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Enquiries: Bryan Mccourt Tel 082 770 0037

Ref: GEM22-L360

Dear Dr Gwaze,

UPDATED MINIMUM EMISSION STANDARDS (MES) APPLICATION

As discussed previously, Eskom has adopted a revised Emission Reduction Plan (ERP 2022). The plan is informed by multiple factors as set out in our original MES application. The revised plan also takes cognisance of the National Air Quality Officers 2021 MES decision, the Eskom 2035 strategy and Just Energy Transition plan and ambient air quality in the relevant air sheds.

Based on the ERP 2022 we have revised our detailed MES application and attach this for your consideration. We will be sharing ERP 2022 and the revised detailed application with the MES Consultative and Advisory Forum as a basis for further engagement and at the forthcoming stakeholder engagements.

We hope you find this in order and if there are any queries, please feel free to contact me at 082 770 0037 or Deidre Herbst at 083 660 1147.

Yours faithfully,

Bryan McCourt Manager Air Quality Centre of Excellence Generation Environmental Management 9 November 2022

ESKOM MES APPLICATIONS SUMMARY UPDATE BASED ON ESKOM 2035 AND EMISSION REDUCTION PLAN 2022 9 November 2022

Based on DFFE October 2021 MES decision, Eskom 2035 and ERP 2022 Eskom's MES application has been updated as indicated below. Dates are based on complete station, but individual units will comply to stricter limits earlier as the required retrofits are completed.

Power Station	Pollutant (limits presented) in mg/Nm ³				
Coal-fuelled - mg/Nm ³ under normal conditions of 10% 0 ₂ , 273 Kelvin and 101,3 kPa.					
(Shutdown date)	Particulate Matter	Nitrogen Oxide	Sulphur Dioxide		
Arnot (2026-29)	None- Eskom will comply PM = 50 mg/Nm ³	Suspension until shutdown NOx = 1000 mg/Nm ³	Postponement until 2025 SO ₂ = 2500 mg/Nm ³ Suspension until shutdown SO ₂ = 2500 mg/Nm ³		
Camden (2023-25)	None- Eskom will comply PM = 50 mg/Nm ³	Suspension until shutdown NOx = 1100 mg/Nm ³	Postponement until 2025 SO ₂ = 3 500 mg/Nm ³ Suspension until shutdown SO ₂ = 3 500 mg/Nm ³		
Duvha (U1-2) (2031)	None- Eskom will comply PM = 50 mg/Nm ³	Postponement until 2025 NOx = 1100 mg/Nm ³	Postponement until 2025 SO ₂ = 2600 mg/Nm ³		
Duvha (U4 -6) (2033-34)	 ¹ Postponement until 2025 PM = 100 mg/Nm³ ² From 2025 Eskom will comply (retrofit complete) PM = 50 mg/Nm³ 	³ Alternative limit from 2025 until shutdown NOx = 1100 mg/Nm ³ until shutdown	⁴ Alternative limit from 2025 until shutdown $SO_2 = 2600 \text{ mg/Nm}^3$ until shutdown		
Grootvlei (2026-27)	None- Eskom will comply PM = 50 mg/Nm ³	Postponement until 2025NOx = 1100 mg/Nm³Suspensionshutdown	Postponement until 2025 $SO_2 = 3500 \text{ mg/Nm}^3$ Suspension until shutdown $SO_2 = 3500 \text{ mg/Nm}^3$		
Hendrina (2023-25)	None- Eskom will comply PM = 50 mg/Nm ³	NOx = 1100 mg/Nm³SuspensionuntilshutdownNOx = 1100 mg/Nm³	Postponement until 2025 SO ₂ = 3200 mg/Nm ³ Suspension until shutdown SO ₂ = 3200 mg/Nm ³		
Kendal (2039-44)	 ¹ Postponement until 2025 PM = 100 mg/Nm³ ² From 2025 Eskom will comply (retrofit complete) PM = 50 mg/Nm³ 	Postponement until 2025 NOx = 1100 mg/Nm ³ ⁵ From 2025 Eskom will comply (optimisation complete) NOx = 750 mg/Nm ³	Postponementuntil 2025SO2 = 2600 mg/Nm344Alternative2025 until shutdownSO2 = 2600 mg/Nm3		
Komati (2022) (shutdown)	Suspension until shutdown PM = 100 mg/Nm ³	Suspension until shutdown NOx = 1100 mg/Nm ³	Suspension until shutdown SO ₂ = 2600 mg/Nm ³		
Kriel (N stack) (2026-30)	⁶ Suspension until shutdown PM = 100 mg/Nm ³	³ Suspension until shutdown NOx = 1600 mg/Nm ³	Postponement until 2025 SO ₂ = 2800 mg/Nm ³		
Kriel (S stack) (2026-30)	⁶ Suspension until shutdown	(existing AEL limit)	Suspension from 2025 until shutdown		

Power	Pollutant (limits presented) in mg/Nm ³				
Station					
Coal-f	uelled - mg/Nm ³ under normal	elvin and 101,3 kPa.			
(Shutdown date)	Particulate Matter	Nitrogen Oxide	Sulphur Dioxide		
	$PM = 100 \text{ mg/Nm}^3$		$SO_2 = 2800 \text{ mg/Nm}^3$		
Kusile (2068-73)	None- Eskom will comply	None- Eskom will comply	None- Eskom will comply		
Lethabo (2036-41)	 ¹ Postponement until 2025 PM = 100 mg/Nm³ ² From 2025 Eskom will comply (retrofit complete) PM = 50 mg/Nm³ 	 ⁷ Postponement until 2025 NOx = 1100 mg/Nm³ Alternative limit from 2025 until 2033 NOx = 1100 mg/Nm³ From 2033 Eskom will comply (retrofit complete) NOx = 750 mg/Nm³ 	Postponement until 2025 SO ₂ = 3200 mg/Nm ³ ⁴ Alternative limit from 2025 until shutdown SO ₂ = 2600 mg/Nm ³		
Majuba (2046-51)	None- Eskom will comply PM = 50 mg/Nm ³	 ⁸ Postponement until 2025 NOx = 1300 mg/Nm³ Alternative limit from 2025 to 2030 NOx = 1300 mg/Nm³ From 2031 Eskom will comply (retrofit complete) NOx = 750 mg/Nm³ 	Postponement until 2025 SO ₂ = 3200 mg/Nm ³ ⁴ Alternative limit from 2025 until shutdown SO ₂ = 3000 mg/Nm ³		
Matimba	⁹ Alternate monthly limit	⁹ Alternate monthly limit	¹⁰ Alternate monthly limit		
(2038-42) Matla (U1-4) (2030-32)	 PM = 50 mg/Nm³ (monthly) until shutdown ¹ Postponement PM = 100 mg/Nm³ ² From 2025 Eskom will comply (retrofit complete) PM = 50 mg/Nm³ 	NOx = 750 mg/Nm ³ (monthly) until shutdown ³ Suspension until shutdown NOx = 1200 mg/Nm ³ (existing AEL limit)	of SO ₂ = 4000 mg/Nm ³ (monthly) until shutdown Postponement until 2025 SO ₂ = 2600 mg/Nm ³ ⁴ Alternative limit from 2025 until shutdown SO ₂ = 2600 mg/Nm ³		
Matla (U5&6) (2033-34)	Postponement PM = 100 mg/Nm ³ ² From 2025 Eskom will comply (retrofit complete) PM = 50 mg/Nm ³				
Medupi (2065-71)	None- Eskom will comply PM = 50 mg/Nm ³	None- Eskom will comply NOx = 750 mg/Nm ³	 ¹¹ Alternate monthly limit of SO₂ = 4000 mg/Nm³ (monthly) until 2031 ¹¹ Alternate monthly limit of SO₂ = 1000 mg/Nm³ (monthly) from 2031 (retrofit complete) until shutdown 		
Tutuka ¹² (2030)	Alternative limit until 2027 PM = 300 mg/Nm ³ daily or 200 mg/Nm ³ monthly (retrofit only	Alternative limit until 2028	Suspension SO ₂ = 3000 mg/Nm ³ until shutdown (2030)		

Power Station	Pollutant (limits presented) in mg/Nm ³					
Coal-fuelled - mg/Nm ³ under normal conditions of 10% 0 ₂ , 273 Kelvin and 101,3 kPa.						
(Shutdown date)	Particulate Matter	Nitrogen Oxide	Sulphur Dioxide			
	complete in 2027 then compliant) Suspension from 2027 until station shutdown (2030) PM = 100 mg/Nm ³ (retrofit complete)	NOx = 1200 mg/Nm ³ (retrofit only complete in 2028 then compliant) Suspension from 2028 until station shutdown (2030) NOx = 750 mg/Nm ³				
Gas/liqui	Gas/liquid fuelled - mg/Nm ³ under normal conditions of 15% 0 ₂ , 273 Kelvin and 101,3 kPa.					
	Particulate Matter	Nitrogen Oxide	Sulphur Dioxide			
Acacia (2030)	None- Eskom will comply PM = 50 mg/Nm ³	Postponement until 2025 NOx = 600 mg/Nm ³ Suspension from 2025 to 2030 NOx = 600 mg/Nm ³	None- Eskom will comply SO ₂ = 500 mg/Nm ³			
Port Rex (2030)	Suspension until shutdown PM = 75 mg/Nm ³	Postponementuntil2025NOx=600mg/Nm³Suspensionfrom 2025to 2030NOx=600 mg/Nm³	None- Eskom will comply SO ₂ = 500 mg/Nm ³			
Ankerlig	None- Eskom will comply PM = 50 mg/Nm ³	None- Eskom will comply NOx = 250 mg/Nm ³	None- Eskom will comply $SO_2 = 500 \text{ mg/Nm}^3$			
Gourikwa	None- Eskom will comply PM = 50 mg/Nm ³	None- Eskom will comply NOx = 250 mg/Nm ³	None- Eskom will comply $SO_2 = 500 \text{ mg/Nm}^3$			

Notes:

General: The assessment of compliance limit and MES application is based on a review of historical performance and plans in terms of Eskom 2035, the Eskom Emission Reduction Plan 2022 and the assumption that replacement generating capacity is made available. Any substantive changes in these assumptions may impact the projected emission levels, achievement timelines and MES application requirements.

¹ PM compliance of 50 mg/Nm³ can only be achieved at ESP stations (Duvha, Kendal, Lethabo, Matla), once ESP refurb and HFT are completed, which is targeted for 2025, but may be delayed.

² PM compliance of 50 mg/Nm³ is a risk at ESP and HFT stations as it requires a fully optimised unit operation which is historically difficult 85 mg/Nm³ is more sustainable, but 50 mg/Nm³ will be targeted.

³NOx compliance at 750 mg/Nm³ at Duvha and Matla and 1100 mg/Nm³ at Kriel can only be achieved with NOx burner replacement, and given ambient air quality, financial cost and length of remaining operational life, MES application is to operate at existing AEL level until shutdown.

⁴ SO₂ compliance at 1000 mg/Nm³ can only be achieved with wet Flue Gas Desulphurisation, and given air quality, financial cost and length of remaining operational life, the MES application is to operate at the existing AEL level until shutdown.

⁵ NOx compliance to 750 mg/Nm³ is a risk as it requires fully optimised processes which is historically difficult.

⁶ At Kriel PM, compliance of 100 mg/Nm³ can only be achieved on the Kriel North stack once ESP refurbishment and HFT are completed, which is targeted for 2025 but may be delayed. Even once installed, compliance to 100 mg/Nm³ at the North and South stack is at risk but will be strived for.

⁷ Lethabo NOx has shown an unexpected increase, and a low NOx burner retrofit is now required to achieve compliance to 750 mg/Nm³. The upgrade process has not started and will only be completed by 2033.

⁸ Majuba NOx project was on hold pending the outcome of MES. A decision to restart the projects was given by Board in July 2022 and estimated planning indicates completion by 2031, but the date is subject to review.

⁹ Matimba PM and NOx limits are requested at a monthly limit to allow for limited daily variation and operational flexibility.

¹⁰ Matimba SO₂ request is for a higher monthly SO₂ limit, given the projected increase in sulphur content. SO₂ compliance at 1000 mg/Nm³ is only possible with Flue Gas Desulphurisation, and given air quality, financial cost and length of remaining operational life. The MES application is to operate at 4000 mg/Nm³ monthly until shutdown. The monthly limit is requested to allow operational flexibility on a daily basis.

¹¹ Medupi SO₂ request is for a higher monthly SO₂ limit, given the projected increase in sulphur content. SO₂ compliance at 1000 mg/Nm³ is only possible with Flue Gas Desulphurisation, which will only be completed by 2031. Thereafter a monthly limit of 1000 mg/Nm³ is requested to allow operational flexibility on a daily basis.

¹² Tutuka's shutdown dates have been brought forward from 2041 to 2030 as part of Eskom 2035 and ERP 2022, resulting in substantial emission decreases. Eskom is thus now applying for suspension at Tutuka. Station operates at a 300 mg/Nm³ PM limit presently, and Eskom commits to reducing this to 100 mg/Nm³. Investment in emission control at a station closing down by 2030 is questioned but given present emission levels, it is considered appropriate. The Tutuka NOx project was on hold pending the outcome of MES decision. A decision was made to allow the restart of the project by Board in July 2022, and planning indicates completion by 2028, but the date is subject to review.