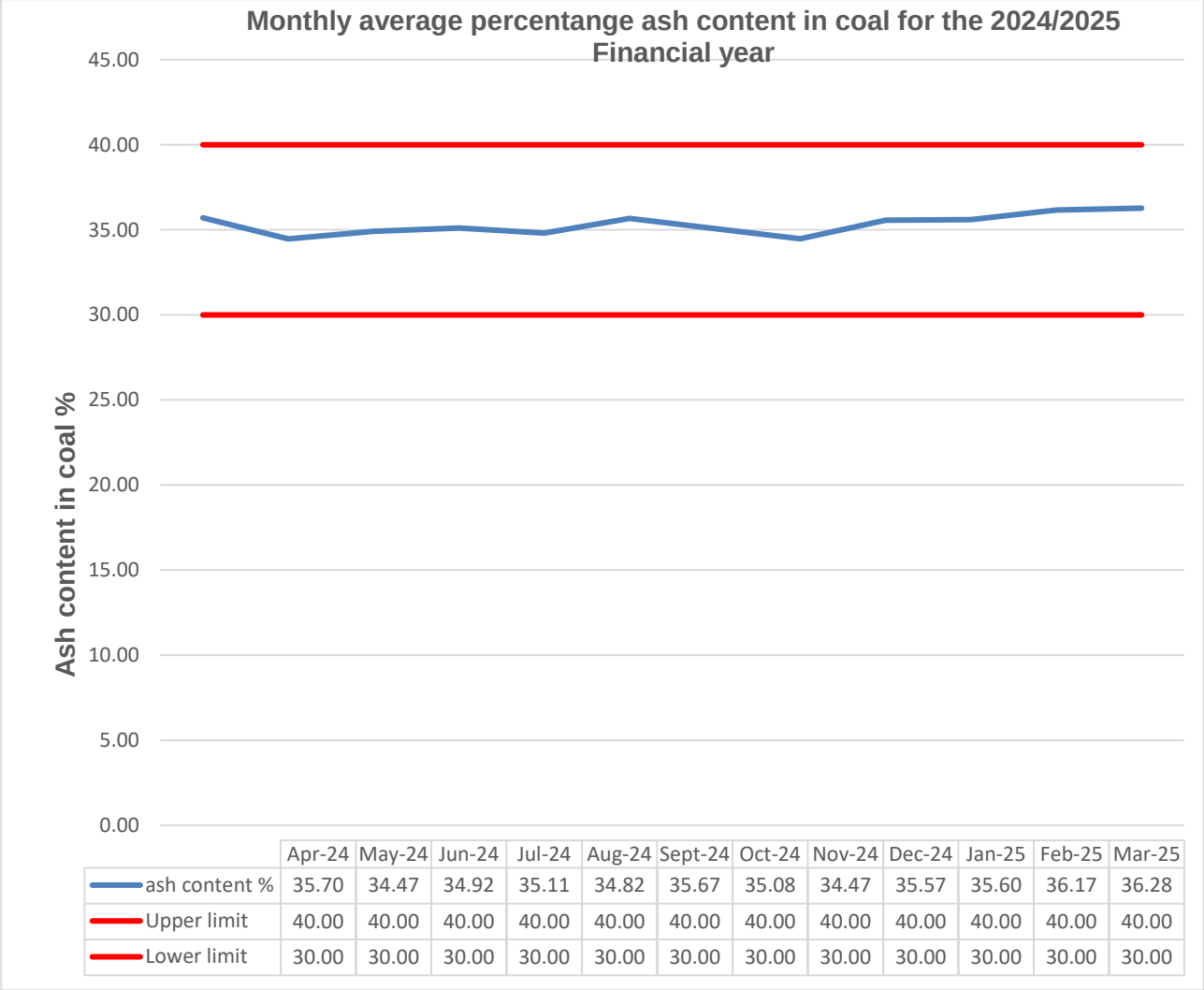
The figures 3, 4 and 5 below indicates the Sulphur content and ash content of the coal and Sulphur content of the fuel oil used in the 2024/2025 financial year.



	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sept-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25
Sulphur content %	1.16%	1.32%	1.37%	1.33%	1.36%	1.31%	1.40%	1.30%	1.37%	1.30%	1.30%	1.14%
Upper limit	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%
Lower limit	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%

Figure 3: Sulphur content in coal for 2024/2025 financial year

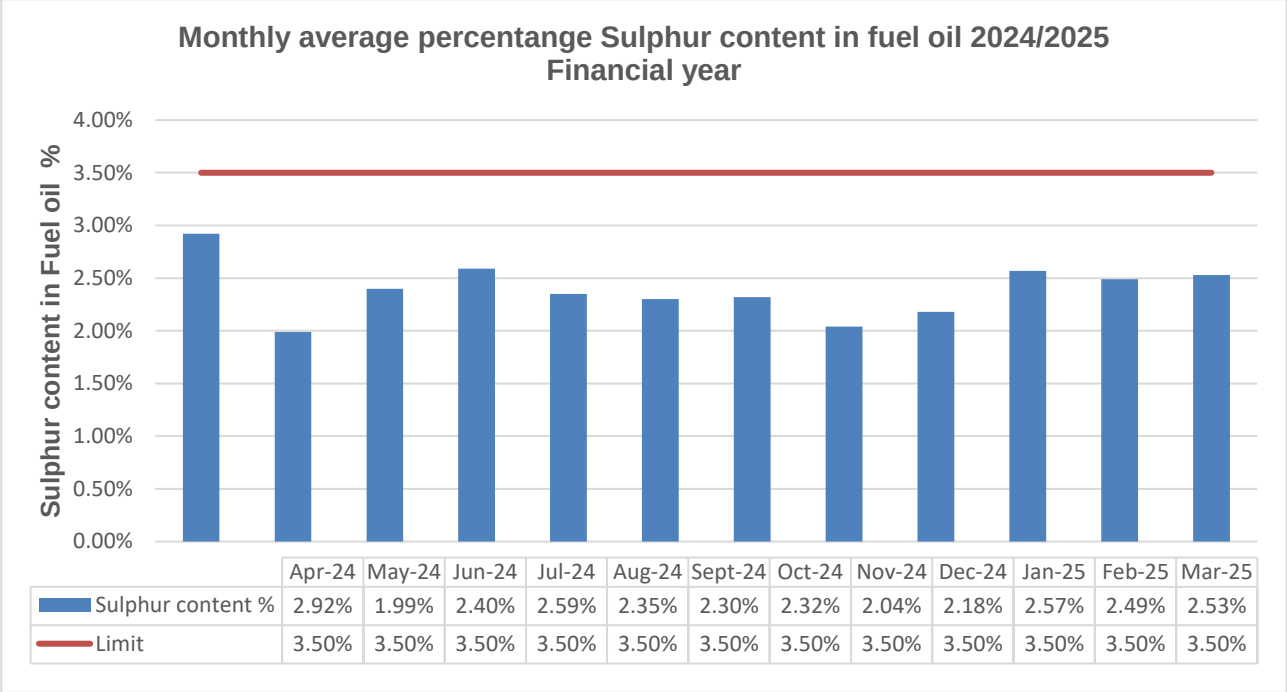
Monthly average Sulphur content of coal has remained within the specified range for 2024/2025 financial year.



	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sept-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25
ash content %	35.70	34.47	34.92	35.11	34.82	35.67	35.08	34.47	35.57	35.60	36.17	36.28
Upper limit	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Lower limit	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00

Figure 4: Ash content in coal for 2024/2025 financial year

The monthly average ash content within the coal remained within the required limits.



	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sept-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25
Sulphur content %	2.92%	1.99%	2.40%	2.59%	2.35%	2.30%	2.32%	2.04%	2.18%	2.57%	2.49%	2.53%
Limit	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%

Figure 5: Sulphur content in fuel oil for 2024/2025 financial year

Sulphur content of the fuel oil has remained below the limit of 3,50% in the 2024/2025 financial year.

2.3. Emission trends

The emission tonnages in tables 3 below are that of the 2024/2025 financial year.

Table 2: General overview of emissions at Matimba Power Station 2024/2025

Power Station	Coal-fired emissions (tons/annum)	Fuel-oil emissions (tons/annum)	Total (tons/annum)
Matimba Power Station	**SO_2: 273756.300** **PM: 19482.100** **NO_x: 51336.600**	**SO_2: 1364.22**	**SO_2: 272392.1** **PM: 19482.100** **NO_x: 51336.600**

Table 3: Pollutant Emission Trends

Month	PM (tons)	NO_x (tons)	SO_2 (tons)
April 2024	704.2	4 720.4	24 969.2
May 2024	931.9	5 570.8	29 930.6
June 2024	744.6	4 832.3	27 931.6
July 2024	952.0	5 020.6	28 790.0
August 2024	518.5	4 441.3	23 845.3
September 2024	1 143.8	4 358.1	22 413.2
October 2024	1 225.6	5 588.6	29 062.3
November 2024	1 591.1	4 352.7	24 338.4
December 2024	2 210.2	2 780.6	16 543.1
January 2025	2 449.7	3 697.5	18 196.9
February 2025	3 472.8	3 049.9	13 375.8
March 2025	3 537.7	2 923.8	14 359.9

Table 4: Total volatile organic compound emissions 2024/2025 financial year

Month	TVOC (Kg/month)
April 2024	0.59
May 2024	0.62
June 2024	0.56
July 2024	0.56
August 2024	0.65
September 2024	0.60
October 2024	0.64
November 2024	0.67
December 2024	0.66
January 2025	0.67
February 2025	0.74
March 2025	0.63

*Note: Total volatile organic compound emissions are calculated based on fuel oil quantities used within the specific month.

Figures 6 to 8 below illustrates the monthly tonnages of pollutants emitted in the 2024/2025 financial year.

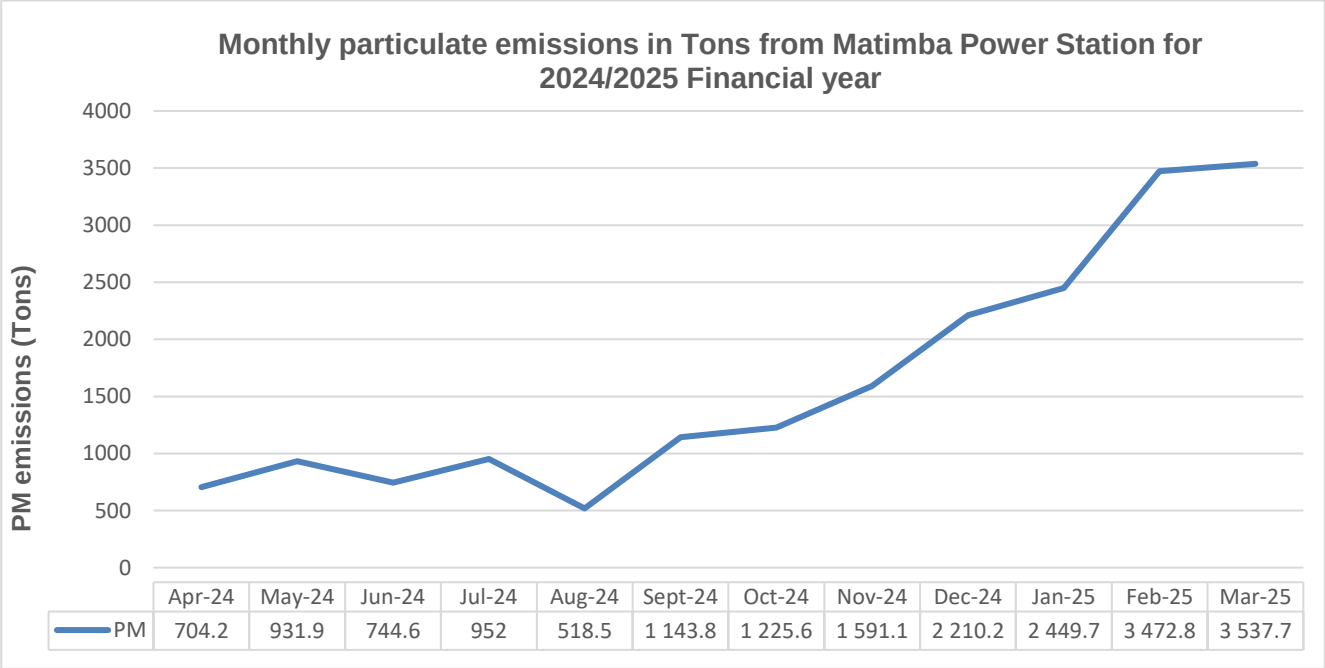


Figure 6: Monthly Particulate Emissions in tons from Matimba Power Station 2024/2025.

Matimba experienced increases in particulate emissions tonnages in the financial year 2024/2025. The station experienced challenges with the downstream ash evacuation due to the unreliability and poor performance of the ash conveyance plant. The ash conveyance plant issues lead to backlogs at the dust handling plant i.e. high hopper levels and precipitator fields trip or failure, then high emissions. The daily average limit of 50mg/Nm^3 was exceeded 1051 times in the period between April 2024 and March 2025, no section 30 incidents were reported for the financial year. Corrective actions to repair defective plant areas are underway. More information on exceedances will be provided in annexure 1. Detailed daily emission concentrations are illustrated in the monthly reports submitted to your office.

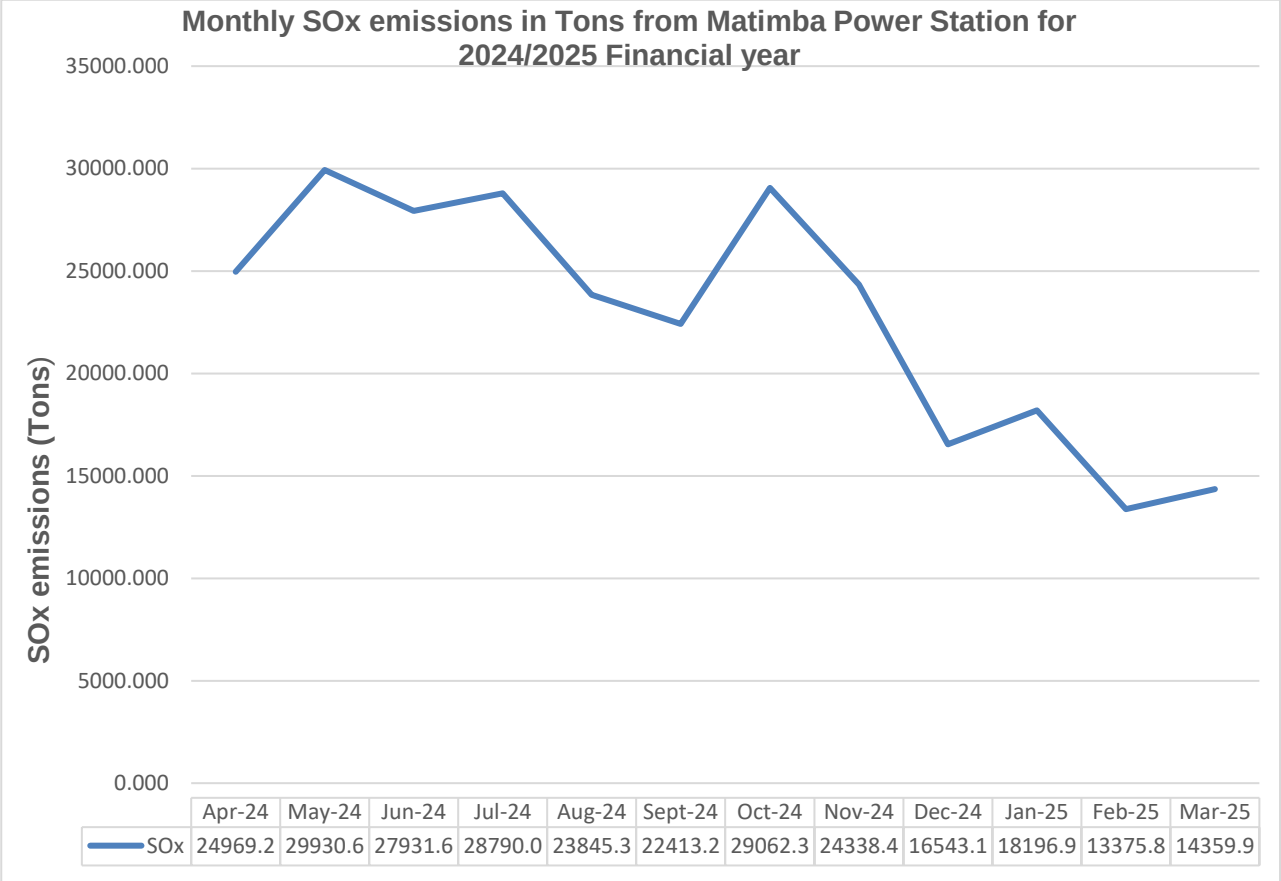


Figure 7: Monthly SO_2 Emissions in tons from Matimba Power Station 2024/2025

The reduction in SO_2 emissions from October 2024 was due to several units taken on outage and repairs from October 2024 to March 2025. Unit 6 was on outage from 06 September 2024 to 30 November 2024, Unit 1 was on outage from 9-Dec-2024 to 26-Mar-2025, Unit 2 and Unit 4 were taken out for repairs during the December 2024 to January 2025. Occasional daily peaks are still observed in the sulphur content of coal which leads to sporadic increases of the SOx emissions. Interventions such as blending high sulphur content coal with lower sulphur content coal, daily monitoring, and trending of sulphur content versus emissions is being conducted to manage the SO_2. There were no SOx daily exceedances in the reporting period. Detailed daily emission concentrations are illustrated in the monthly reports submitted to your office.

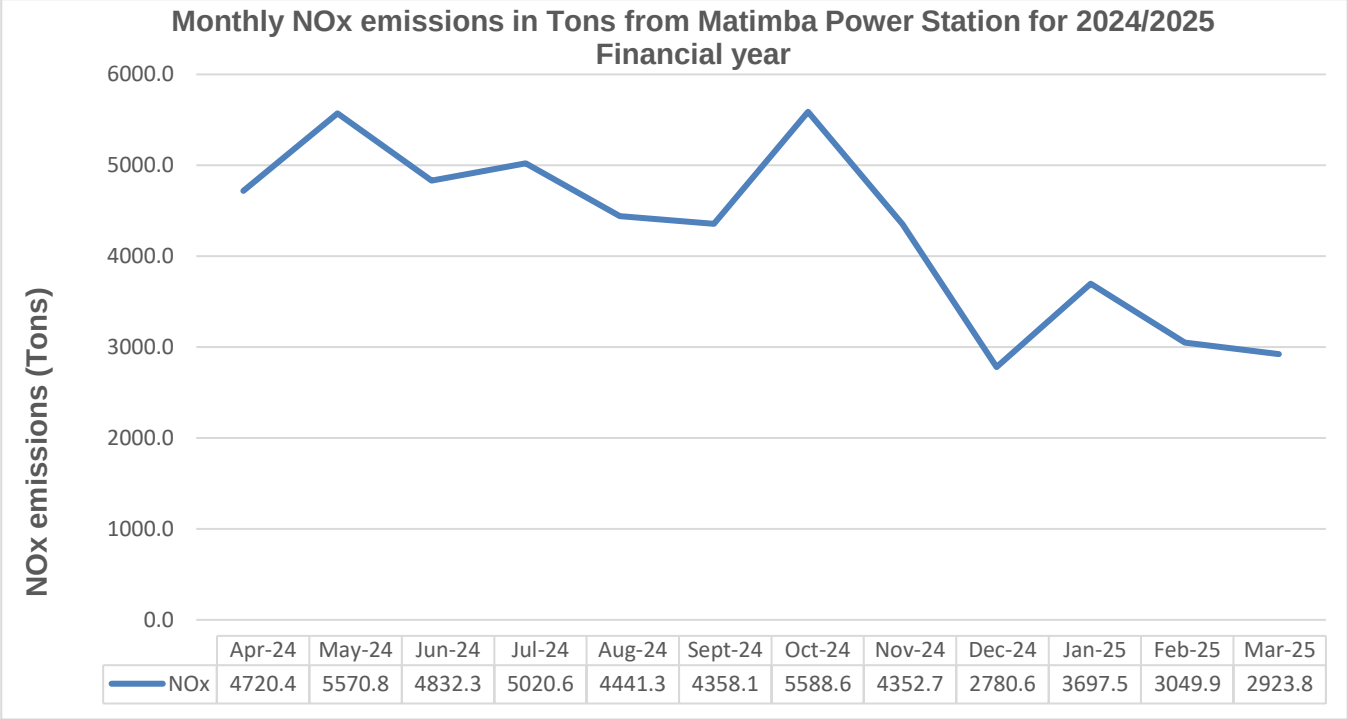


Figure 8: Monthly NO_2 Emissions in tons from Matimba Power Station 2024/2025

The reduction in NO_2 emissions in November 2023 was due to several units taken on outage and repairs from October 2024 to March 2025. Unit 6 was on outage from 06 September 2024 to 30 November 2024, Unit 1 was on outage from 9-Dec-2024 to 26-Mar-2025, Unit 2 and Unit 4 were taken out for repairs during the December 2024 to January 2025.There were no NOx daily exceedances in the reporting period. Detailed daily emission concentrations are illustrated in the monthly reports submitted to your office.

2.4. Energy sent out

Figure 9 illustrates the monthly energy sentout for the 2024/2025 financial year

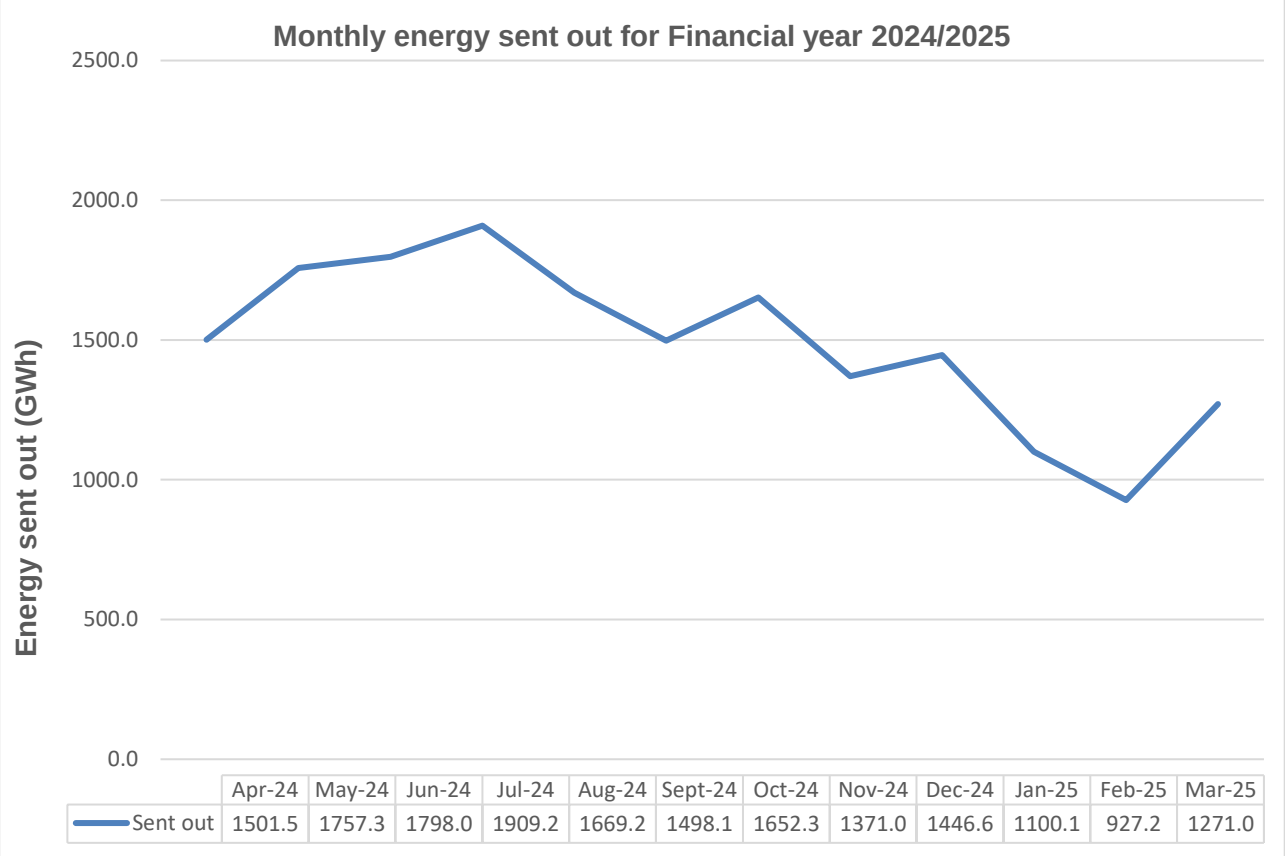


Figure 9: Monthly Energy Sent out GWh at Matimba Power Station 2024/2025

2.5. Ambient air quality monitoring

Matimba power Station monitors the effect of its emissions on the surrounding environment through an ambient air quality monitoring station located in the Marapong community. The station utilised Marapong ambient air quality monitoring station for reporting and detailed ambient monitoring reports were available and submitted to the licencing authority monthly along with the Matimba monthly emission report.

Table 5 and 6 below illustrates the compliance for the past financial year (April 2024 – March 2025) as per the National Air Quality Standards.

Table 5: Ambient Monitoring station availability

Ambient Monitoring station availability	NO_1	NO_2	NOX	O_3	PSR	RAD	RFL	SGT	SO_2	TMP	WDR	WSP	$PM_{2.5}$	PM_{10}	CO	HG	HUM	Data Recovery	Station Availability
April 24	9.4	9.4	9.4	73.1	ND	ND	ND	92.9	90.3	41.4	92.9	92.9	0	0	92.8	0	41.4	53.1	92.9
May 24	72.8	72.8	72.8	96.8	ND	ND	ND	96.9	96.6	96.9	96.9	96.9	0	0	96.9	0	96.9	76.7	96.9
June 24	99.3	99.3	99.3	99.6	99.9	99.9	99.9	ND	99.6	99.9	99.9	99.9	0	0	ND	ND	99.9	83.1	99.9
July 24	84.4	84.4	84.4	88.6	99.9	99.9	99.9	ND	88.6	99.9	99.9	99.9	0	14.5	ND	ND	99.9	76.1	89.4
Aug 24	76.1	76.1	76.1	82.1	99.9	99.9	99.9	ND	82.5	99.6	99.6	99.9	0	80	81.7	ND	99.9	76.8	83.1
Sep 24	77.2	77.2	77.2	84.2	100	100	100	ND	50.6	100	100	100	ND	83.6	82.9	ND	100	88.9	84.4
Oct 24	86.4	86.4	86.4	90.3	100	100	100	ND	89.4	100	100	100	ND	86.8	88.4	ND	100	84.1	91.1
Nov 24	99.3	99.3	99.3	99.6	100	100	100	ND	99.4	100	100	100	ND	95.1	99.3	ND	100	88.4	99.7
Dec 24	99.6	99.6	99.6	99.6	100	100	100	ND	99.9	100	100	100	ND	97	31	ND	100	84.8	100

Jan 25	37.8	37.8	37.8	12.4	58.7	58.7	58.7	ND	38.3	58.5	58.5	58.5	ND	35.1	0	ND	58.5	44.5	38.3
Feb 25	87.8	87.8	87.8	17.6	99.7	99.7	99.7	ND	94.5	99.7	99.7	99.7	ND	88.1	0	ND	99.7	75.6	99.5
March 25	98.4	98.4	98.4	83.2	100	100	100	ND	100	98.5	100	100	ND	77.8	ND	ND	100	96.8	100
Average	77.4	77.4	77.4	77.3	95.8	95.8	95.8	95.3	85.8	91.2	95.7	95.7	0	54.8	63.7	0	91.4	77.4	89.6

*ND= No Data

Average data recovery was below the required 90% for all the Months of 2024/2025 financial year.

Table 6: National Ambient Air Quality Limits exceedances

	SO2 10-minute	SO2 hourly	SO2 daily	NO2 hourly	PM10 daily	PM2.5 daily	O3 8-hourly
Apr-24	0	0	0	0	ND	ND	0
May-24	2	0	1	0	ND	0	0
Jun-24	0	0	0	0	ND	0	0
Jul-24	18	3	0	0	3	0	0
Aug-24	0	0	0	0	15	0	2
Sep-24	0	0	0	0	18	0	22
Oct-24	0	0	0	0	4	0	8
Nov-24	0	0	0	0	0	0	1
Dec-24	0	0	0	0	0	0	0
Jan-25	0	0	0	0	0	ND	0
Feb-25	0	0	0	0	0	ND	0
Mar-25	0	0	0	0	0	ND	0
Total exceedances	20	3	1	0	40	0	33
Allowed total exceedances	526	88	4	88	4	4	11

*ND= No Data

The number of exceedances of the PM_{10}, and O_3 daily limits has exceeded their allowed number of exceedances per year of 4 and 11.

2.6. CEMS monitoring data availability/reliability.

Table 7: Monitoring data availability for Matimba Power Station 2024/2025

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
PM (%)	89.6	90.2	95.7	79.9	91.5	94.9
SO_2 (%)	99.9	92.9	86.9	93.7	93.3	84.6
NO_x (%)	99.9	88.6	91.3	91.5	95.3	85.6

From the 18 December 2024 the station experienced and incident on the station service air failure which resulted in water ingress in the flue gas stack system that caused damaged to the gaseous monitors. The gaseous monitors for all unit were off and surrogate values obtained from the parallel/QAL 2 tests were used to calculate the emissions and the monitors reliability. The average monitor availability for the 2024/2025 financial year was above 80% for all the units, except for unit 4 PM monitor due to the defects experience on the monitor during the month of April 2024 where the monitor lenses were found to be damaged. The unit 4 PM monitor was repaired and calibrated, and results were normalised in May 2024.

2.7. Greenhouse gas emissions

Greenhouse Gas Reporting shall be done in accordance with the National Greenhouse Gas Reporting Regulations

2.8. Results of spot measurements or correlation tests:

Table 8: Dates of last full conducted CEMS verification tests for PM for unit 6.

Name of service provider:		Stacklabs Environmental Services CC		
Address of service provider:		10 Chisel Street Boltonia Krugersdorp 1739		
Stack/ Unit	**PM**	**SO_2**	**NOx**	**CO_2**
6	2020/09/09 06h41	New sampling tests in table 14	New sampling tests in table 14	New sampling tests in table 14

Table 9: Dates of last conducted CEMS Spot verification tests for PM, SO_2 and NOx for unit 1, 5 and 6)

Name of service provider:		Levego Environmental services		
Address of service provider:		Building R6 Pineland site Ardeer Road Modderfontein 1645		
Stack/ Unit	**PM**	**SO_2**	**NOx**	**CO_2**
1	2023/08/01 19h33	2023/08/01 19:33	2023/08/01 19:33	2023/08/01 19:33
5	2023/08/05 07:30	2023/08/05 07:30	2023/08/05 07:30	2023/08/05 07:30
6	Dates in table 13 above	2023/08/05 15:52	2023/08/05 15:52	2023/08/05 15:52

Note: The CEMS Spot verification tests for PM, SO_2 and NOx were performed in August 2023. PM spot verification test results for unit 6 failed and old curves are still in use.

Table 10: Dates of last full conducted CEMS verification tests for PM for unit 2, unit 3 and 4 only

Name of service provider:		Levego Environmental services		
Address of service provider:		Building R6 Pineland site Ardeer Road Modderfontein 1645		
Stack/ Unit	**PM**	**SO_2**	**NOx**	**CO_2**
2	2024/07/02 08h50	2024/07/02 12h35	2024/07/02 12h35	2024/07/02 12h35
3	2024/06/23 16h34	2024/06/23 14h00	2024/06/23 14h00	2024/06/23 14h00
4	2024/06/29 16h05	2024/06/29 11h00	2024/06/29 11h00	2024/06/29 11h00

2.9. Action taken addressing complaints.

Source Code/ Name	Root Cause Analysis	Calculation of Impacts/ emissions associated with the incident	Dispersion modelling of pollutants where applicable	Measures implemented to prevent reoccurrence	Date by which measure will be implemented
None					

2.10 Summary of exceedances of emission limits and AEL compliance Status

- Annexure 1 - AEL exceedance reporting tool 2024/2025
- Annexure 2 - AEL compliance Report 2024

2.11 NAEIS reporting.

Matimba Power Station has submitted all emission data On the NAEIS system before the 30th of March 2025 and still awaiting auditing feedback from the DEFF system administrators.

3. Declaration of accuracy

The rest of the information demonstrating compliance with the emission license conditions is supplied in the monthly emission reports sent to your office.

I hereby declare the following:

- Normal operating conditions were maintained during emission tests.
- The information in this report is correct

Obakeng Mabotja
GENERAL MANAGER: MATIMBA POWER STATION