



**MINISTER
FORESTRY, FISHERIES AND THE ENVIRONMENT
REPUBLIC OF SOUTH AFRICA**

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DECISION BY THE MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT: DR. D T GEORGE, IN RESPECT OF THE EXEMPTION APPLICATIONS SUBMITTED BY ESKOM IN TERMS OF SECTION 59 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004 (ACT NO. 39 OF 2004)

Exemption Applications: Eskom SOC (Pty) Ltd filed applications in terms of section 59 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEMAQA), for exemptions from Minimum Emission Standards for each of its eight (8) of its coal-fired power stations, namely: Duvha, Kendal, Lethabo, Majuba, Matimba, Matla, Medupi and Tutuka on 10 December 2024, pursuant to the former Minister's appeal decision of 22 May 2024.

BACKGROUND

- 1.1 Eskom Holding SOC Limited (Eskom) is South Africa's sole electricity supplier. All of Eskom's coal, liquid and gas fuel-fired power stations are required to meet the Minimum Emission Standards (MES) as prescribed in terms of section 21 of the NEMAQA.
- 1.2 Section 21(1) of the NEMAQA provides that the Minister must, by notice in the *Government Gazette*, publish a list of activities that result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage, viz. the Listed Activities.

- 1.3 Section 21(3)(a) of the NEMAQA states that the notice containing the Listed Activities must establish MES in respect of a substance or mixture of substances resulting from a Listed Activity. The MES must include the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted. Section 21(3)(c) requires the notice to indicate the date on which the notice containing the Listed Activities and the MES take effect.
- 1.4 On 31 March 2010, the then Minister of Water and Environmental Affairs, Ms Buyelwa Patience Sonjica ("Minister Sonjica"), published a notice under section 21 of the NEMAQA, which identified several activities as Listed Activities and prescribed the MES for the said activities. This notice is titled "List of activities which result in atmospheric emissions which have or may have a significant detrimental effect on the environment, including, health, social conditions, economic conditions, ecological conditions or cultural heritage, in Government Notice No. R.248 of Government Gazette No. 33064 of 31 March 2010 ("List of Activities").
- 1.5 The List of Activities prescribes the MES for ten categories of Listed Activities, each comprising of subcategories; and the time period for all atmospheric emission license (AEL) holders to come into compliance with the prescribed MES. It initially provided that:
- "(8) New plant must comply with the new plant minimum emission standards as contained in Part 3 from 01 April 2010.*
- (9) Existing plant must comply with minimum emission standards for existing plant as contained in Part 3 by 01 April 2015, unless where specified.*
- (10) Existing plant must comply with minimum emission standards for new plant as contained in Part 3 by 01 April 2020, unless where specified."*
- 1.6 Entities that were unable to meet the prescribed MES within the legislated compliance timeframes could apply to the National Air Quality Officer ("NAQO") for postponement of these compliance timeframes.
- 1.7 On 22 November 2013, the List of Activities was amended by Government Notice No. R.893 of Government Gazette No. 37054. The MES prescribed for solid fuel combustion installations and

the compliance timeframes applicable to all categories of Listed Activities were, however, not altered. Further, in May 2020, the incumbent Minister, Minister Creecy, amended the List of Activities and, save for introducing a new special arrangement in respect of Category 1.1, the List of Activities was largely left unchanged.

- 1.8 The newly introduced special arrangement provides that existing plants shall comply with a new plant emission limit of 1000mg/Nm³ for SO₂. With effect from 27 March 2020, the MES for subcategory 1 was amended to state that *“existing plants shall comply with a new plant limit of 1000 mg/Nm³ for sulphur dioxide (SO₂)”*.
- 1.9 In terms of section 22 of the NEMAQA, no person may, without a provisional atmospheric emission license (PAEL), or an atmospheric emission license (AEL), conduct an activity listed on the national list anywhere in the Republic, or listed on the list applicable to a province anywhere in that province.
- 1.10 Chapter 5 of the NEMAQA provides for the detailed process and procedure applicable to PAELs and AELs. Section 39 of the NEMAQA stipulates the factors to be taken into account by licensing authorities when considering an application for an AEL. This section states that,

“39. Factors to be taken into account by licensing authorities. — When considering an application for an atmospheric emission licence, the licensing authority must take into account all relevant matters, including—

(a) any applicable minimum standards set for ambient air and point source emissions that have been determined in terms of this Act;

(b) the pollution being or likely to be caused by the carrying out of the listed activity applied for and the effect or likely effect of that pollution on the environment, including health, social conditions, economic conditions, cultural heritage and ambient air quality;

(c) the best practicable environmental options available that could be taken —

(i) to prevent, control, abate or mitigate that pollution; and

(ii) to protect the environment, including health, social conditions, economic conditions, cultural heritage and ambient air quality, from harm as a result of that pollution;

(d) section 24 of the National Environmental Management Act and any applicable environmental impact assessment done, the decision taken on the application of the environmental authorisation, and any applicable notice issued or regulation made pursuant to that section.

(e) any relevant tradable emission scheme.

(f) whether the applicant is a fit and proper person as contemplated in section 49;

(g) the applicant's submissions;

(h) any submissions from organs of state, interested persons and the public; and

(i) any guidelines issued by the Minister or MEC relating to the performance by licensing authorities of their functions."

1.11 Section 43 of the NEMAQA provides an outline for the content of PAELs and AELs:

"(1) A provisional atmospheric emission licence and an atmospheric emission licence must specify—

a) the activity in respect of which it is issued;

b) the premises in respect of which it is issued;

c) the person to whom it is issued;

d) the period for which the licence is issued;

e) the name of the licensing authority;

f) the periods at which the licence may be reviewed;

g) the maximum allowed amount, volume, emission rate or concentration of pollutants that may be discharged in the atmosphere—

(i) under normal working conditions; and

(ii) under normal start-up, maintenance and shut-down conditions;

h) any other operating requirements relating to atmospheric discharges, including non-point source or fugitive emissions;

i) point source emission measurement and reporting requirements;

j) on-site ambient air quality measurement and reporting requirements;

k) penalties for non-compliance;

l) greenhouse gas emission measurement and reporting requirements; and

m) any other matters which are necessary for the protection or enforcement of air quality.

(2) A licence may—

a) specify conditions in respect of odour and noise;

b) require the holder of the licence to comply with all lawful requirements of an environmental management inspector carrying out his or her duties in terms of the National Environmental Management Act, including a requirement that the holder of the licence must, on request, submit to the inspector a certified statement indicating—

(i) the extent to which the conditions and requirements of the licence have or have not been complied with;

(ii) particulars of any failure to comply with any of those conditions or requirements;

(iii) the reasons for any failure to comply with any of those conditions or requirements; and

(iv) any action taken, or to be taken, to prevent any recurrence of that failure or to mitigate the effects of that failure.”

- 1.12 During 2018, 2019 and 2020, Eskom Holding SOC Ltd applied to the NAQO for postponements of compliance timeframes and for once-off suspensions of compliance timeframes with minimum emission standards with respect to its 16 power stations, namely: Duvha, Kendal, Matimba,

Majuba, Tutuka, Medupi, Arnot, Lethabo, Camden, Acacia, Port Rex, Kriel, Komati, Hendrina, Grootvlei, and Matla power stations.

- 1.13 On 30 October 2021, the NAQO granted some of Eskom's applications, partially granted some and denied others. The NAQO's decisions led to multiple appeals concerning various entities and facilities, particularly from and related to Eskom SOC Limited ("Eskom"), as well as other emitters.
- 1.14 Section 43 of the National Environmental Management Act, 1998 (Act No. 108 of 1998) (NEMA), governs the appeal process and it provides that any person may appeal to the Minister against a decision taken by any person acting under a power delegated by the Minister under this Act or a specific environmental management Act. Subsection 6, stipulates as follows:
- (6) The Minister or an MEC may, after considering such an appeal, confirm, set aside or vary the decision, provision, condition or directive or make any other appropriate decision, including a decision that the prescribed fee paid by the appellant, or any part thereof, be refunded."*
- 1.15 In December 2021, Eskom submitted several appeals under section 43(1) of NEMA against the decisions of the NAQO to either partially grant or refuse Eskom's applications for certain of its power stations. On the other hand, environmental advocacy groups, including the Centre for Environmental Rights, Earthlife Africa and GroundWork Trust, lodged appeals against the NAQO's favourable decisions regarding other power stations. An individual appellant also challenged the NAQO's ruling in favour of Eskom's Port Rex power station.
- 1.16 The former Minister, Minister Creecy, established a consultative forum in terms of section 3A of the NEMA, namely the National Environmental Consultative and Advisory (NECA) Forum to conduct an extensive consultative process with key stakeholders on the various issues arising from Eskom's applications, to assess and present relevant research and analysis in a public forum, and report its findings and recommendations to the Minister.

- 1.17 To navigate these complexities, the Forum employed a multi-disciplinary approach, incorporating legal, environmental and energy system analysis. Tools such as power system modelling and a plant-level matrix assessment facilitated a comprehensive understanding of implications at different scales. The findings indicated that upholding the NAQO's decisions would significantly impact national electricity supply, resulting in increased loadshedding and higher electricity costs, albeit improving local air quality. The Forum determined that a sustainable approach to MES compliance should be considered, integrating multiple critical factors.
- 1.18 The Forum recommended that the former Minister uphold the NAQO's decisions for Eskom's Arnot, Camden, Hendrina, Grootvlei, Kriel and Port Rex power stations, dismissing the related appeals. However, Eskom's appeals concerning its Matla, Duvha, Matimba, Medupi, Lethabo, Majuba, Tutuka, Kendal and Kriel power stations were found to be unpersuasive.
- 1.19 For the remaining eight power stations, the Forum recommended that instead of upholding or setting aside the NAQO's decisions, the Minister should, using section 43(6) of NEMA, "make any other appropriate decision" in respect of the appeals. The Forum recommended that former Minister Creecy issue a procedural order under section 43(6) of the NEMA directing Eskom to apply for exemptions under section 59 of the NEMAQA, should it wish to seek an exemption from the application of the MES in the light of its asserted inability to comply with new plant standard at certain of its plants. The Forum recommended that such exemptions, if granted by the Minister, should be accompanied by stringent conditions.
- 1.20 In reaching this recommendation, the NECA Forum also conducted a legal analysis of section 59 of the NEMAQA to confirm that it was a lawful mechanism on which to rely. The Forum needed to answer two interrelated questions: (i) whether an exemption from a provision of the List of Activities would be legally permissible, and (ii) what the scope of the Minister's powers are when granting a section 59 exemption.
- 1.21 After reviewing the NECA Forum's report, former Minister Creecy concurred with the recommendations made by the Forum and issued her decision reflecting such concurrence on 22 May 2024. In relation to Hendrina, Grootvlei, Arnot, Camden and Kriel, the Minister decided to uphold the NAQO's decisions subject to further conditions.

1.22 In relation to the remaining facilities, the Minister's decision directed Eskom to submit applications for exemptions under section 59 of the NEMAQA within 60 days of the decision. The erstwhile Minister's decision noted the Forum's work in developing a number of conditions and limitations which may be imposed on Eskom should any of its exemption applications be successful. The decision further stated that each application would be assessed based on its merits and supporting information. Eskom sought an extension of the 60-day timeframe for the submission of its exemption applications, which application was granted to 10 December 2024.

1.23 Section 59 of the NEMAQA provides for exemptions and states as follows:

"59. Exemptions –

(1) (a) Any person or organ of state may, in writing, apply for exemption from the application of a provision of this Act to the Minister.

(b) No exemption from a provision of section 9, 22 or 25 may be granted in terms of paragraph (a).

(2) An application in terms of subsection (1) must be accompanied by reasons.

(3) (a) The Minister may require an applicant applying for exemption to take appropriate steps to bring the application to the attention of relevant organs of state, interested persons and the public.

(b) The steps contemplated in paragraph (a) must include the publication of a notice in at least two newspapers circulating nationally -

(i) giving reasons for the application; and

(ii) containing such other particulars concerning the application as the Minister may require.

(4) The Minister may –

(a) from time to time review any exemption granted in terms of this section; and

(b) on good grounds withdraw any exemption.

(5) The Minister may on such conditions and limitations determined by the Minister delegate any of the powers contained in this section to –

(a) the MEC responsible for air quality in a province; or

(b) a metropolitan or district municipality.”

- 1.24 On 10 December 2024, Eskom filed applications in terms of section 59 of the NEMAQA requesting exemptions from the MES for eight (8) of its coal-fired power stations, namely: Duvha, Kendal, Lethabo, Majuba, Matimba, Matla, Medupi and Tutuka.
- 1.25 The applications were brought pursuant to the former Minister's appeal decision, which is summarised above, and highlights the significant technical and financial challenges faced by Eskom in reducing emissions of particulate matter (PM), sulphur dioxide (SO₂) and nitrogen oxides (NO_x).
- 1.26 The Department of Forestry Fisheries and the Environment (the Department) appointed Mr Peter Harris of Harris Nupen Molebatsi Attorneys to provide me with his advice and recommendations for my consideration in my determination on Eskom's exemption applications, with the assistance of a number of technical experts who were part of the NECA Forum, hereinafter referred to as independent experts.
- 1.27 I instructed the Mr Harris and the independent experts to conduct an assessment and analysis of the data and supporting information that forms part of Eskom's section 59 of the NEMAQA exemption applications. More specifically, I requested that I be advised on the merits of Eskom's applications and that I be provided with a comprehensive report that incorporates both legal and substantive evaluations for my consideration in deciding whether or not to grant the exemption applications.
- 1.28 The following information sources were considered by the independent experts for my consideration in making my decisions:
- 1.28.1 Information that was given to the NECA Forum, and the NECA Forum's analytical work, as contained in its 2024 Report;
- 1.28.2 Publicly available information relating to all of the critical conditions of relevance to the section 59 applications;

- 1.28.3 Eskom's exemption applications for its fleet and power stations;
 - 1.28.4 Information obtained from the NAQO;
 - 1.28.5 Eskom's response to the NECA Forum's 2024 Report;
 - 1.28.6 CER's response to Eskom's exemption applications; and
 - 1.28.7 Responses to questions of clarity posed to Eskom.
- 1.29 On 17 March 2025, Mr Harris and the independent experts provided me with their report and recommendations titled "*Report And Recommendations to the Minister of Forestry, Fisheries and the Environment: Dr. Dion George, in Respect of the Exemption Applications of Eskom Submitted in Terms of Section 59 of the National Environmental Management Air Quality Act 39 of 2004*", together with an executive summary, hereafter referred to as "**the Expert Report**". I have considered the Expert Report. It is evident that Mr Harris and the independent experts undertook an immense amount of work including the consideration of voluminous submissions and detailed technical analysis. I have accepted the recommendations therein, save where I indicate otherwise or where it is otherwise apparent from the context of this decision.
- 1.30 I do not intend to repeat the contents of the Expert Report, though I do draw extensively from it. I do however quote extensively from the report. This should not be construed to mean that I did not apply my mind to the contents thereof.
- 1.31 Albeit that Eskom submitted individual power station applications for each of its above-mentioned facilities, I have deemed it appropriate to consolidate my decisions in relation to each of the facilities into a consolidated decision, as I hereby do. This is due to the overlapping nature of the issues arising under each of the applications. Additionally, the Expert Report provides me with consolidated advice and recommendations on the exemption applications for each of the facilities.
- 1.32 This decision must be read conjunctively with the Expert Report and the NECA Forum Report (redacted), which is available for download on the Departmental website.

ESKOM'S APPLICATIONS PURSUANT TO THE APPEAL DECISION OF 22 MAY 2024

- 2.1 Eskom's individual power station applications are comprehensive and encompass a broad array of issues, supported by information and studies from various sources. The applications for each power station and the fleet were accompanied by the following:
 - 2.1.1 Current Emissions Performance Report
 - 2.1.2 Emissions Reduction Plans
 - 2.1.3 Eskom Fleet Air Quality Impacts
 - 2.1.4 Financial Considerations
 - 2.1.5 Fleet Exemption Requests
 - 2.1.6 Public Participation Report
- 2.2 These applications can be effectively summarised into the following points and supporting facts or evidence.
 - 2.2.1 The first point advanced in support of the applications is that compliance with the MES is not feasible due to the advanced age of its power plants and the substantial costs associated with retrofitting them with emissions control technologies.
 - 2.2.2 The second point made is that the premature closure of non-compliant stations would severely affect the electricity supply and exacerbate South Africa's ongoing energy crisis. Although each application is summarised in more detail below, the thrust of Eskom's submissions in its applications is that immediate compliance with the current MES would necessitate the shutdown of approximately 24 000 MW of capacity, which would pose a serious risk to national energy security and economic stability. As an alternative to strict compliance, Eskom proposes a phased approach to emissions reduction through the adoption of abatement technologies and alternative compliance strategies.
 - 2.2.3 Thirdly, Eskom asserts that its power stations are not the sole contributors to air quality issues, identifying industrial operations, mining, waste burning and domestic fuel use as additional pollution sources. Finally, Eskom emphasises that planned emission reduction measures, such as the installation of Flue Gas Desulfurization ("FGD") systems at Medupi and the prioritisation of cleaner stations in electricity dispatch, will progressively mitigate environmental impacts.

- 2.3 To substantiate its claims, Eskom provides historical air quality monitoring data, projections for emission reductions under various compliance scenarios and financial analyses detailing the costs of different emissions control technologies. In addition, Eskom makes reference to a health cost-benefit analysis, indicating that the costs associated with full compliance may exceed the anticipated health benefits in certain scenarios. It also highlights relevant government decisions, including conditional postponements granted in 2021 and the May 2024 directive requiring new exemption applications, demonstrating its commitment to regulatory engagement.
- 2.4 Ultimately and in summary, Eskom seeks approval for an exemption from the MES limits at several stations until planned abatement projects are completed or station shutdowns take place. It proposes alternative emission limits that, while exceeding existing and/or new plant standards, would remain within historical operating levels.
- 2.5 Eskom submits that its exemption requests are justified by the necessity of balancing environmental and health considerations with energy security and economic growth. It posits that rigid enforcement of the MES could lead to unintended adverse effects, while its proposed compliance strategy presents a more sustainable and pragmatic solution.

CER'S OBJECTIONS TO ESKOM'S SECTION 59 EXEMPTION APPLICATIONS

- 3.1 In response to Eskom's section 59 of the NEMAQA exemption application, the Centre for Environmental Rights (CER) made a submission in its own name and on behalf of its clients, GroundWork Trust and Earthlife Africa. The three organisations, together, comprise the Life after Coal/Impilo Ngaphandle Kwamalahle Campaign ("**Life after Coal**").
- 3.2 Below is a summary of the assertions contained in the above submission, which Mr Harris and the independent experts considered as part of the recommendations and which I have also considered in this decision. I do not intend to set out each and every assertion made by Life after Coal therein. This should not be construed to mean that any assertion not specifically recorded or referred to herein was not considered by me, or that I concede the merits thereof.
- 3.3 Life after Coal makes the following submissions:-

- 3.3.1. Its general position is that *"it is untenable to pit load shedding against the constitutionally protected health and well-being of communities in priority areas"* and that *"compliance with the law is not negotiable"*.
- 3.3.2. At the outset, the Minister directed Eskom to apply for exemptions in respect of its Matla, Duvha, Tutuka and Kendal power stations only, but that Eskom applied, instead, for exemptions in respect of 8 of its power stations.
- 3.3.3 The Health Cost Benefit Analysis ("**CBA**") that Eskom submitted as part of its application contains a number of flaws. In support of its assertion, Life after Coal sets out the main points of a high-level review of the CBA conducted by the Centre for Research on Energy and Clean Air ("**CREA**"):
- *"[T]he CBA systematically undervalues the health benefits of MES compliance by omitting critical health impacts, relying on outdated population data and applying a narrow geographical scope and oversimplified risk modelling";*
 - *"[T]he use of CBA introduces ethical issues, including inequitable distribution of costs and benefits, manipulative framing through electricity tariff increases, and disregard for the intrinsic value of clean air as a public good"; and*
 - *"[T]he analysis fails to meet global standards by using South Africa's weaker legal air quality thresholds rather than the stricter guidelines set by the World Health Organization (WHO) and ignoring international best practices for pollution control".*
- 3.3.4 Several studies were conducted by interested parties into the effects of compliance with the MES on, *inter alia*, health. One such study is a 2023 report by the CREA which concludes the following:
- *"Full compliance with the MES would reduce emissions of SO₂ by 60%, PM by 50%, NO_x by 20% and mercury by 40%, compared with a scenario of no improvements in emission control technology";*
 - *Full MES compliance at all plants that are scheduled to operate beyond 2030 would avoid a projected 2 300 deaths per year from air pollution and economic costs of R42 billion per year; and*

- *“Other avoided health impacts would include 140 000 asthma emergency room visits, 5 900 new cases of asthma in children, 57 000 preterm births, 35.0 million days of work absence and 50 000 years lived with disability”.*

- 3.3.5 In relation to Eskom’s failure to comply with the MES, Life after Coal asserts that *“[i]n these applications, Eskom fails to set out how it intends to mitigate the health impacts of its non-compliance and the infringement of residents’ constitutional rights”*, reiterating that, according to the Polluter Pays principle, Eskom should bear the cost of remedying the adverse effects of its pollution and of preventing, controlling or minimising further pollution and the effects thereof.
- 3.3.6 Although Eskom asserts, in its exemption applications, that it has implemented several corporate social investment projects which aim to improve the standard of living of communities that are most affected by the pollution, Eskom fails to provide detailed information regarding these projects, which Life after Coal now requests.
- 3.3.7 Eskom’s Offset proposal fails to outline the cost implication of such a proposal on the recipients thereof. Life after Coal also stated that they *“do not agree with the principle of air quality offsetting as a means to avoid legal compliance”* and stated that Eskom has failed to provide evidence that its air quality offsets have, to date, offset the impacts of its non-compliance with the MES, thus disputing the *“notion that the overall improvement in ambient air quality can be achieved through the use of offsets”*.
- 3.3.8 Should Eskom be granted the exemption it requests, it must be obligated to put measures in place to mitigate the harm that the excess emissions will cause. In this regard, Life after Coal proposes the following conditional measures:
- 3.3.8.1 *“Eskom must provide financial support to be used specifically for a meaningful and effective health impact mitigation programme at community level to counter, at least to some extent, the harmful impacts of the MES non-compliance...it must secure formal collaboration with the Department of Health and other Government Departments where necessary. Eskom must:*

- (i) Provide facilities and resources that can be used to conduct ongoing health surveillance and community screening for health outcomes linked to air pollution.*
- (ii) Cause and fund, or arrange funding for, the design, construction, equipment and operation of a sufficient number of mobile clinics to provide free asthma outreach and respiratory diagnostic and treatment services in target zones.*
- (iii) Conduct an outreach campaign to advise residents in target zones of the mobile clinics' services and to provide respiratory health prevention and management education.*
- (iv) Secure formal collaboration from public health and other necessary decision-makers and service providers to support the genesis and operation of the mobile clinics.*
- (v) Ensure targeted critical respiratory-related care and services to affected individuals who lacked proper access to adequate healthcare.*
- (vi) The programme must include a register of air pollution related health cases and dedicated liaison with state public health role players must be established.*
- (vii) The National Department of Health (NDoH) and academic institutions involved in researching the health impacts of air pollution must be invited to participate in the process of evaluating in an ongoing basis the health impacts of the MES non-compliance.*
- (viii) The approach to health impact mitigation must be holistic. It cannot be limited purely to the treatment of individuals who are experiencing symptoms of respiratory and pollution-related health ailments. Further health impacts must be prevented and proactive health management for affected communities must be implemented.*

3.3.8.2 Eskom should install continuous emissions monitoring equipment measuring ambient air quality at sites around each power station and this data must be provided in real-time to all stakeholders on the DFFE SAAQIS system or a dedicated data-free micro-site. Eskom must provide live daily emission data of each of the pollutants on Eskom's website.

3.3.8.3 Eskom must implement, or cause to be implemented, enhanced air quality monitoring including:

- (i) Increased air quality monitoring stations at sensitive receptor sites, communities around its power stations, and areas further downwind. The readings from such stations should be able to be monitored remotely and the information published in real-time and publicly accessible via the internet; and*
- (ii) An effective community alert system during high pollution events and during exceedance at the plant level.*

3.3.8.4 Eskom must ensure that appropriate filtration systems are installed in all community and public buildings in the target areas – including schools, clinics, hospitals, community halls and the like – as follows:

- (i) Where such buildings are equipped with heating, ventilating and air conditioning ("HVAC") systems, the filtration should be integrated into the HVAC system; and*
- (ii) Where there is no HVAC, mobile filtration devices must be supplied and maintained, along with the appropriate training on their use.*

3.3.8.5 Furthermore, progress reports and evaluations of these mitigation measures must be publicly made available at three-monthly intervals. In addition, the DFFE and Eskom must regularly report back to the Highveld Priority Area Multi-Stakeholder Reference Group (HPA MSRG) and affected communities on the progress and results of the mitigation measures proposed in this submission.

3.3.8.6 Further, Eskom must formally commit to engaging with stakeholders, community beneficiaries and appropriate state actors to formulate the establishment of a Community Grants Programme which will support, fund and manage ongoing mitigation actions. The programme must be premised on transparency, and the governance thereof must be formulated so that beneficiary representatives have meaningful oversight of the programme, as well as a say in how its implemented."

MINIMUM CRITERIA FOR SUCCESSFUL SECTION 59 OF THE NEMAQA APPLICATION AND CONSIDERATIONS

- 4.1 According to section 59(1)(a) of the NEMAQA, an application must be submitted in writing and be accompanied by reasons necessitating the exemption application (section 59(2)). Furthermore, in terms of section 59(1)(b), an exemption cannot be sought from compliance with sections 9, 22 or 25 of the NEMAQA. The exemptions in question, however, are sought from a list of activities promulgated under section 21.
- 4.2 Under section 59(3)(a), the Minister may require the applicant to take appropriate steps to notify relevant government bodies, interested parties and the public. If such notification is mandated, section 59(3)(b) requires the publication of a notice in at least two nationally circulated newspapers, providing reasons for the application and any additional details as specified by the Minister.
- 4.3 Additional considerations inform my decision-making under section 59 of the NEMAQA. These, among others, are as follows:
 - 4.3.1 First, section 24 of the Constitution of the Republic of South African, 1996 (the Constitution), guarantees everyone the right to an environment that is not harmful to their health or well-being, and the right to have the environment protected for present and future generations. I therefore considered the implication that my decision within the realm of my constitutional obligation, mindful of the following:
 - 4.3.1.1. I am required to take a holistic approach to the health and wellbeing of the community, which recognises the interconnectedness of the physical, mental, social, and environmental factors that influence the health of a community, requiring a collaborative approach to create a healthier and more equitable place to live, work, and play.
 - 4.3.1.2. NEMA is South Africa's primary legislation that gives effect to section 24 of the Constitution, establishing principles for environmental decision-making, promoting cooperative governance, and ensuring environmental protection. Section 2 of the NEMA outlines key principles that I must adhere to when fulfilling my constitutional and legislative obligations. These principles are not

merely aspirational but serve as guidelines for decision-making and actions related to environmental protection and matters affecting the environment. I have therefore paid careful consideration to all of the principles set out in section 2 of NEMA, including the State's responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution. Importantly, section 2(2) of NEMA requires that "environmental management must place people and their needs at the forefront of its concern and serve their physical, psychological, developmental, cultural and social interests equitably". Also, section 2(3) of NEMA provides that "development must be socially, environmentally and economically sustainable". I therefore considered the issue of sustainable development, based on a proper application of the factors articulated in section 2(4)(a) to (r) of NEMA.

4.3.1.3. I am cognisant that South Africa is a party to the Paris Agreement and has international obligations to mitigate climate change and adapt to its impacts, including reducing greenhouse gas emissions and implementing adaptation measures, as outlined in its Nationally Determined Contributions (NDCs).

4.3.1.4 Additionally, South Africa has range of energy sector policies, guided by the National Development Plan (NDP) and the Integrated Resource Plan (IRP), that aim for a sustainable, secure, and affordable energy supply, with a focus on renewable energy and energy efficiency.

4.3.1.5 I am the Minister responsible for South Africa's Climate Change Act, 2024 (Act No. 22 of 2024) (CCA), that was signed into law in July 2024. On 17 March 2025, the Honourable President proclaimed certain provisions of this Act into operation. The CCA establishes a framework for a national climate change response. It reflects the government's commitment to achieve a just transition to a low-carbon economy, ensuring that climate action goes hand-in-hand with economic empowerment and job creation.

4.3.2 Secondly, section 59 of the NEMAQA is an extra-ordinary remedy that empowers me to set limitations of a constitutional right, as discussed above, I must apply my mind to and address each of the following factors, drawn from section 36 of the Constitution:

- (i) The nature of the right - Although this is a purely legal question, it should form part of the reasons for the decision. The right specifically situates the right to a healthy environment in the context of economic and social development.
- (ii) The purpose of the exemption - I must be satisfied that the refusal to grant the exemption will lead to a social and economic catastrophe. This is a fact-based consideration and should be established on the advice of independent experts.
- (iii) The nature and extent of the exemption - I must set conditions and time limits. This too is a fact-based decision and should be made on the advice of independent experts.
- (iv) The relationship between the exemption and its purpose - If I am satisfied as to the importance of the purpose of the exemption and that it will prevent a crisis, this factor is fulfilled but must be addressed.
- (v) Whether less restrictive means exist - I must be satisfied that there are no less restrictive alternatives that cannot be accommodated through conditions and the transitional nature of the exemption.

4.3.3 Thirdly, any decision made under section 59, including the imposition of any conditions, constitutes administrative action as defined by the PAJA. Administrative action is reviewable under the PAJA if, among other factors, it is not rationally connected to:

- (i) The purpose for which it was taken.
- (ii) The purpose of the empowering provision.
- (iii) The information available to the administrator.
- (iv) The reasons provided by the administrator.

EVALUATION OF ESKOM FLEET APPLICATION

- 5.1 The Eskom Fleet Report provides the background information and motivation for the individual power station section 59 exemption applications, in the context of the environmental and operational challenges the various power stations face. It is argued in the report that a holistic approach in the fleet level report was necessary as each station's circumstances could not be considered in isolation. Station performance, emission impacts and financial aspects of abatement need to be considered cumulatively.
- 5.2 The report introduces the applications by indicating that Eskom supplies approximately 95% of the country's electricity, with a generation capacity exceeding 35 000 MW. Approximately 90% of this power comes from coal-fired power stations, mainly in the Mpumalanga Highveld, and with others in the Free State and Limpopo provinces.
- 5.3 It then presents the legal background of the postponement applications (2018-2020), the NAQO's decisions (October 2021), Eskom's appeal process (initiated in December 2021), and the former Minister's appeal decision (May 2024), including the directive for Eskom to submit section 59 exemption applications for Duvha, Kendal, Lethabo, Majuba, Matimba, Matla, Medupi and Tutuka. As part of the Minister's decision, Eskom was required to review the 2022 Emission Reduction Plan (ERP 2022). This was completed in 2024.
- 5.4 Eskom currently has abatement technologies to mitigate particulate matter (PM) at all power stations since this is historically the pollutant of most concern in terms of health impacts, due to the number of exceedances recorded in the airsheds. Eskom is currently taking steps to further reduce PM emissions at the stations, with several abatement equipment upgrades and refurbishments completed, and currently being undertaken, focusing on projects such as electro-static precipitator (ESP) refurbishments, high frequency power supply (HFPS) installations, sulphur trioxide (SO₃) plant upgrades, and dust handling plant (DHP) upgrades. Eskom has boilers with low NO_x design at Medupi, Kendal, Kusile and Camden, with SO₂ abatement technology, in the form of FGD, installed at Kusile.
- 5.5 As part of the 2024 ERP, Eskom is planning and/or evaluating the following to reduce emissions:
 - (i) Wet flue gas desulphurisation (FGD) at Medupi (included in previous ERPs).

- (ii) SO₂ reduction projects have been identified as potential alternatives at Kendal (semi-dry FGD) and Majuba direct sorbent injection FDG (DSI FGD).
- (iii) Low NO_x burners (LNB) technology at Majuba, Tutuka and Lethabo to mitigate NO_x emissions.
- (iv) Dispatch Prioritisation Strategy at specific power stations, initiated to reduce SO₂ emissions, however also positively impacting PM and NO_x emissions.
- (v) Efficiency improvement projects under the Generation Recovery Programme to optimise the air-to-fuel ratio which should abate some SO₂ emissions and maximise combustion efficiency.
- (vi) The progressive shutdown of coal-fired stations that will reduce overall Eskom Fleet emissions.
- (vii) Although not a method of reducing emissions at source (i.e. the power stations), the cumulative impact on neighbouring communities is reduced through the air quality socio-economic intervention (addressing emission sources within the community) projects already implemented by Eskom. Eskom is looking to expand this beyond the 35 000 households originally planned.

5.6 The abatement schedules presented in the report are as follows:

DECISION BY THE MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT: DR. D T GEORGE, IN RESPECT OF ESKOM EXEMPTION APPLICATIONS SUBMITTED IN TERMS OF SECTION 59 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004 (ACT NO. 39 OF 2004)

Table 1. Particulate matter requested emission limits and timeframes.

STATION	GENERATING UNIT	MAXIMUM RELEASE RATE*			DURATION OF EMISSIONS
		mg/Nm ³	Average	Date To Be Achieved	
LETHABO	U6	100 mg/Nm ³	Daily	Immediate	Continuous
		50 mg/Nm ³	Daily	1 April 2025	Continuous
	U2, U3	100 mg/Nm ³	Daily	Immediate	Continuous
		50 mg/Nm ³	Daily	1 April 2026	Continuous
	U5	100 mg/Nm ³	Daily	Immediate	Continuous
		50 mg/Nm ³	Daily	1 October 2026	Continuous
	U4	100 mg/Nm ³	Daily	Immediate	Continuous
		50 mg/Nm ³	Daily	1 April 2027	Continuous
	U1	100 mg/Nm ³	Daily	Immediate	Continuous
		50 mg/Nm ³	Daily	1 October 2027	Continuous
DUVHA	U1, U2, U5	50 mg/Nm ³	Daily	Immediate	Continuous
	U4, U6	100 mg/Nm ³	Daily	Immediate	Continuous
		50 mg/Nm ³	Daily	1 October 2026	Continuous
MATLA	U1, U2, U3	100 mg/Nm ³	Daily	Immediate	Continuous
		50 mg/Nm ³	Daily	1 April 2025	Continuous
	U4, U5, U6	100 mg/Nm ³	Daily	Immediate	Continuous
		50 mg/Nm ³	Daily	1 April 2026	Continuous
TUTUKA	All Units	100 mg/Nm ³	Daily	Immediate	Continuous
		50 mg/Nm ³	Daily	1 April 2027	Continuous
KENDAL	U3, U4, U6	100 mg/Nm ³	Daily	Immediate	Continuous
		50 mg/Nm ³	Daily	1 October 2025	Continuous
	U1, U2, U5	100 mg/Nm ³	Daily	Immediate	Continuous
		50 mg/Nm ³	Daily	1 April 2026	Continuous
MAJUBA	All Units	50 mg/Nm ³	Daily	Immediate	Continuous
MEDUPI	All Units	50 mg/Nm ³	Daily	Immediate	Continuous
MATIMBA	All Units	50 mg/Nm ³	Daily	Immediate	Continuous

*Emission limits requested are for normal operations, so excludes upset, startup, shutdown, or maintenance conditions.

Table 2. Oxides of nitrogen requested emission limits and timeframes.

STATION	GENERATING UNIT	MAXIMUM RELEASE RATE*			DURATION OF EMISSIONS
		mg/Nm ³	Average	Date To Be Achieved	
DUVHA	All Units	1,100 mg/Nm ³	Daily	Immediate - Shutdown	Continuous
MATLA	All Units	1,100 mg/Nm ³	Daily	Immediate - Shutdown	Continuous
LETHABO	All Units	1,100 mg/Nm ³	Daily	Immediate	Continuous
		750 mg/Nm ³	Daily	1 April 2031	Continuous
TUTUKA	All Units	1,100 mg/Nm ³	Daily	Immediate	Continuous
		750 mg/Nm ³	Daily	1 April 2029	Continuous
MAJUBA	All Units	1,100 mg/Nm ³	Daily	Immediate	Continuous
		750 mg/Nm ³	Daily	1 April 2030	Continuous
KENDAL	All Units	1,100 mg/Nm ³	Daily	Immediate	Continuous
		750 mg/Nm ³	Daily	1 April 2025	Continuous
MEDUPI	All Units	750 mg/Nm ³	Daily	Immediate	Continuous
MATIMBA	All Units	750 mg/Nm ³	Daily	Immediate	Continuous

*Emission limits requested are for normal operations, so excludes upset, startup, shutdown, or maintenance conditions.

Table 3. Sulphur dioxide requested emission limits and timeframes

STATION	GENERATING UNIT	MAXIMUM RELEASE RATE*			DURATION OF EMISSIONS
		mg/Nm ³	Average	Date To Be Achieved	
DUVHA	All Units	2,600 mg/Nm ³	Daily	Immediate - Shutdown	Continuous
MATLA	All Units	2,600 mg/Nm ³	Daily	Immediate - Shutdown	Continuous
LETHABO	All Units	2,600 mg/Nm ³	Daily	Immediate - Shutdown	Continuous
TUTUKA	All Units	3,000 mg/Nm ³	Daily	Immediate - Shutdown	Continuous
MATIMBA	All Units	3,500 mg/Nm ³	Monthly	Immediate - Shutdown	Continuous
KENDAL	All Units	3,000 mg/Nm ³	Daily	Immediate	Continuous
		1,000 mg/Nm ³	Daily	1 April 2036**	Continuous
MAJUBA	All Units	3,000 mg/Nm ³	Daily	Immediate	Continuous
		2,100 mg/Nm ³	Daily	1 April 2034**	Continuous
MEDUPI	All Units	3,500 mg/Nm ³	Monthly	Immediate	Continuous
		800 mg/Nm ³	Monthly	1 April 2032	Continuous

*Emission limits requested are for normal operations, so excludes upset, startup, shutdown, or maintenance conditions.
 **Should semi-dry FGD be installed at Kendal, and DSI FGD at Majuba.

- 5.7 The report presents data from the various South African Weather Services (SAWS) and Eskom ambient air quality monitoring stations for baseline comparison with the National Ambient Air Quality Standards (NAAQS). The report also presents various atmospheric dispersion modelling scenarios (Eskom's emissions only), including a baseline (current) Eskom scenario and three other scenarios incorporating various abatement configurations. The findings are as follows:

Particulate Matter

- 5.8 Ambient air quality monitoring shows PM exceedances of the NAAQS in the Highveld, Vaal Triangle and Waterberg. There are several contributors to ambient particulates in the respective airsheds in addition to the Eskom stack emissions. These include domestic fuel burning, traffic emissions and fugitive emissions from exposed areas and stockpiles.
- 5.9 Duvha Unit 1 and 2, Majuba, Medupi and Matimba currently comply with the new plant MES for PM. The remaining stations are unable to comply with the new plant MES until completion of their respective PM abatement projects, detailed in the report. The Eskom Fleet project reductions in PM stack emissions in the coming years due to various abatement projects. By FY2030, these show a 65-kilo tonne (kt) reduction from FY2025, representing a 74% decrease, due to PM abatement projects implemented in the fleet and at stations entering shutdown phase.
- 5.10 Non-compliances of PM₁₀ and PM_{2.5} NAAQS in the airsheds are predicted even under the abatement scenarios. Eskom asserts that the exceedances are predominantly due to low-level fugitive sources (e.g. windblown ash from ash facilities) rather than the stack emissions themselves. Eskom also highlights model conservatism.

Oxides of Nitrogen

- 5.11 For the period 2021 – 2023, measured/monitored ambient NO₂ concentrations in the Highveld and Vaal Triangle are compliant with the NAAQS. In terms of the Eskom Fleet FY2030 (compared to 2025), NO_x emissions are estimated to reduce by 292kt (40%) due to assumed shutdowns of Arnot, Kriel, Hendrina, Camden and Grootvlei. Between FY2025 and FY2050, total NO_x emissions are estimated to reduce by 78%. All Eskom dispersion modelling scenarios predict NO₂ compliance with the NAAQS. This includes the current scenario, which assumed no NO_x abatement at Matla, Duvha, Tutuka and Lethabo. Eskom asserts that Despatch Prioritisation to address SO₂ emissions will also reduce NO_x emissions, albeit not to compliance levels.
- 5.12 Eskom plans the installation of low NO_x burners (LNBs) for Majuba, Lethabo and Tutuka. LNB installation is not proposed for Matla and Duvha due to imminent assumed closure. This is in line

with the NECA Forum 2024 Report recommendations. In this regard, it must be noted that both Matla and Duvha comply with the existing plant MES.

Sulphur Dioxide

- 5.13 For the period 2021 – 2023, measured/monitored ambient SO₂ concentrations in the Highveld and Vaal Triangle are compliant with the NAAQS. There is currently no SO₂ abatement at the eight power stations applying for section 59 exemptions. Considering the cumulative Eskom Fleet SO₂ reductions under ERP 2024 A (which excludes SO₂ abatement at Lethabo, Tutuka, Matimba, Majuba and Kendal), by FY2030 a reduction of 555kt (32%) is anticipated, with a further 165kt (14%) by FY2035 due to completion of the wet FGD installation at Medupi, Despatch Prioritisation, efficiency improvement projects, and the assumed shutdown of Arnot, Kriel, Camden, Hendrina, Grootvlei, Duvha and Matla.
- 5.14 SO₂ abatement is not proposed for Matla and Duvha due to upcoming (assumed) shutdowns. This is in line with the NECA Forum 2024 Report recommendations. SO₂ abatement technologies at Majuba and Kendal were evaluated under ERP 2024 B (a scenario, that with additional guarantees and considerations, could be achieved), with semi-dry FGD identified as the most appropriate at Kendal, while DSI FGD was identified as the most appropriate for Majuba. The semi-dry FGD would bring Kendal into compliance with the new plant MES, while the Majuba DSI FGD would reduce SO₂ emissions, but not to a level of compliance with the new plant MES.
- 5.15 ERP 2024 C, which represents a scenario that would require substantial guarantees, with significant financial implications, SO₂ technologies were evaluated for Tutuka, Lethabo and Matimba. In previous applications, Eskom's position has been that installation of SO₂ technologies at Lethabo, Tutuka and Matimba are not economically feasible and are at high risk of not even being technically feasible for implementation. This position is maintained in the section 59 applications.
- 5.16 Eskom asserts that while extension of a station's life may increase viability of SO₂ reduction projects at certain stations, this would extend South Africa's reliance on coal generation, with implications for South Africa's GHG commitments. Eskom suggests the alternative use of funds

to support renewables development and grid connection of the same amounts that would have been invested in such SO₂ retrofits.

Cost Benefit Analysis

- 5.17 Eskom presents a health CBA for the Highveld, Vaal Triangle and Waterberg regions, as conducted by Prime Africa Consult (2024). This analysis evaluated the health benefits and costs associated with ERP 2024 A, ERP 2024 B, and ERP 2024 C.
- 5.18 In the Highveld and Vaal, the CBA concludes that the greatest health benefits relative to costs would be realised by ERP 2024 A, with a benefit cost ratio ("**BCR**") above 1. While the BCR of ERP 2024 B approaches 1 in the most optimistic scenarios, it generally shows that the costs of abatement installations outweigh the health benefits. For ERP 2024 C, costs of installations outweigh the health benefits, with the BCR well below one. In the Waterberg CBA, the BCRs for all scenarios are well below 1, indicating that under all scenarios, the costs of installation outweigh the health benefits.

Conclusions

- 5.19 The Fleet report states that Eskom is mindful that any exemption application should be limited.
- 5.20 In respect of PM, Eskom asserts that limit exemptions are requested only where it is necessary and only for the time to complete the emission reduction projects to bring the stations into new plant MES compliance. Further, the exemption requested alternate limits are no worse than the MES existing plant limits at which the stations have operated historically.
- 5.21 In respect of NO_x, Eskom asserts that for Lethabo, Tutuka and Majuba, exemptions are requested for the time to complete the emission reduction projects to bring the stations into compliance with the new plant MES. Further, there is compliance with the NAAQS for NO₂ and the alternate limits requested are no worse than the existing plant MES at which the stations have operated historically. For Duvha and Matla, Eskom asserts that the exemption request is supported by a clear motivation, there is compliance with NO₂ NAAQS, and the requested

alternate limits are no worse than the existing plant MES limits at which the stations have operated historically.

- 5.22 Eskom asserts that the SO₂ exemption requests provides clear motivation for the alternate limits requested per station, illustrating that there is compliance with SO₂ NAAQS.
- 5.23 Eskom concludes that the exemptions applied for are appropriate and balance environmental and health impacts with national requirements for security of supply and economic growth and development. Eskom is not seeking a blanket exemption as it intends to operate at alternate SO₂ limits generally below the existing plant MES and it will obtain MES compliance for two out of the three priority pollutants at all stations operating post 2035.

DECISIONS ON ESKOM EXEMPTION APPLICATION AND CONDITIONS

- 6.1 Having considered and evaluated the Expert Report, I accept and concur with the recommendations of the experts. In reaching my decision on Eskom exemption applications, I have taken the following into consideration:
- 6.1.1 The applications received from the applicant.
 - 6.1.2 All the documents and information submitted by the applicant in support of the application.
 - 6.1.3 The NECA Forum Report dated 8 March 2024
 - 6.1.4 The Experts Report, dated 17 March 2025 and
 - 6.1.5 The objectives and requirements of the relevant legislation, policies and guidelines.
- 6.2 Section 59 of the NEMAQA states that "any person" may apply for an exemption under this section. In this case, Eskom, as a juristic person, is the applicant for an exemption from the MES at a fleet level. Eskom has also submitted applications for specific plants where compliance with the MES is not possible and where an exemption under section 59 is required.
- 6.3 Any decision by me to grant Eskom an exemption (with or without conditions) will therefore bind Eskom, which holds multiple AELs, including those for power stations for which separate exemption applications have been submitted.

- 6.4 Given Eskom's approach in applying for exemptions, this decision considers outcomes for each application, including its fleet application. Where an exemption was recommended, I further have the discretion to propose conditions applicable either at a fleet level or to a specific plant.
- 6.5 I have accepted the recommendation of the Expert Report that the conditions contained in my exemption decision must be incorporated into the relevant AELs and I therefore direct the relevant licensing authorities to do so. The Plant Manager will only be responsible for implementing conditions included in an AEL. The conditions that apply more generally to Eskom must be implemented by Eskom itself, rather than by the Plant Manager of a specific power station.
- 6.6 Section 59(4) of the NEMAQA grants me the power to review any exemption and, by implication, any associated conditions. On valid grounds, I may also withdraw an exemption. Accordingly, if an exemption is granted to Eskom subject to conditions, Eskom will be accountable to my office for any breach of those conditions, which could result in the exemption being revoked. Where a condition is incorporated into an AEL, the relevant licensing authority will also have the power to act on any breach, in addition to my office.

DECISIONS ON FLEET LEVEL APPLICATION AND CONDITIONS

- 7.1 This section comprises recommended conditions, and conditions I hereby impose on Eskom in relation to this decision, that must be met by Eskom's head office due to their fleet-wide nature and the processes which are affected. In certain cases, these conditions must be referenced in the plants AELs.
- 7.2 In determining these conditions, consideration has been given to a set of conditions that are commensurate with the impact of Eskom's ongoing non-compliance with the new plant MES, and that provide support in achieving compliance in the short (PM), medium (NO_x) and long term (SO₂). Further, the manageability and cost of meeting the conditions, for the various Eskom divisions, has been taken into account.
- 7.3 Because of the urgency of responding to health impacts, conditions related to these are prioritised in terms of timeframe for implementation. Apart from technology retrofits, conditions

that support reduced coal burn do not have the potential for substantial impact for the next five years given generating capacity constraints. However, after 2030, these constraints will start to ease, and the longer-term coal burn related conditions will start to gain relevance.

7.4 A number of the conditions are analytical in nature, requiring Eskom to commission and submit an analytical report to me. It is recommended that all such reports adhere to the following independence and accountability provisions, unless otherwise specified:

- (i) Reports must be independently compiled.
- (ii) Completed reports must be published for stakeholder comment with a month allowed for the commenting period.
- (iii) Eskom must collate stakeholder comments and submit these together with the final report to the Minister.
- (iv) Eskom must submit to the NAQO detailed reports and updated project plans for each of its retrofit projects, on a quarterly basis, taking into account the actions taken to adhere to the timelines proposed by Eskom in respect of its abatement retrofit projects.

7.5 The conditions are grouped according to the typology outlined in section 8.1. A summary of the recommended conditions is presented in at the end of each plant assessment.

Conditions that Respond to the Impact of Non-Compliance – Health Interventions

7.6 Eskom is not a health care provider; however, it is common cause that emissions from its coal-fired power stations have a negative impact on the health of people in the surrounding communities. It is well documented that compliance with the MES significantly reduces the impact of these pollutants on negative health outcomes. Therefore, Eskom has a responsibility to ensure that it takes steps to ease the burden, where possible, on public health institutions and provide meaningful support to the health sector in the communities in which it operates.

7.7 Eskom's response to previous community level health recommendations is that "*Eskom does not recommend that it be required to become an implementer or funder of health care interventions as such work is clearly outside its mandated area of operations.*" However, to mitigate the impacts of non-compliance with the MES, health-service strengthening initiatives to affected

communities must be upscaled and supported by Eskom, with clear timelines in place. Eskom states that stack emissions contribute a limited extent to ambient air pollution, referencing *Adesina et al. 2022. Assessment of criteria pollutants contributions from coal-fired plants and domestic solid fuel combustions at the South Africa industrial highveld. Cleaner Engineering and Technology 6 (2022)*. However, the same source states that “SO₂ and O₃ received major contributions from the coal-fired plants” and this contribution must be acknowledged.

7.8 While it is recognised that many health interventions require Inter-Departmental collaborations and planning, holding Eskom accountable for their contribution to health impacts in the surrounding communities is imperative and implementing conditions that support mitigating some of these impacts must be considered, such as:

7.8.1 Improving air quality monitoring and early-warning systems allowing communities to be alerted to poor air quality times so that at-risk and vulnerable populations can be alerted and take necessary precautions such as consider staying indoors or using air purifying systems where available. This must be achieved through

- i) the deployment of additional air quality monitoring stations in the affected communities, providing real-time accessible data (see the air quality transparency and governance section below), and
- ii) the development of a data free app with alerts on air quality and changes must be made available within eight (8) months. When the ambient air quality exceeds the NAAQS, affected residents must be made aware of this so that they can take appropriate action e.g. stay indoors, limit strenuous activities. Eskom shall conduct an information campaign to make residents aware of the precautions they should take when ambient air quality is poor and received mobile/app warning notification of this.

7.8.2 A co-ordinated environmental health programme for the communities situated in air pollution Priority Areas is required. This will best be achieved by Eskom **employing an environmental health specialist** to co-ordinate the implementation of programmes and interventions to mitigate some of the health impacts related to air pollution exposure. The employment of such a person must occur within three (3) months of the exemption being granted and the tenure of the health specialist must be for a minimum period of five (5) years.

7.8.3 The Eskom health specialist must be responsible for oversight and implementation of the following functions. The said person must provide 6 monthly progress reports on each of the conditions to my office:

- i) Conduct detailed health impact assessments to quantify excess mortality/morbidity associated with Eskom's emissions based on existing health response models at each of the Eskom power plants. Based on this data, Eskom is to demonstrate how they are mitigating these effects in a quantitative sense through direct investments in the communities most affected. This must be initiated within 6 months of the exemption being granted through a partnership with experts in the field of health impact assessments with annual report backs on progress sent to the Minister.
- ii) Extend Eskom's established employee occupational health programmes to the local communities by providing facilities and resources that can be used to conduct community screening programmes bi-annually. This can utilise the established infrastructure of the employee occupational health programmes and must be undertaken within 6 months of the exemption being granted. The screening must be a combination of:
 - a. Lung health screening to include lung function testing (spirometry).
 - b. This will develop the much-needed infrastructure to improve diagnostics of chronic lung diseases.
 - c. Cardiovascular and general health screening (blood pressure, cholesterol and blood glucose).
- iii) Develop awareness programmes within six (6) months of the exemption being granted. The programmes must make specific reference to bi-annual engagements with communities as this will empower them to better understand health screening and wellness through health education programmes on early detection and accessing health care for potential air quality associated health impacts. The programme must also cater for training health care workers who will bear the responsibility to support and educate communities on health-related issues. The implementation of such programmes may be implemented through partnerships established with social justice or other non-governmental organisations groups.

iv) Maternal and child health are particularly vulnerable to ambient air pollution, impacting health from the time of conception. Public health campaigns and awareness programmes are key, as is liaising with local health facilities to implement such programmes and ensuring that they are achieved. This must be undertaken within six (6) months of the exemption being granted.

v) As stated on the website, (<https://www.eskom.co.za/about-eskom/corporate-social-investment/social-sector/>) the Eskom Foundation, as part of the CSI programme, provides mobile clinics:

“Eskom supports preventative healthcare around the country by providing state-of-the-art mobile clinics which visit schools to provide dental and eye-care services, as well as general health check-ups”.

When clarifying this issue with Eskom, the experts were informed that the mobile clinic project was halted several years ago, and that the information was outdated.

vi) While this may be dated information, community mobile clinics or revamping of local facilities is key in strengthening healthcare to affected communities, particularly if the MES are not met, and will provide important pathways to care in already vulnerable populations. A commitment shall be required from Eskom to support at least one mobile clinic for at least 5 years in the most affected communities. These facilities must serve the needs of the community, be accessible to the community on the weekends and clinical data from these clinics (subject to POPIA requirements) must be made available to all stakeholders. If this initiative has lapsed, Eskom must ensure that it is reinstated within 12 months of the exemption being granted.

7.8.4 Improving greenspaces, particularly around established healthcare facilities and schools, is important for mitigating some of the effects of air pollution. Eskom must commit to creating one (1) greenspace per year in each community situated near a power station, starting with the worst affected community. Eskom must use some of its unused land to establish green spaces, an approach that is gaining momentum, which involves planting large scale tree farms that will improve ambient air quality by reducing wind-blown PMs. In areas such as Lephalale, the green spaces can also assist to minimise the heat, as they provide natural cooling of air and surfaces. Eskom must explain the benefits of this approach to get buy-in from people in the communities who can be enlisted to assist it with establishing the green spaces.

Socio-Economic Intervention Programmes

Existing “offset” programmes

- 7.9 The implementation and schedules of the existing “offset” programmes Phase 2a, Phase 2b and Phase 2c socio-economic intervention programmes are illustrated in the Eskom fleet report. It is clear, when looking at the timelines set out in these tables that there have been several delays in the implementation and execution of Eskom’s “offset” programmes, which Eskom has provided no details or justification for.
- 7.10 Eskom must implement its socio-economic intervention programmes within the timelines set out in the Experts Report by, *inter alia*:
- (i) Expediting project implementation schedules (start dates and completion dates of each of the projects). The plant implementation timeline must be compressed.
 - (ii) Expediting procurement processes for Phase 2a and Phase 2b.
 - (iii) Expediting budget approvals for the Phase 2c initiatives.
 - (iv) Eskom has also stated that it is its intention to increase the offset programme in households from 36 000 to 96 000. Eskom is required, within 12 months of the exemption being granted, to provide details and timelines for this expansion and for its implementation to the NAQO.
- 7.11 In addition, Eskom must submit to the NAQO detailed reports and updated project plans, on a quarterly basis, taking into account the actions taken to adhere to the NECA Forum 2024 Report Schedule, that sets out the timelines proposed by Eskom in respect of its offset programmes.
- 7.12 Eskom must also give consideration to increasing the allocation of resources (human and financial) to the socio-economic interventions to ensure their timely realisation.
- 7.13 If Eskom now cannot meet the timeframes of the NECA Forum 2024 Report Schedule, it must apply to the Minister for extensions, presenting a detailed justification for why each programme is behind schedule, and how Eskom will accelerate the completion of the programmes.

Additional Socio-Economic Conditions

- 7.14 Eskom must undertake meaningful research programmes to understand socio-economic intervention programmes that are most appropriate and acceptable to specific communities. These programmes must include a focus on understanding how to improve planning, implementation, tracking criteria, monitoring and verification processes to ensure that offset projects improve the quality of air. The findings of these programmes must be made available to the existing offset programme
- 7.15 Eskom must collaborate with local universities to support research on community perceptions of offset programs and their effectiveness at improving ambient air quality and community health outcomes. This support must be through the provision of research grants and access to relevant information.
- 7.16 Eskom must invest in strategies to reduce other sources of air pollution that adversely affect ambient air quality, particularly those that cause and/or exacerbate pulmonary and cardiovascular diseases. In this regard, the following conditions are imposed:
- (i) One of Eskom's socio-economic interventions in settlements near the Lethabo power station is the collection of waste and the eradication of illegal waste dumps. The scope of this intervention must be increased to cover a minimum of 2 at-risk settlements located around Eskom's power stations, where illegal mining dumps have been established. This will result in the reduction of uncontrolled burning of refuse containing tyres/plastics which produces harmful toxins.
 - (ii) Eskom must submit plans within six (6) months of the issuance of the AEL that comprehensively address how it intends to deal with the ash dumps it has established in the various areas. These dumps contribute significantly to the emission of PM, particularly during windy conditions. Eskom must set out clear timelines for when it will address the issues however, these timelines must fall within the time period that the AELs are in place.

Air Quality Transparency and Governance Conditions

- 7.17 Air quality monitoring plans for each power station must be compiled (or updated if already in existence) and submitted to the NAQO within six (6) months of the exemption being granted. These monitoring plans must:

- (i) Indicate the reasoning behind the placement of the minimum two monitors around each power station (with reference to the dispersion modelling done, showing that placement is capturing predicted ambient peaks) and justification for the equipment selected.
 - (ii) Present calibration schedules, backup power options, backup equipment, data quality assurance and quality control (QA/QC).
 - (iii) Stipulate that the monthly monitoring reports as well as annual reports (showing seasonal patterns and trends over the full/multi-year monitoring period, with comparisons with abatement schedules etc.) must be submitted to the NAQO.
- 7.18 Eskom must commission/maintain at least two continuous air quality monitoring stations (measuring PM₁₀, PM_{2.5}, NO₂ and SO₂) per power station within twelve months of the exemptions being granted (these stations can be taken offline when stations shutdown). To satisfy this requirement, Eskom needs to commission and maintain additional air quality monitoring stations around Majuba and Matla (which currently have only one air quality monitoring stations each) and Tutuka (two air quality monitoring stations have been installed but only one has valid data for the period of Eskom's section 59 exemption assessment, suggesting maintenance issues). There are no SAWS air quality monitoring stations in the vicinity of these power stations.
- 7.19 Lethabo has one Eskom and two SAWS air quality monitoring stations in its vicinity. Duvha has one Eskom and one SAWS air quality monitoring station in its vicinity. Kendal already has two Eskom air quality monitoring stations in its vicinity. This is considered satisfactory, but maintenance of these stations is essential. If Eskom cannot collaborate with SAWS to ensure that the SAWS stations are maintained near Lethabo and Duvha to provide continuous datasets, then Eskom must commission and maintain additional monitoring stations around these power stations. Eskom must ensure continuous data from two monitoring stations per power station, and it will not be satisfactory to attribute responsibility to SAWS for data gaps.
- 7.20 In the Waterberg region, there are three air quality monitoring stations (two Eskom stations and one SAWS station). At least one additional air quality monitoring stations must be installed there.
- 7.21 Eskom's monitoring stations must comply to International Organization for Standardization (ISO) 14 001 environmental standards, but it is free to select what technology they utilise (e.g. low-cost sensors could be considered).

- 7.22 Key sensitive receptors must be considered in the following locations for additional monitoring due to high pollutant concentrations (read from Eskom's section 59 atmospheric dispersion modelling exercise). These must be installed sufficient distance away from existing stations, within twelve months of the exemption being granted:
- (i) Sizenzele Primary School (near Majuba)
 - (ii) Gweda Primary School and Kwanala Primary School (near Matla)
 - (iii) Amalumgenlo Primary School (near Tutuka)
 - (iv) Ditheko Primary School, Kings College, Steenbokpan (Rehab centre), Kremetartpan (BnB), Lephalele Medical Hospital, Phegelelo Secondary School and Grootgeluk Medical Centre (Waterberg).
- 7.23 The ambient air quality monitoring data at a minimum of two monitoring stations per power station must be published live/in real time on the Eskom website in addition to being live fed to the Department so that it can be reported on the SAAQIS web portal. Additionally, for comparison, Eskom must provide live daily stack emission data for each of the pollutants on Eskom's website for full disclosure to all stakeholders and this data must be live fed to the Department so that it can be reported on the SAAQIS web portal with immediate effect. This will enable all stakeholders to access information relating to Eskom's compliance with its obligations, as set out in its AELs.
- 7.24 Eskom must send stack monitoring data (emission concentration and volumetric flow) at a 10-minute resolution to the NAQO weekly with immediate effect. This is in addition to the provision of live feed data.
- 7.25 Data coverage must be maintained at a minimum of 90% every month at least two monitoring stations per power station and Eskom needs to explain/justify any data gaps in their monthly reports to the NAQO. There should be penalties if the air quality monitoring stations are down due to lack of maintenance/planning. Backup equipment must be installed if equipment is removed for repairs or calibration.
- 7.26 Any exceedances of the recommended emission limits will require a full atmospheric dispersion assessment to determine likely health incidents (with reporting that is in line with the Atmospheric Impact Report Regulations).

- 7.27 Eskom must record the emissions data, referred to above, in its annual Sustainability Report and in its financial results /Annual General Meeting.
- 7.28 Progress on abatement projects must continue to be included in Eskom's quarterly reporting to the NAQO.

Conditions that Support Compliance – Technology Retrofit Abatement Conditions

Medupi FGD CBA and Power System Modelling

- 7.29 Eskom's exemption application indicated that Cost Benefit Analysis (CBA) had been undertaken for their three ERP scenarios, the first of which included the installation of wet-FGD at Medupi. This CBA includes abatement interventions for PM and NO_x for all eight plants, as well as the corresponding health benefits of these.
- 7.30 I concur with third-party experts' concerns regarding the CBAs undertaken by Prime Africa for purposes of Eskom's exemption application:
- (i) The issue of airshed saturation (cumulative impact) is not accounted for, and this is an important determinant of health impacts. For example, in a saturated airshed, asthmatics respond to lower emission levels more quickly and intensely than healthy, unexposed individuals.
 - (ii) The use of Exposure Response Functions from other countries likely underestimates South Africa's baseline TB and HIV concerns, which impact on respiratory, cardiovascular and immunological response.
 - (iii) Synergistic pollutant interactions were not incorporated, which contribute to cumulative impacts.
 - (iv) The value of abating additional pollutants to PM, Nox and SOx were not included.
 - (v) Morbidity impacts were not included (cost of medical treatment, loss of employment, impacts of health risk on households, employers, the health care and insurance industries, educational impacts for vulnerable populations, (children, elderly, those with chronic health conditions).
 - (vi) Environmental aspects such as infrastructure and services to provide water and waste management (sorbents) associated with the FGD were not included.

- 7.31 A revised and expanded plant-specific CBA must therefore be undertaken regarding installing FGD at Medupi within six (6) months of the exemption decision and submitted to me.
- 7.32 To respond to the concerns articulated above, the following must be included in the quantitative assessment:
- (i) Health costs (addressing all concerns cited above);
 - (ii) Technology costs (construction, maintenance and operation);
 - (iii) Energy efficiency penalty;
 - (iv) CO₂ costs;
 - (v) Cost of sorbent supply, including infrastructure costs;
 - (vi) Waste treatment; and
 - (vii) Cost of water supply, including infrastructure costs.
- 7.33 The CBA must be limited to SO₂ health impacts, holding all other pollutants constant and consider plant closure dates of 2045, 2055 and 2071 in separate scenarios. The report must further provide commentary on construction and operational risks, timing and duration of outages required to install the FGD, finance availability, project status currently, and the plant emission levels post the retrofit. Implications for SO₂ emissions and the FGD plant of running Medupi at reduced utilisation rates must also be commented upon.
- 7.34 Further, the CBA must consider two scenarios:
- (i) Compliance with new plant MES for SO_x on a daily basis (i.e. wet-FGD), and
 - (ii) Scenarios with appropriate abatement retrofits that do not necessarily comply with new plant MES but significantly reduce SO_x emissions.
- 7.35 Eskom must further commission independent power system modelling to explore alternatives to installing FGD at Medupi. The following scenarios must be compared:
- (i) Installing wet-FGD at Medupi;
 - (ii) Scenarios with appropriate abatement retrofits that do not necessarily comply with new plant MES but significantly reduce SO_x emissions; and

- (iii) Spending the CAPEX instead on flexibilising Mpumalanga coal units to displace a similar amount of health cost. The choice of plant must be guided by the Forum Report's 2024 Plant Baseline Assessment to target the poorest performing plants across multiple criteria.

7.36 The modelling output that must be compared across the two scenarios includes: electricity adequacy, cost, GHG emissions, and NO_x, PM and SO_x emissions per Priority Area.

Reducing the amount of coal burnt

7.37 Eskom's exemption application states that:

'the existing coal fired power stations are expected to provide additional flexibility to the system through increased variability in a load following mode of operation, as well as providing back-up to the variable intermittent non-dispatchable renewable technologies, as well as providing ancillary services, inertia etc. which are not provided by the inverter-based renewable technologies. This essentially results in lower running load factors for these stations as the renewable energy sources will be given priority dispatch over the fossil-fuelled stations.

7.38 To give this effect, the exemption application describes a Dispatch Prioritisation Strategy of renewables, which will reduce SO₂ emissions in particular (but also have beneficial impacts on all other emissions, local and GHG). According to this Strategy, Eskom will not run plants at maximum loads but rather limit loads to those required for system adequacy, resulting in reduced coal burnt. Eskom notes in its exemption application that this Strategy relies on the addition of clean generation capacity to the system, which it notes is outside its control. I am advised that this may not be entirely correct. The National Transmission Company of South Africa (NTCSA) slow implementation of the Transmission Grid Plan and Eskom Distribution's slow provision of grid access to renewables projects both directly retard renewables build.

7.39 Conditions related to reducing the amount of coal burnt are therefore designed to strengthen the effectiveness of Eskom's Dispatch Prioritisation Strategy as a mechanism to reduce local air pollution, in particular SO₂. It is noted that the implementation of this Strategy should not adversely impact system level outcomes such as security of electricity supply and the cost of

producing electricity. By its nature, the Strategy will lead to beneficial GHG emission outcomes through the reduction of coal burnt.

Dispatch Prioritisation Strategy: Analyse And Propose Mechanisms for Including a R/KgSO₂ Price on all Eskom Coal Generating Plants

- 7.40 The recommended emission limits require that all plants will either retrofit the appropriate PM and NO_x abatement technologies, or close within ten years. The coal fleet will, from thereon, be compliant with the MES for PM and NO_x. However, for most, if not all, of the coal plants, retrofits to comply with SO₂ MES are highly capital intensive and technically complex. There is no reasonable way of complying with the MES or MES-equivalent standards for SO₂, determined by absolute emission volumes, other than by reducing coal burn and ultimately closing. The implication of this is that the coal plant will remain unconstrained in terms of SO₂ emissions until the end of their lives. This is not acceptable from an air quality regulation perspective.
- 7.41 Eskom notes in its exemption application that the market reform process, in conjunction with the increasing competitiveness of renewables, storage and carbon pricing, will incentivise reduced coal burn as soon as there is sufficient quantity of alternative generation and storage capacity to enable the coal burn to be turned down. However, Eskom confirmed in subsequent clarifications to the third-party experts that dispatch does not consider emission prioritisation at this stage and that doing so may require approval from NERSA, and that there are no details yet in how its Dispatch Prioritisation Strategy will be operationalised.
- 7.42 The NECA Forum 2024 Report recommended pollutant pricing as a theoretically efficient mechanism for internalising externality costs of pollution. A price mechanism (compared to an absolute constraint such as the current concentration limits) is more flexible, which is valuable when optimising for multiple objectives. Flexibility can further lead to a better allocation of capital over the longer term. A flexible price mechanism is more aligned with the transitioning of the sector structure to that of a market, promoting mechanism resilience over time.
- 7.43 It is acknowledged that limiting SO₂ emissions is but one of many considerations in generating power, others include adequacy of supply and electricity cost concerns. It is further acknowledged that until there are significant volumes of energy generated by alternative sources

available, the System Operator has to dispatch all coal power generated, and therefore a SO₂ price can only rarely influence dispatch decisions. However, as volumes of clean energy increase, a SO₂ price will be able to increasingly influence the coal merit order and can start to be escalated towards the social cost of SO₂ emissions.

7.44 In the light of this, Eskom must therefore investigate how a SO₂ emissions price in R/kgSO₂ can meaningfully be included in its Dispatch Prioritisation Strategy. The objective of the price shall be, over time, to influence dispatch decisions such that those plants whose SO₂ emissions are having the worst impact on health are more costly to dispatch. Eskom is required to develop a proposed design or alternative designs for the SO₂ emissions price, publish these for stakeholder comment, and submit the report plus all comments to the Minister within 12 months of the exemptions being granted.

7.45 The following must be considered in the proposal design:

- (i) In the context of exemptions from a concentration - based regulatory regime, a pollutant price condition can only be imposed on and implemented by Eskom. This is in contrast to the conventional implementation of a price in the form of a tax or a levy, which would require the involvement of National Treasury and regulatory reform.
- (ii) Given the constraints of the current regulatory environment, together with the context of escalating electricity prices, the SO₂ price need not be a real cost to Eskom Generation, nor need it be reflected as allowable revenue in the tariff decision-making process yet. However, over time the price should be able to evolve to achieve both of these aspects. If and when the price transitions to a real cost, consideration should be given to Eskom paying associated revenues into a dedicated vehicle to support grid expansion.
- (iii) Some options for implementing a price per kg SO₂ which can be explored include a R/kgSO₂ generated in the internal Eskom market bid price; requiring the System Operator to include a SO₂ cost penalty in dispatch modelling (but not necessarily dispatch according to the outcomes); including an SO₂ penalty into production plan development (influencing the Medium Term System Adequacy Outlook, MTSOA/ IRP). It may be appropriate to include more than one of these mechanisms, or others yet to be identified.

- (iv) There may be regulatory considerations in designing the price that need to be taken into account, including in the regulation of the coal plant bid costs in the transitioning market, and their vesting contracts with the Central Purchasing Agency.
- (v) Whilst the inclusion of diesel fuelled peaking plants could be included in the analysis, this is not considered a current priority. The diesel peaking plants do produce significant local air emissions but play a different role in the power system to the coal plant and emit to different (coastal) airsheds.
- (vi) The current and future treatment of the CO₂ tax in Eskom planning must be taken into account in the SO₂ price design given their similarities, including the cumulative implications for coal plants.
- (vii) Whether the calibration of the SO₂ price should be plant-specific, uniform across plants, or whether different penalty levels should be applied to plants in different Priority Areas, given the differing health impacts, must be considered.
- (viii) Consideration of how a SO₂ price might work under air quality regulatory reform as described in the NECA Forum 2024 report.

7.46 At minimum, the analysis must:

- (i) Convincingly detail how the price can influence System Operator dispatch decisions at the margin under transitional and future market structures.
- (ii) Discuss what processes are required to ensure any adaptation of the price mechanism during the transition to the market structure.
- (iii) Identify which processes within Eskom need to be exposed to the price to ensure it is fully reflected in dispatch decisions.
- (iv) Include consideration of a range of price calibrations for their impact on system level outputs such as adequacy of supply, electricity system cost and GHG emissions. Power system modelling will likely be required for this aspect of the analysis.
- (v) Recommend an appropriate starting penalty level, design and mechanism, and comment on the potential for escalation over time.

Proposal for Specifying Pollutant Concentration Levels for Operating at Reduced Utilizations

- 7.47 It was noted that operating a coal plant at partial loads may increase emission concentrations of all three local air pollutants. However, overall, it is anticipated that absolute emissions will decrease due to the reduced coal burn.
- 7.48 This issue requires further investigation, and a proposal made to the Minister for emission concentration limits associated with various partial load modes, per plant, per pollutant. Eskom must therefore submit a report within 12 months of the exemption decision for my consideration.
- 7.49 This report must comprise an analysis in partnership with an external service provider to provide technical evidence as to how the turn-down conditions will impact the pollutant loads and concentrations emitted. This must be provided for at least three levels of turn-down per plant, and potentially per point source (boiler). The impact must be compared with that of operation at full utilisation.

Submission of Eskom's Current Coal Flexibilization Studies to the Minister

- 7.50 Eskom's response to the NECA Forum recommendations (Letter dated 11 December 2024, accompanying Eskom's exemption application), included the following:

'Eskom is investigating the changes required to enable the plants to run at lower minimum loads and respond quickly when required to ramp up and down. Three categories of changes are being investigated: Tier 1 is linked to operational procedure changes, Tier 2 is minor equipment changes, and Tier 3 is possible large equipment upgrades. These studies should be completed by September 2025. Eskom is also investigating the possibility of including "operational flexibility" operator training utilising the operator simulators at the various sites. Plasma and low-fuel igniter technologies are also being investigated to support operation at lower loads. This project's demonstration phase should be completed in 2026.'

7.51 Eskom must publish these studies for stakeholder comment and submit these studies to me once they are completed. A report of the plasma and low-fuel igniter technologies demonstration phase must also be submitted.

Progress on Transmission Grid Expansion

7.52 A key abatement mechanism, and the only sustainable one in the case of SO₂ is to phase out coal generation and replace it with a renewables and storage dominated power system. Whilst renewables are increasingly competing with installed coal generation, one of the main barriers to rapidly accelerating renewable capacity in South Africa is the limitations of the transmission grid.

7.53 The NTCSA releases annual Transmission Development Plans (TDP), which cover a rolling ten-year planning horizon. The latest version, TDP 2024, targets 14 500 new transmission lines and 210 new transformers over the decade, which is adequate to support renewables expansion. However, the TDPs are lagging in terms of their implementation, facing significant challenges. These include the pace of grid expansion, which requires a five-fold increase over the TDP 2024 period compared to that of the previous decade, and financing given Eskom’s liquidity issues and constraints on NERSA to increase electricity tariffs. Alternative funding and delivery models are therefore promoted in the TDP, including Independent Transmission Projects (ITPs) and hybrid Eskom / ITP developments.

7.54 It is therefore important for the management of local air emissions that Eskom’s NTCSA implements the TDP according to the timeframes set out therein. Eskom must submit to me the annual TDP for consideration when reviewing its exemptions and progress against conditions.

Table 4. Summary of conditions that respond to the impact of non-compliance on health, socio-economic, air quality transparency and governance and other emission reduction interventions.

RECOMMENDED CONDITIONS		TIMEFRAMES	INCLUSION IN AEL's
A	Conditions responding to the impact of non-compliance with MES		

DECISION BY THE MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT: DR. D T GEORGE, IN RESPECT OF ESKOM EXEMPTION APPLICATIONS SUBMITTED IN TERMS OF SECTION 59 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004 (ACT NO. 39 OF 2004)

RECOMMENDED CONDITIONS		TIMEFRAMES	INCLUSION IN AEL's
<u>Health interventions</u>			
	Development and roll-out of a data free air quality app	8 months	
	Appointment of an environmental health specialist	3 months	
	Plant level health risk assessments	Annually	Yes
	Extend employee occupational health screening programmes to communities for biannual screening	6 months	
	Develop community air quality health awareness programmes	6 months	
	Maternal and child health campaigns	6 months	
	Reinstate mobile clinic programme	12 months	
	Improve green spaces around healthcare facilities and school		Yes
<u>Socio-economic interventions</u>			
	Implementation of offset programme as per the March 2024 timeframes	As per s59 application	
	Progress on offset projects must be included in quarterly reports to the Department	Quarterly	
	Establish research programmes on intervention programmes, in collaboration with universities		
	Waste collection interventions associated with illegal mining dumps	12 months	Yes
	Plans to deal with ash dumps at each plant	6 months	Yes
<u>Air quality transparency and governance</u>			
	Monitoring plan per plant	6 months	Yes
	Install and maintain air quality monitoring stations and monitors	12 months	Yes
	Additional key sensitive receptor monitoring stations	12 months	Yes
	Data reporting improvements: real time on Department's SSAQIS, weekly stack data	Immediate	Yes
	Atmospheric dispersion assessment for exceedances of AEL limits	As required	Yes
	Emissions performance included in Eskom's Sustainability report and raised at AGM	Annual	
	Continue quarterly reporting on abatement projects	Immediate	
B	Conditions that support compliance with MES		
	Conduct expansive plant-specific Cost Benefit Analysis for FGD at Medupi	6 months	Yes
	Analyse and propose mechanisms for the inclusion of a SO ₂ price in the Dispatch Prioritisation Strategy	12 months	
	Proposal for pollutant concentration levels	12 months	
	Submission of current flexibilization studies to the Minister	Sept 2025	Yes

7.55 In addition to the recommendations in the Expert Report, I deem it appropriate to add the following conditions to my decision:

- (I) Debundling: Eskom must do everything that is necessary to ensure that the process relating to the separation of its electricity generation, transmission and distribution functions into separate and distinct legal entities takes place to achieve a democratized energy sector.
- (II) Grid availability to renewables:

7.56 In my evaluation all the above conditions, I carefully assessed whether any individual condition and combination thereof could result loadshedding. I am confident that this is not the case.

7.57 The above-mentioned conditions will apply for the full duration of the exemptions provided.

DECISIONS ON ESKOM EXEMPTION APPLICATIONS

8.1. I have the discretion under section 59 of the NEMAQA to determine both the duration of an exemption and the period for which any associated conditions will apply. Based on the analysis of section 36 of the Constitution, I deem it appropriate to limit the duration of the exemptions as much as possible. I have considered the Expert Report's recommendation on the duration of the exemptions to be given to Eskom in relation to each of its facilities. I have also considered Eskom's request and motivation in this regard. I have not accepted the Expert Report's recommendations to grant exemptions to each of the facilities for periods that are in excess of five years, save for Duvha and Matla. In relation to the latter facilities, I am cognisant that these facilities are due to be decommissioned by 2036, at the very latest. From my standpoint, the decommissioning of these facilities will naturally lessen the negative impacts on air quality in the long term. It follows that Eskom should invest in decommissioning the facilities, rather than on abatement technology.

8.2 Regarding the remaining facilities, I have determined the duration of five years to be an appropriate period for exemption for each of these facilities for the following reasons:

8.2.1 I have a Constitutional and legislative obligation to ensure that the environment is protected for the health and well-being of communities. It is undisputed that the impacts of Eskom's

emission have a negative impact on the ambient air quality and ultimately the health and well-being of the communities. The longer that Eskom is allowed to deviate from the MES, the greater the negative on human health and well-being and the environment;

8.2.2 The NAQO previously granted Eskom postponement of the timelines for compliance with the MES, which was intended to provide Eskom with additional time to invest in abatement technology and to comply with its environmental obligations. The exemption applications seek to achieve the same objective. It is axiomatic that any period longer than five (5) years is unjustifiable in the circumstances.

8.2.3 The transition to renewable energy is inevitable and imperative due to the pressing need to combat climate change, the increasing cost-effectiveness of renewable technologies, and the depletion of finite fossil fuels, making them unsustainable long-term solutions.

8.3 I now proceed to provide my decisions per facility:

ESKOM'S DUVHA POWER PLANT ("DUVHA")

8.4 Eskom's Application with Regards to Duvha Station

- (i) Eskom is requesting an exemption from the new plant MES for PM at Duvha (Unit 4 (U4) and U6) until completion of the abatement projects.
- (ii) Eskom is requesting an exemption from the new plant MES for NO_x at Duvha until its assumed shutdown.
- (iii) Eskom is requesting an exemption from the new plant MES for SO₂ at Duvha until its assumed shutdown. In this regard, a limit of 2600 mg/Nm³ is proposed until shutdown.
- (iv) Eskom states that, based on the analysis completed for this application, the exemptions requested are appropriate and balance the environmental and health impacts of its emissions with the national requirements for security of supply and sustainable growth and development.

8.5 Exemption Decision for Duvha Station

DECISION BY THE MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT: DR. D T GEORGE, IN RESPECT OF ESKOM EXEMPTION APPLICATIONS SUBMITTED IN TERMS OF SECTION 59 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004 (ACT NO. 39 OF 2004)

- (i) In respect of its Duvha Power Station, Eskom is granted exemptions as per the table below, until the recommended shut down date of **21 February 2034** (as per Eskom's Annex 10 Eskom IRP information, dated **January 2023**).

Table 5. Exemption Decision for Duvha Station

POLLUTANT AND EMISSION UNIT	New Plant MES mg/Nm ³	Exemption Limits Granted mg/Nm ³	Recommended Averaging Period	Recommended Date to Be Achieved
SO ₂ (U1, U2, U4-U6)	1000	2600	Daily	Immediate
NO _x (U1, U2, U4-U6)	750	1100	Daily	Immediate
PM (U4, U6)	50	100	Daily	Immediate
PM (U4, U6)	50	50	Daily	01-Oct-26

ESKOM'S LETHABO POWER PLANT ("LETHABO")

8.6 Eskom's application with regards to Lethabo Power Station

- (i) Eskom is requesting an exemption from the new plant MES for PM at Lethabo (U1, U2, U3, U4, and U5) until completion of the abatement projects, after which this station will comply with the new plant MES.
- (ii) Eskom is requesting an exemption from the new plant MES for NO_x at Lethabo until completion of the LNB installations.
- (iii) Eskom is requesting an exemption from the new plant MES for SO₂ at Lethabo until its assumed shutdown.
- (iv) Eskom states that, based on the analysis completed for this application, the exemptions requested are appropriate and balance the environmental and health impacts of its emissions with the national requirements for security of supply and sustainable growth and development.

8.7 Exemption Decision for Lethabo Station

DECISION BY THE MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT: DR. D T GEORGE, IN RESPECT OF ESKOM EXEMPTION APPLICATIONS SUBMITTED IN TERMS OF SECTION 59 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004 (ACT NO. 39 OF 2004)

- (i) In respect of its Lethabo Power Station, it should be noted that given the uncertainty of the power sector transition, it is recommended that no exemption is granted for a period longer than five (5) years.
- (ii) As such, exemption granted to Lethabo expires on **01 April 2030**.

Table 6. Exemption Decision for Lethabo Station

POLLUTANT AND EMISSION UNIT	New Plant MES mg/Nm ³	Exemption Limits Granted mg/Nm ³	Recommended Averaging Period	Recommended Date to Be Achieved
SO ₂ (U1 – U6)	1000	2600	Daily	Immediate
NO _x (U1 – U6)	750	1100	Daily	Immediate
NO _x (U1 – U6)	750	750	Daily	01-Apr-30
PM (U2, U3)	50	100	Daily	Immediate
PM (U2, U3)	50	50	Daily	01-Apr-26
PM (U5)	50	100	Daily	Immediate
PM (U5)	50	50	Daily	01-Oct-26
PM (U4)	50	100	Daily	Immediate
PM (U4)	50	50	Daily	01-Apr-27
PM (U1)	50	100	Daily	Immediate
PM (U1)	50	50	Daily	01-Oct-27

ESKOM'S KENDAL POWER PLANT ("KENDAL")

8.8 Eskom's Application with Regards to Kendal Station

- (i) Eskom is requesting an exemption from the new plant MES for PM at Kendal until completion of the abatement projects, after which this station will comply with the new plant MES.
- (ii) Kendal is currently compliant with the new plant MES for NO_x.
- (iii) Eskom is requesting an exemption from the new plant MES for SO₂ at Kendal until its assumed shutdown.
- (iv) Semi-dry FGD is evaluated in the exemption application. This would allow for compliance with the SO₂ MES by **01 April 2036**.

8.9 Exemption Decision for Kendal Station

- (i) In respect of its Kendal Power Station, it should be noted that given the uncertainty of the power sector transition, no exemption is granted for a period longer than five (5) years.
- (ii) As such, the exemptions granted to Kendal expires on **01 April 2030**.

Table 7. Exemption Decision for Kendal Station

POLLUTANT AND EMISSION UNIT	New Plant MES mg/Nm ³	Exemption Limits Granted mg/Nm ³	Recommended Averaging Period	Recommended Date to Be Achieved
SO ₂ (U1-U6)	1000	3000	Daily	Immediate
PM (U3, U4, U6)	50	100	Daily	Immediate
PM (U3, U4, U6)	50	50	Daily	01-Oct-25
PM (U1, U2, U5)	50	100	Daily	Immediate
PM (U1, U2, U5)	50	50	Daily	01-Apr-26

ESKOM'S MATLA POWER PLANT ("MATLA")

8.10 Eskom's application with regards to Matla

- (i) Eskom is requesting an exemption from the new plant MES for PM at Matla (U4, U5, and U6) until completion of the abatement projects, after which this station will comply with the new plant MES. U1, U2 and U3 should be compliant from 01 April 2025.
- (ii) Eskom is requesting an exemption from the new plant MES for NO_x at Matla until its assumed shutdown.
- (iii) Eskom is requesting an exemption from the new plant MES for SO₂ at Matla until its assumed shutdown.
- (iv) Eskom states that, based on the analysis completed for this application, the exemptions requested are appropriate and balance the environmental and health impacts of its emissions with the national requirements for security of supply and sustainable growth and development.

8.11 Exemption Decision for Matla Station

- (i) In respect of its Matla Power Station, Eskom is granted exemptions, as per the table below, until the recommended shut down date of **20 July 2034** (as per Eskom's Annex 10 Eskom IRP information, dated January 2023).

Table 8. Exemption Decision for Matla Station

POLLUTANT AND EMISSION UNIT	New Plant MES mg/Nm ³	Exemption Limits Granted mg/Nm ³	Recommended Averaging Period	Recommended Date to Be Achieved
SO ₂ (U1-U6)	1000	2600	Daily	Immediate
NO _x (U1-U6)	750	1100	Daily	Immediate
PM (U4-U6)	50	100	Daily	Immediate
PM (U4-U6)	50	50	Daily	01 April 2026

ESKOM'S TUTUKA POWER PLANT ("TUTUKA")

8.12 Eskom's application with regards to the Tutuka Power Station

- (i) Eskom is requesting an exemption from the new plant MES for PM at Tutuka until completion of the abatement projects, after which this station will comply with the new plant MES.
- (ii) Eskom is requesting an exemption from the new plant MES for NO_x at Tutuka until completion of the LNB installations.
- (iii) Eskom is requesting an exemption from the new plant MES for SO₂ at Tutuka until its assumed shutdown.
- (iv) Eskom states that, based on the analysis completed for this application, the exemptions requested are appropriate and balance the environmental and health impacts of its emissions with the national requirements for security of supply and sustainable growth and development.

8.13 Exemption Decision for Tutuka Station

- (i) In respect of its Tutuka Power Station, Eskom is granted exemptions, as per the table below, until the recommended shut down date of **05 June 2030** (as per Eskom's Annex 10 Eskom IRP information, dated January 2023).

Table 9. Exemption Decision for Tutuka Station

POLLUTANT AND EMISSION UNIT	New Plant MES mg/Nm ³	Exemption Limits Granted mg/Nm ³	Recommended Averaging Period	Recommended Date to Be Achieved
SO ₂ (Stack 1 (U1-U3), Stack 2(U4-U6))	1000	3000	Daily	Immediate
NO _x (Stack 1 (U1-U3), Stack 2(U4-U6))	750	1100	Daily	Immediate
NO _x (Stack 1 (U1-U3), Stack 2(U4-U6))	750	750	Daily	01-Apr-29
PM (Stack 1 (U1-U3), Stack 2(U4-U6))	50	300 200	Daily Monthly	Immediate
PM (Stack 1 (U1-U3), Stack 2(U4-U6))	50	50	Daily	01-Apr-27

ESKOM'S MAJUBA POWER PLANT ("MAJUBA")

8.14 Eskom's Application with Regards to Majuba Power Station

- (i) Majuba is currently compliant with the new plant MES for PM.
- (ii) Eskom is requesting an exemption from the new plant MES for NO_x at Majuba until completion of the LNB installations.
- (iii) Eskom is requesting an exemption from the new plant MES for SO₂ at Majuba until its assumed shutdown.
- (iv) A lower emission concentration can be achieved with the installation of DSI (by 01 April 2034), but MES still will not be achieved.

- (v) Eskom states that, based on the analysis completed for this application, the exemptions requested are appropriate and balance the environmental and health impacts of its emissions with the national requirements for security of supply and sustainable growth and development.

8.15 Exemption Decision for Majuba Station

- (i) In respect of its Majuba Power Station, it should be noted that given the uncertainty of the power sector transition, no exemption is granted for a period longer than five (05) years.
- (ii) As such, the exemption granted to Majuba expires on **01 April 2030**.

Table 10. Exemption Decision for Majuba Station

POLLUTANT AND EMISSION UNIT	New Plant MES mg/Nm ³	Exemption Limits Granted mg/Nm ³	Recommended Averaging Period	Recommended Date to Be Achieved
SO ₂ (SV0013, SV0014, SV0015, SV0002, SV0011, SV0012)	1000	3000	Daily	Immediate
NO _x (SV0013, SV0014, SV0015, SV0002, SV0011, SV0012)	750	1100	Daily	Immediate
NO _x (SV0013, SV0014, SV0015, SV0002, SV0011, SV0012)	750	750	Daily	01-Apr-30

ESKOM'S MEDUPI POWER PLANT ("MEDUPI")

8.16 Eskom's Application with Regards to the Medupi Power Station

- (i) Medupi is currently compliant with the new plant MES for PM.
- (ii) Medupi is currently compliant with the new plant MES for NO_x.
- (iii) Eskom is requesting an exemption from the new plant MES for SO₂ at Medupi until completion of the FGD installations (01 April 2032).

- (iv) Eskom states that, based on the analysis completed for this application, the exemptions requested are appropriate and balance the environmental and health impacts of its emissions with the national requirements for security of supply and sustainable growth and development.

8.17 Exemption Decision for Medupi Station

- (i) In respect of its Medupi Power Station, the exemption granted to Medupi expires on **01 April 2030**.

Table 11. Exemption Decision for Medupi Station

POLLUTANT AND EMISSION UNIT	New Plant MES mg/Nm ³	Exemption Limits Granted mg/Nm ³	Recommended Averaging Period	Recommended Date to Be Achieved
SO ₂ (SV0013, SV0014, SV0015, SV0002, SV0011, SV0012)	1000	4000 3500	Daily Monthly	Immediate
SO ₂ (SV0013, SV0014, SV0015, SV0002, SV0011, SV0012)	1000	1000	Daily	01-Apr-30

Medupi Flue Gas Desulphurisation (FGD) Cost Benefit Analysis (CBA) and Power System Modelling

- 8.18 Eskom's exemption application indicated that CBAs had been undertaken for their three ERP Scenarios, the first of which included installing an FGD at Medupi. This CBA includes abatement interventions for PM and NO_x from all eight plants, as well as the corresponding health benefits from these. As such, the CBA does not fairly evaluate the costs and benefits of the Medupi FGD

specifically, and contrary to Eskom's claim, cannot be used to determine the cost benefit ratio of installing FGD at Medupi.

8.19 Further, the experts have the following concerns with the CBA's undertaken by Prime Africa for Eskom's exemption application:

- (i) The issue of airshed saturation (cumulative impact) is not accounted for, and this is an important determinant of health impacts. For example, in a saturated airshed, asthmatics respond to lower emission levels more quickly and intensely than healthy, unexposed individuals.
- (ii) The use of Exposure Response Functions from other countries likely underestimates South Africa's baseline TB and HIV concerns, which impact on respiratory, cardiovascular and immunological response.
- (iii) Synergistic pollutant interactions were not incorporated, which contribute to cumulative impacts.
- (iv) The value of abating additional pollutants to PM, Nox and SOx were not included.
- (v) Morbidity impacts were not included (cost of medical treatment, loss of employment, impacts of health risk on households, employers, and the healthcare and insurance industries, educational impacts for vulnerable populations, (children, elderly, those with chronic health conditions).).
- (vi) Environmental aspects such as infrastructure and services to provide water and waste management (sorbents) associated with the FGD were not included.

8.20 To respond to the concerns articulated above, the following must be included in the quantitative assessment:

- (i) Health costs (addressing all concerns cited above)
- (ii) Technology costs (construction, maintenance and operation)
- (iii) Energy efficiency penalty
- (iv) CO₂ costs
- (v) Cost of sorbent supply, including infrastructure costs
- (vi) Waste treatment
- (vii) Cost of water supply, including infrastructure costs

- 8.21 The CBA must be limited to SO₂ health impacts, holding all other pollutants constant. Further, plant closure dates of 2045, 2055 and 2071 must be considered in separate scenarios. The report must also provide commentary on construction and operational risks, timing and duration of outages required to install the FGD, finance availability, project status currently and the plant emission levels post the retrofit. Implications for SO₂ emissions and the FGD plant of running Medupi at reduced utilisation rates must be commented upon.
- 8.22 As indicated previously the CBA must consider two scenarios each achieving different levels of SO₂ emissions reductions, and independent power system modelling must be undertaken to explore the implications of installing retrofit technologies as well as alternatives

ESKOM'S MATIMBA POWER PLANT ("MATIMBA")

8.23 Eskom's Application with Regards to the Matimba Power Station

- (i) Matimba is currently compliant with the new plant MES for PM.
- (ii) Matimba is currently compliant with the new plant MES for NO_x.
- (iii) Eskom is requesting an exemption from the new plant MES for SO₂ Matimba until its assumed shutdown.
- (iv) Eskom states that, based on the analysis completed for this application, the exemptions requested are appropriate and balance the environmental and health impacts of its emissions with the national requirements for security of supply and sustainable growth and development.

8.24 Exemption Decision for Matimba Station

- (i) In respect of its Matimba Power Station, it should be noted that given the uncertainty of the power sector transition, no exemption is granted for a period longer than five (05) years.
- (ii) As such, the exemption granted to Matimba expires on **01 April 2030**.

DECISION BY THE MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT: DR. D T GEORGE, IN RESPECT OF ESKOM EXEMPTION APPLICATIONS SUBMITTED IN TERMS OF SECTION 59 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004 (ACT NO. 39 OF 2004)

Table 12. Exemption Decision for Matimba Station

POLLUTANT AND EMISSION UNIT	New Plant MES mg/Nm ³	Exemption Limits Granted mg/Nm ³	Recommended Averaging Period	Recommended Date to Be Achieved
SO ₂ (SV0013, SV0014, SV0002, SV0012)	1000	4000 3500	Daily* Monthly	Immediate

CONCLUSIONS

- 9.1 In arriving at my decision on the application, I have not responded to every statement set out in the application, and where a particular statement is not directly addressed, the absence of any response thereto should not be interpreted to mean that I have not considered that statement, or that I agree with, or abide by the statement made.
- 9.2 I have also not listed each and every Annexure, document or report considered, and the absence of any such Annexure, document or report should not be interpreted to mean that I have not considered same, or that I agree with, or abide by the findings made therein.
- 9.3 In addition, should any party be dissatisfied with any aspect of my decision, they may apply to a competent court to have this decision judicially reviewed. Judicial review proceedings must be instituted within 180 days of notification hereof, in accordance with the provisions of section 7 of the Promotion of Administrative Justice Act, 2000 (Act No. 3 of 2000).



DR D T GEORGE

MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT

DATE: 31/3/2025