

Ms Nompumelelo Simelane
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Date:
31 May 2024

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Ref: Kendal Power Station Annual Emissions Report

Dear Ms. Simelane

KENDAL POWER STATION'S ANNUAL EMISSIONS REPORT FOR THE FINANCIAL YEAR 2023/2024

This serves as the annual report required in terms of Section 7.6 in Kendal Power Station's Atmospheric Emission License, as well as in terms of other reporting requirements listed in the Minimum Emission Standards. The emissions are for Eskom's 2023/2024 financial year, which is from 1 April 2023 to 31 March 2024. Verified emissions of particulates, as measured by installed CEMS and for SO₂ and NO_x (as NO₂) from Eskom Research and Technology Division (RT&D) calculated data was used.

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

Name of facility	Eskom Holdings SOC Limited –Kendal Power Station
Description of facility	Power Generation
Reference number of plant	AEL License No: 17/AEL/MP312/11/15

Emission Trends:

The emissions in the table below are that of the 2023/2024 financial year. Eskom Research and Technology Division (RT&D) calculated emissions data for **CO₂**, **N₂O**, **SO₂** & **NO₂** was used.

Table 1. General oversight of emissions at Kendal Power Station 2023/2024

Power Station	Coal-fired emissions (tons/annum)	Fuel-oil emissions (tons/annum)	Total (tons/annum)
Kendal Power Station	CO₂ : 13785750.22 N₂O : 195.56 PM : 23621.6 SO₂ : 107789.31	CO₂ : 362434.54 SO₂ : 4822.85	CO₂ : 17,819,466 N₂O : 195.56 PM : 23621.6 SO₂ : 112,612.16

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	NO₂: 39331.95		NO₂: 39331.95
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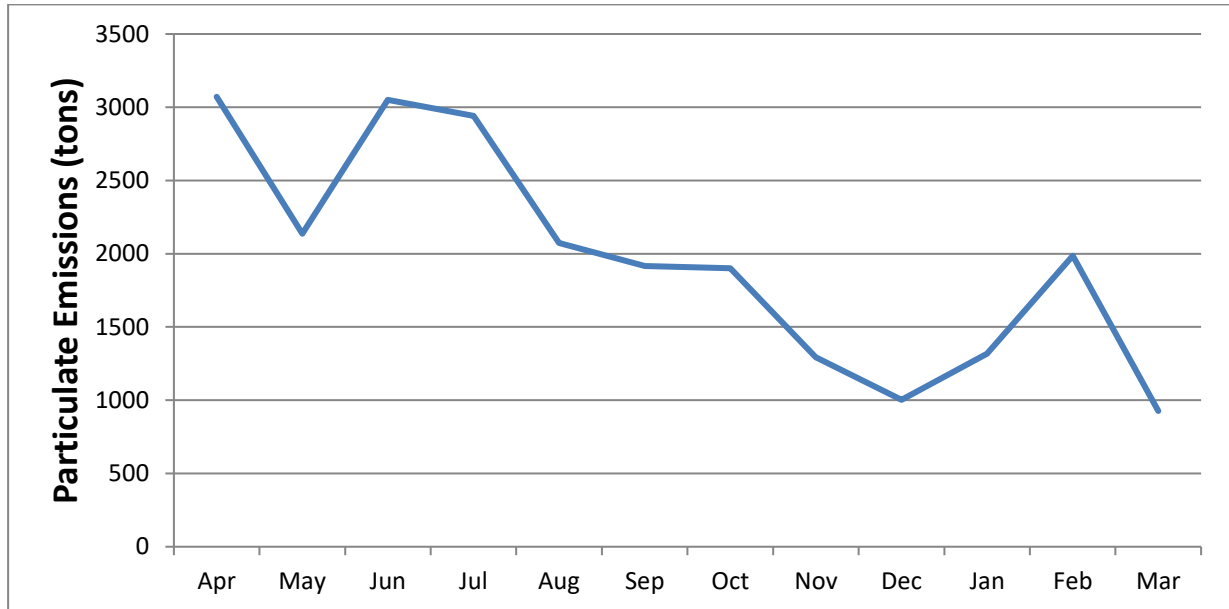


Figure 1. Monthly Particulate Emissions in tons from Kendal Power Station 2023/2024

Please note: Gaseous emissions, in particular, are largely dependent on the power generated by the power station, and thus the amount of coal burnt. Eskom Research and Technology Division (RT&D) calculated emissions data for CO₂, N₂O, SO₂ & NO₂ was used.

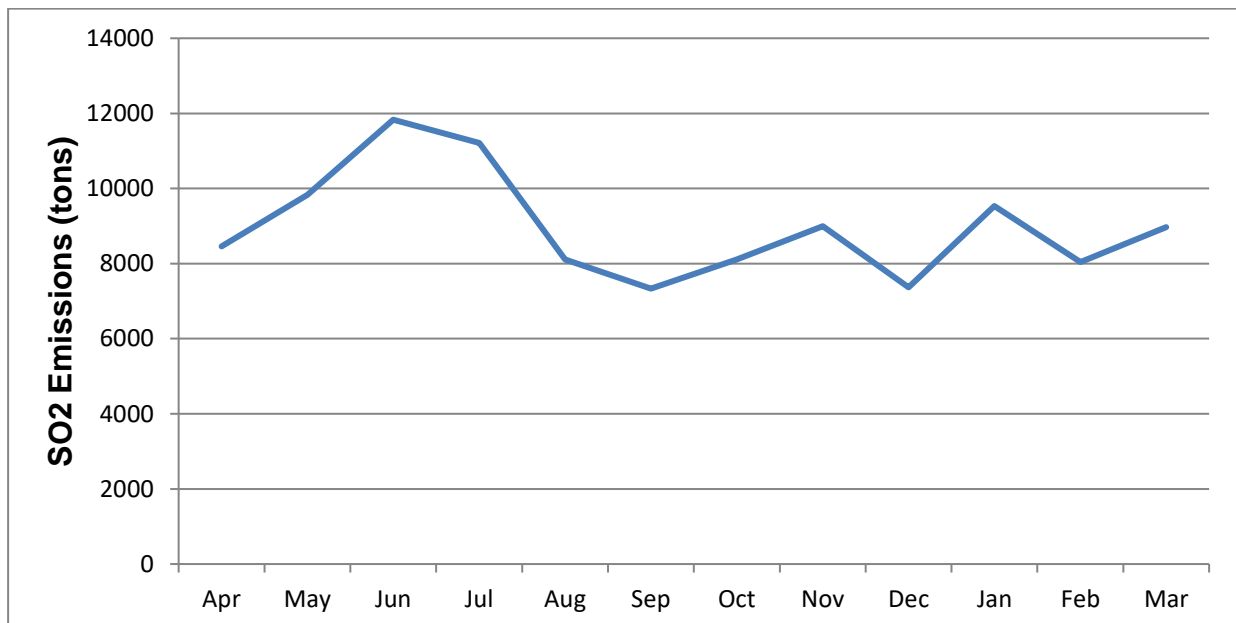


Figure 2. Monthly SO₂ Emissions in tons from Kendal Power Station 2021/2022

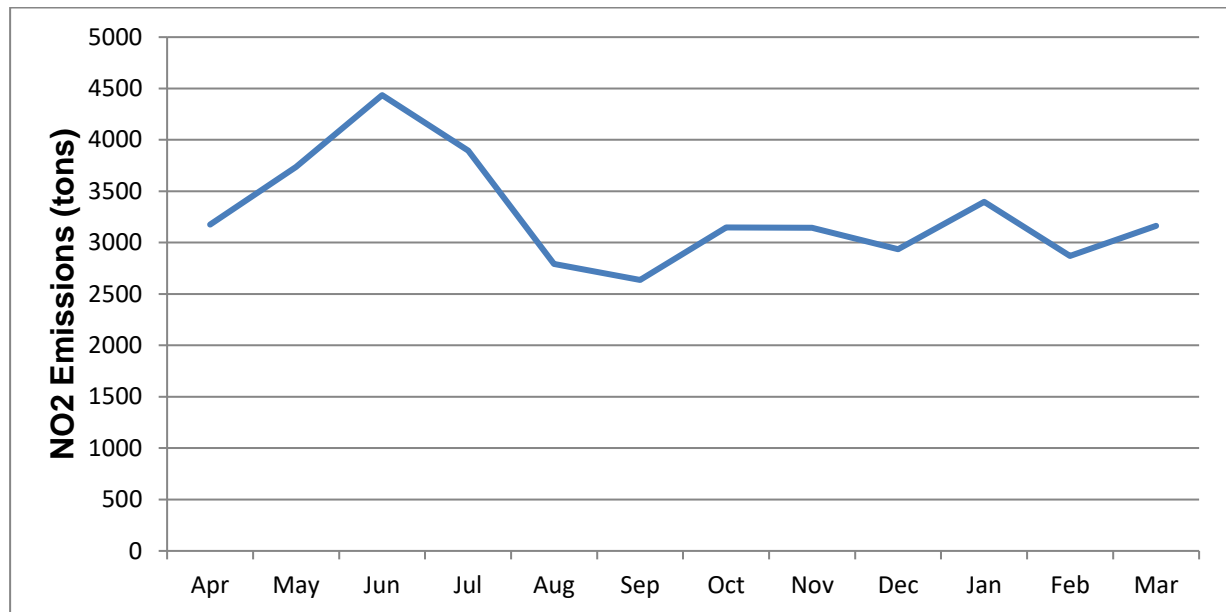


Figure 3. Monthly NO₂ Emissions in tons for Kendal Power Station 2023/2024

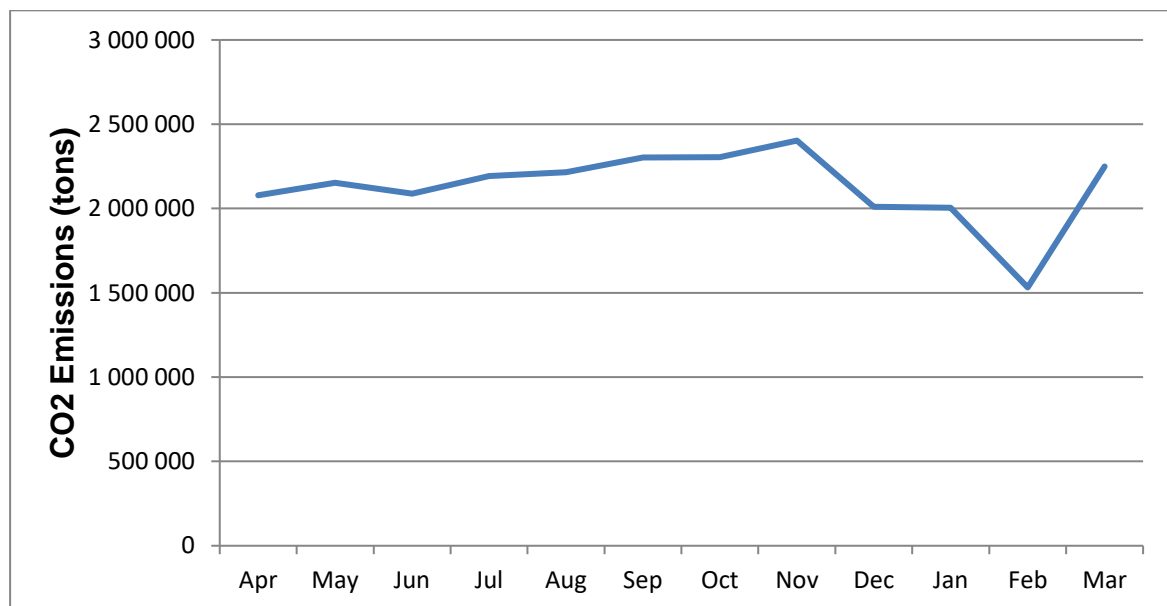


Figure 4. Monthly CO₂ Emissions in tons from Kendal Power Station 2023/2024

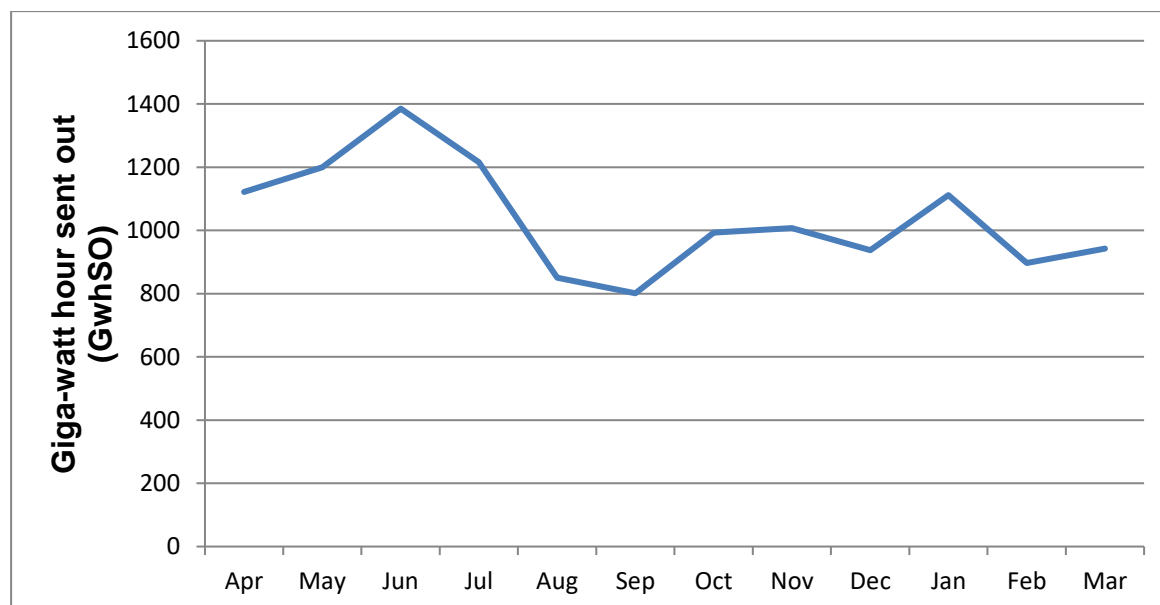


Figure 5. Monthly Energy sent out in GWh at Kendal Power Station 2023/2024

Figures showing compliance with the daily average emission limits of the respective pollutants have been presented to you in the monthly emission reports sent to your offices.

Monitoring Data Reliability

Table 2. General oversight of average monitoring data availability in percentage for Kendal Power Station 2023/2024 in terms of the number of full hours per annum that valid result were obtained for the CEMS in question (2023/2024)

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
PM	86.24	65.52	56.52	76.08	95.2	76.35
SO ₂	83.47	94.96	78.14	55.91	93.61	63.74
NO _x	68.52	94.87	76.13	55.41	93.84	72.21

Compliance Audit Report(s):

The Eskom Generation Air Quality Centre of Excellence (AQ CoE) conducted an Atmospheric Emissions License (AEL) No. 17/4/AEL/MP312/11/15 compliance Review audit for Kendal Power Station on 1 August 2023.

Summary of the findings were as follows:

- AEL condition 4.1- While operating procedures and maintenance strategies for the SO₃, DHP and ESP were indicated to be available and implemented, it was clear that the mitigation measures were not adequate to prevent and reduce atmospheric emissions. Within the review period (Q1_April to June 2023)- Kendal incurred emission limit non-compliances based on poorly maintained plants such as the DHP which negatively affected the abatement technology (ESP).
- AEL condition 4.2 deals with duty of care. The station has a procedure in place to demonstrate duty of care in terms of NEMA Section 28(3), however, from the extended non-compliance noted during the period under review (Q1), it was clear that the procedure was not followed to reduce and minimize the PM emissions.

- Under AEL condition 7.2 a non-compliance was raised, the station incurred 312 PM, 10 SO₂, and NO_x exceedances recorded in Q1. The station is implementing an emission recovery /turnaround plan to address emission non-compliance. However, some of these projects are delayed as per committed due dates, and revised dates are anticipated.
- Under AEL condition 7.4 it was found that all units had expired correlation tests.
- Under AEL condition 7.3 (sub-condition 7.3.1;7.3.2;7.3.3,7.3.9) it was found that the station did not take reasonable measures to control emissions during start-up after an outage still exceeded the emissions beyond the grace periods.

Major Upgrades Projects:

1. ESP refurbishment- Unit 3,4,5 & 6 completed, and unit 1 & 2 are planned for this September 2024 & April 2025.
2. SO₃ plant tanks & common line refurbishment- Completed.
3. High frequency Transformers Installation on all units- Completed.
4. Refurbishment/replacement of primary & secondary Air heaters- Unit 2,3,4,5 & 6- Completed, unit 1 is outstanding and it will be done during outage.
5. Ash handling plant recovery GO scope of work-Completed on unit 2,3,4,5 & 6 and unit 1 will be executed during the next outage.

Greenhouse Gas Emissions:

Greenhouse gas emissions as CO₂ and N₂O have been reported on in table 1 above. These have been calculated.

Results of Spot Measurements or Correlation Tests:

Table 3. Overview of dates of last conducted CEMS verification tests for PM, SO₂ and NO_x

Stack/Unit	PM	SO ₂	NO _x
1	19 th and the 24 th of May 2022	19 th and the 21 st of July 2021	19 th and 21 st of July 2021
2	03 rd and the 11 th of May 2023	12 th and the 15 th of July 2022	12 th and the 15 th of July 2022
3	19 th March and the 04 th April 2024	30 th June to 12 th July 2022	30 th June to 12 th July 2022
4	23 rd February to 24 th March 2024	26 th February to the 04 th of March 2024	26 th February to the 04 th of March 2024
5	08 th to the 15 th of November 2023	04 th and the 06 th of August 2022.	04 th and the 06 th of August 2022.
6	20 th to 24 th May 2020	01 st to the 03 rd of August 2023	01 st to the 03 rd of August 2023

Please see attached appendices 1 to12 for the recent parallel tests and correlation tests. Conducted at Kendal Power Station.

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An explanation of all instances where minimum emission standards were exceeded:

All of the exceedances within the grace period and those that exceeded the grace period are reported in monthly reports as submitted to your Office on a monthly basis.

Emission monitoring and reporting will continue on these units and the monthly reports will be submitted to the Licensing Authorities as required and in instances where the emission performance has improved or not improved, such will be displayed in the reports as submitted.

Summary of PM Emission Exceedance per month per unit during 2023/2024 year:

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
April	19	7	17	Unit off	22	6
May	21	24	19	0	21	1
June	25	26	24	0	21	20
July	30	24	23	Unit off	26	23
August	22	7	7	Unit off	25	9
September	9	19	Unit off	21	13	20
October	19	15	Unit off	15	17	28
November	14	24	Unit off	20	17	13
December	10	19	Unit off	14	10	Unit off
January	13	30	0	16	10	Unit off
February	15	21	5	10	10	Unit off
March	Unit off	25	8	20	12	Unit off
Total	197	241	103	116	204	120

NAEIS reporting:

Kendal Power Station submitted its annual report on the NAEIS system on the 24th May 2024.

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

Hoping the above will meet your satisfaction.

Compiled by:

Tsakani Holeni
ENVIRONMENTAL SENIOR ADVISOR- KENDAL

Date:

Supported by:

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2023/2024**

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Solly Chokoe
ENVIRONMENTAL MANAGER- KENDAL

Date:

Verified by:

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BOILER ENGINEERING SYSTEM ENGINEER -KENDAL

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