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Eskom Holding SOC Ltd's Board of Directors  
Care of: The Company Secretary

1 February 2018

Dear Mr Mabuza

## **LIFE AFTER COAL CAMPAIGN - ESKOM'S NON-COMPLIANCE WITH OBLIGATIONS TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT REMAINS A MATERIAL LIABILITY**

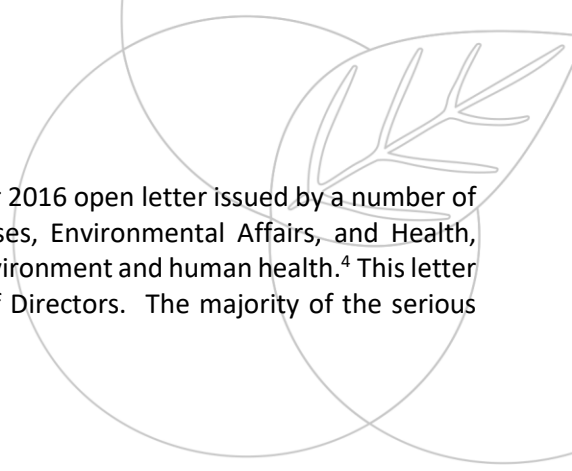
### **Introduction**

1. We address you on behalf of the **Life After Coal/Impilo Ngaphandle Kwamalahle** Campaign (made up of the Centre for Environmental Rights (CER), groundWork (gW) and Earthlife Africa, Johannesburg (ELA)).<sup>1</sup> The campaign aims to discourage investment in new coal-fired power stations and mines; accelerate the retirement of South Africa's coal infrastructure; and enable a just transition to renewable energy systems for the people.
2. The Life After Coal Campaign (LAC) congratulates you on your appointment as Chairman of Eskom's Board of Directors. Eskom, as a "strategic national asset"<sup>2</sup> and state-owned enterprise, requires principled leadership, strong governance and rational direction, more so than ever before. We are cautiously optimistic that the newly-appointed Board of Directors will be able respond accordingly.
3. The extremely challenging situation in which Eskom finds itself, on a number of different fronts, is common knowledge, and we appreciate the demand placed on you at this early stage of your tenure. For your evaluation of the current status and of pressing future needs, we wish to bring certain critical issues to your attention regarding Eskom's sustainability; particularly, its outdated model of operation, its operational and legal compliance, and the adverse impact it has on our environment, human health, and wellbeing.
4. As a campaign, and as civil society organisations working towards the broader achievement of environmental rights and justice in our communities across South Africa, we have jointly and/or respectively engaged with Eskom, directly, and with competent regulators regarding Eskom's activities for several years. This engagement has been through available legal mechanisms and formal correspondence, as well as parliamentary submissions.<sup>3</sup>

<sup>1</sup> Website available at <https://lifeaftercoal.org.za/>

<sup>2</sup> *NERSA v Borbet SA (Pty) Ltd* [2017] ZASCA 87 (6 June 2017) at para 119.

<sup>3</sup> Please see, for example, the various objections and key correspondence available at <https://cer.org.za/programmes/pollution-climate-change/key-correspondence>



Of particular importance, for the purpose of this letter, is the September 2016 open letter issued by a number of civil society organisations to the Ministers of Energy, Public Enterprises, Environmental Affairs, and Health, seeking to ensure Eskom's compliance with obligations to protect the environment and human health.<sup>4</sup> This letter was also copied to the then Eskom CEO and Chairman of the Board of Directors. The majority of the serious concerns raised in that letter remain, and are addressed below.

### **In the Age of Renewable Energy, Eskom's Business Model is Unsustainable**

5. Eskom's model of building large coal-fired baseload stations to supply "cheap and abundant" power to energy-intensive industries is collapsing and is no longer affordable for Eskom or the South African economy.<sup>5</sup> The model of the "minerals-energy complex" that has shaped South Africa's development for over a century, is simply economically unsustainable and is socially and environmentally catastrophic. You are, of course, aware of the massive cost and time over-runs of Kusile and Medupi stations, the associated debt supported by government guarantees, and the billions of Rand owed in interest to credit providers. Needless to say, we cannot see how Eskom's current energy supply model will provide a solution to what has been described as a financial "death spiral".<sup>6</sup>
6. We contend that a rapid, but just transition from coal to renewable energy is urgently needed in South Africa. In the open letter referred to above in paragraph 4, it was noted that South Africa has some of the best renewable resources in the world. We point out that Eskom has signed power purchase agreements (PPAs) for the first and most expensive rounds of the renewable energy procurement programme, but refused to sign PPAs for the latest rounds, which were bid at below Eskom's own costs of production. On Eskom's figures, these more expensive rounds would have added up to about 14% of generation costs.<sup>7</sup> We also note that Eskom has agreed to a special pricing agreement with Silicon Smelters. We maintain that, if Eskom continues its anti-renewable energy stance, it risks becoming obsolete, while also putting job creation and the supply of affordable, clean, accessible electricity for all South Africans at risk. We understand that the renewable power sector anticipates the conclusion of the 26 outstanding PPAs in the first quarter of 2018.<sup>8</sup> We support the finalisation of these PPAs as soon as possible. Moreover, and in addition to the REIPPPP, the barriers to small-scale, community-based renewable energy investments must be removed to encourage and enable a just transition to renewable energy systems for the people.
7. As indicated below, the LAC Campaign holds the view that Eskom itself should substantially increase its own production of renewable energy as a matter of urgency. We are aware that, to date, government has excluded Eskom from the renewables programme. However, we do not support the privatisation of renewable energy and believe that it is essential that Eskom should play an active role in a just transition to a clean and sustainable energy system.
8. Further to Eskom and South's Africa's energy transition process, we bring your attention to a recent study by Meridian Economics, titled "*Eskom's Financial Crisis and the Viability of Coal-Fired Power in South Africa*" ("the Meridian study"),<sup>9</sup> which looks into several possible strategies to assist with ameliorating Eskom's critical financial challenges. The findings of the Meridian study are, *inter alia*, that:

- 8.1 Eskom's inflexible construction programme has now resulted in a significant and growing surplus of expensive generation capacity;

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<sup>4</sup> Available at [https://cer.org.za/wp-content/uploads/2016/09/Final-NGO-open-letter-to-Ministers-on-Eskom\\_6-Sept-2016\\_with-additions.pdf](https://cer.org.za/wp-content/uploads/2016/09/Final-NGO-open-letter-to-Ministers-on-Eskom_6-Sept-2016_with-additions.pdf)

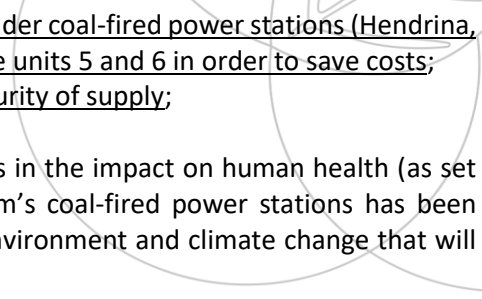
<sup>5</sup> <http://www.ee.co.za/article/alarmed-picture-emerges-eskoms-liquidity-dries.html>

<sup>6</sup> See <https://www.fin24.com/Economy/Eskom/can-eskom-avoid-a-financial-death-spiral-20180108>.

<sup>7</sup> Eskom Revenue Application FY 2018/19. August 2017.

<sup>8</sup> <http://www.bizcommunity.com/Article/196/701/172470.html>

<sup>9</sup> A study by Grové Steyn, Jesse Burton, Marco Steenkamp, 15 November 2017, available at [http://meridianeconomics.co.za/wp-content/uploads/2017/11/Eskoms-financial-crisis-and-the-viability-of-coalfired-power-in-SA\\_ME\\_20171115.pdf](http://meridianeconomics.co.za/wp-content/uploads/2017/11/Eskoms-financial-crisis-and-the-viability-of-coalfired-power-in-SA_ME_20171115.pdf).

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- 8.2 Eskom should accelerate the decommissioning of 3 of its older coal-fired power stations (Hendrina, Grootvlei, and Komati) and curtail the completion of Kusile units 5 and 6 in order to save costs;
  - 8.3 these interventions can be achieved without affecting security of supply;
  - 8.4 these interventions could save Eskom up to R17 billion;
  - 8.5 these estimates do not reflect the additional large savings in the impact on human health (as set out from paragraph 15 below, the health costs of Eskom’s coal-fired power stations has been estimated to be USD 2,372.78 million annually<sup>10</sup>), local environment and climate change that will result; and
  - 8.6 the system analysis undertaken by the Council for Scientific and Industrial Research (CSIR) Energy Centre – used for the study’s reference scenario - finds in a 34 year, least-cost optimised, power system operation and expansion plan, no new coal-fired power capacity is built after Kusile, and no new nuclear plant is built either. It states, “new coal and nuclear plants are simply no longer competitive. When new capacity is required, demand is met at lowest cost primarily from new solar PV and wind”<sup>11</sup>.
9. The Meridian study also points out that part of the savings – if Eskom were to implement the above measures - could be used to cushion the impact on workers and communities by providing support for re-training, skills development and relocation.
  10. In relation to the draft Integrated Resource Plan 2016 (IRP) and the need to evolve beyond a coal-dominated electricity mix, we also highlight the formal comments submitted by the CSIR on the IRP Update Assumptions, Base Case and Observations.<sup>12</sup> Although LAC did criticise the failure of this alternative IRP to take adequate account of the health and water cost of existing and new investments in coal,<sup>13</sup> and strongly objects to the retention of the two coal baseload stations (Thabametsi and Khanyisa) in the baseline energy model, the two scenarios developed by the CSIR, calculated on the basis of “least cost” and “decarbonised”, both result in an energy plan that favours renewable energy, supplemented by storage and gas – with no new coal or nuclear plants. Importantly, two subsequent studies by the Frankfurt Institute for Advanced Studies in Germany (October 2017)<sup>14</sup> and the National Renewable Energy Laboratory (November 2017)<sup>15</sup> provide independent confirmation of the CSIR findings regarding the least-cost electricity mix for South Africa.
  11. This demonstrates that, with an international move away from fossil fuels<sup>16</sup> and nuclear, and the financial implications of future stranded assets, as well as alternative least-cost renewable energy available, large-scale coal-fired power stations are not in the best interest of the people of South Africa. Eskom is already dependent on tariff increases that are well-above inflation and Regulatory Clearing Account applications, quite apart from the capital injections Medupi and Kusile will require during their respective lifespans, and the on-going costs of mandatory maintenance for stations and retrofits required for emission abatement. We believe that Eskom should actively plan, together with its workers, for a just transition to renewable energy, rather than risk stranding the workforce, along with redundant coal-fired plants.

<sup>10</sup> P15, Health impacts of coal fired power plants in South Africa, Dr Mike Holland, available at <http://www.groundwork.org.za/Documents/AirQuality/Annexure%20Health%20impacts%20of%20coal%20fired%20generation%20in%20South%20Africa%20310317.pdf>.

<sup>11</sup> P3, Executive Summary, Meridian study.

<sup>12</sup> [https://www.csir.co.za/sites/default/files/Documents/20170331CSIR\\_EC\\_DOE.pdf](https://www.csir.co.za/sites/default/files/Documents/20170331CSIR_EC_DOE.pdf)

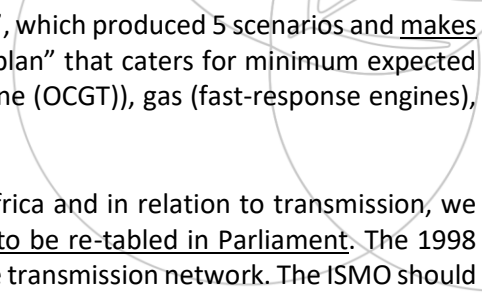
<sup>13</sup> <https://cer.org.za/news/joint-media-release-cost-of-health-and-water-impacts-of-coal-still-missing-from-energy-plans>

<sup>14</sup> Investment and operation co-optimization of integrating wind and solar in South Africa at high spatial and temporal detail, by Jonas Hörsch and Joanne Calitz, available at <https://arxiv.org/pdf/1710.11199.pdf>.

<sup>7</sup> <http://www.ee.co.za/article/alarmed-picture-emerges-eskoms-liquidity-dries.html>.

<sup>15</sup> Preliminary Findings of the South Africa Power System Capacity Expansion and Operational Model Study Erol Chartan, Tim Reber, and Gregory Brinkman available at <https://www.nrel.gov/docs/fy18osti/70319.pdf>

<sup>16</sup> The French government is the latest to announce the country’s plan to shut down all of its coal-fired power plants to be coal-free by 2021. See <https://futurism.com/france-officially-shutting-coal-fired-power-plants-three-years/>

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12. Eskom’s own IRP modelling team compiled a “2017 IRP Scenarios Report”, which produced 5 scenarios and makes no mention of new coal or nuclear power. Instead it proposes a “base plan” that caters for minimum expected demand, with capacity from PV, wind, landfill, gas (open cycle gas turbine (OCGT)), gas (fast-response engines), and gas (closed cycle gas turbine (CCGT)).
  13. To promote the expansion of renewable energy generation in South Africa and in relation to transmission, we also call for the Independent System and Market Operator (ISMO) Bill to be re-tabled in Parliament. The 1998 Energy White Paper envisaged open and non-discriminatory access to the transmission network. The ISMO should facilitate municipal and community de-centralised generation, both for local supply and to feed the national grid. In doing so, this could involve the structured redeployment of employees, not just within Eskom, but also to municipalities, in order to provide the necessary skills and capacity that the ISMO would require. We propose that a well-managed, legally-compliant Eskom could take a leading role in the process and we strongly encourage it to do so.

### **The Externalised Costs of Coal-Fired Power Generation – The “Silent Killer”**

14. In our view, the clear economic realities presented above are themselves adequate reasons for Eskom to reform, and to engage with a just energy transition in South Africa. This becomes more urgent when consideration is given to the detrimental, and, indeed, fatal, costs associated with Eskom’s coal-fired power stations, particularly in the failing Highveld Priority Area, Mpumalanga.<sup>17</sup> These externalised costs, which, to date, have not been adequately recognised, let alone addressed, include impacts on people’s health, water, land, food security, biodiversity, and climate change.<sup>18</sup>

#### Health Impacts from Atmospheric Emissions

15. An air quality and health expert from a UK-based consulting firm, Dr Mike Holland, produced a 2017 report on the health impacts of coal-fired power plants in South Africa.<sup>19</sup> The report focused only on the role of fine particles - PM<sub>2.5</sub> (particulate matter with an aerodynamic diameter of less than 2.5 micrometres) and found that:
  - 15.1 the health impacts of coal-fired power plants in South Africa create a substantial burden on human health, leading to 2,239 equivalent attributable deaths, and increased illness quite widely within the population;
  - 15.2 the total quantifiable economic cost of air pollution from coal-fired generation in South Africa is in the region of R33 billion per year.<sup>20</sup> This is made up of impacts in terms of early death, chronic bronchitis, hospital admissions for respiratory and cardiovascular disease, and a variety of minor conditions leading to restrictions on daily activity, including lost productivity; and<sup>21</sup>
  - 15.3 these health impacts are likely most severe on the more disadvantaged members of society, particularly those whose underlying health condition is worst.<sup>22</sup>

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<sup>17</sup> See <https://cer.org.za/programmes/pollution-climate-change/publications/broken-promises-the-failure-of-the-highveld-priority-area>.

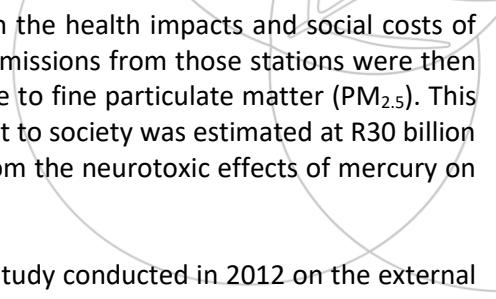
<sup>18</sup> See, for example: [http://www.groundwork.org.za/reports/gWReport\\_2016.pdf](http://www.groundwork.org.za/reports/gWReport_2016.pdf);  
[http://www.groundwork.org.za/reports/gW\\_Report\\_2017.pdf](http://www.groundwork.org.za/reports/gW_Report_2017.pdf)

<sup>19</sup> Dr Michael Holland has been involved in the quantification of the impacts of air pollution from power systems since 1990, when he worked at the heart of the influential EC-US Fuel Cycles Study funded by the European Commission, EU Member States and the US Department of Energy. Following completion of the initial study in 1995 this work continued in Europe as the Externe Study until 2005. Since 1996 Mike has provided cost-benefit analysis of air quality and industrial policies for a variety of organisations including not only the European Commission, but governments in the UK, France, Sweden, China and a number of other countries. He has also provided analysis for international organisations including the Organisation for Economic Cooperation and Development (OECD) and the World Bank.

<sup>20</sup> \$int2.37 billion annually converted at an exchange rate of ZAR14:USD1.

<sup>21</sup> [https://cer.org.za/wp-content/uploads/2017/09/CER\\_HPA-Infographic-web.pdf](https://cer.org.za/wp-content/uploads/2017/09/CER_HPA-Infographic-web.pdf)

<sup>22</sup> <https://cer.org.za/wp-content/uploads/2017/04/Annexure-Health-impacts-of-coal-fired-generation-in-South-Africa-310317.pdf>

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16. These findings were preceded by a 2014 report by Lauri Myllyvirta<sup>23</sup> on the health impacts and social costs of Eskom's coal-fired power stations, which concluded that atmospheric emissions from those stations were then causing an estimated 2,200 premature deaths per year, due to exposure to fine particulate matter (PM<sub>2.5</sub>). This included approximately 200 deaths of young children. The economic cost to society was estimated at R30 billion per year, including premature deaths from PM<sub>2.5</sub> exposure and costs from the neurotoxic effects of mercury on children.<sup>24</sup>
  17. Considering just the coal supply for a single coal-fired power station, a study conducted in 2012 on the external health and environmental costs of supplying coal to the Kusile coal-fired power station indicated a conservative annual damages cost for the health and environmental impacts (simply from the mining and transportation of the coal to Kusile) of R10.5 million, with a high annual damages cost of R15 million.<sup>25</sup>
  18. Eskom is well aware of the health impacts of its stations, having commissioned its own research as far back as 2006.<sup>26</sup>
  19. As you are aware, Eskom's atmospheric emissions are regulated by the National Environmental Management: Air Quality Act 39 of 2004 (AQA). As its activities 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", Eskom is required to comply with Minimum Emission Standards (MES), in terms of section 21 of the AQA. In 2013/14, Eskom requested, and was largely granted (in February 2015), widespread postponement of compliance with the MES, despite the evidence provided by civil society and community organisations of the enormous health impacts of these postponements.<sup>27</sup> We will continue to oppose postponement applications made by Eskom, and maintain that if the MES cannot be complied with within the permitted timeframes, Eskom's ageing fleet must be decommissioned as soon as is possible. However, in response to access to information requests, Eskom has advised that it has no plans to decommission its stations. In fact, it is investigating the extension of their stations' lives to 60 years.
  20. Eskom's non-compliance with numerous legislative requirements for its coal-fired stations is well-known – as recorded in the Department of Environmental Affairs' annual National Environmental Compliance and Enforcement Reports.<sup>28</sup> We are active in our attempts to ascertain each coal-fired power station's latest state of compliance with the emission standards in the relevant atmospheric emission licences (AELs), updated decommissioning schedule and plans for each coal-fired power station, and mechanisms within Eskom's board to ensure compliance with the AELs and MES, among other documents. A previous expert analysis revealed that Eskom was likely not complying even with its relaxed emission limits.<sup>29</sup>
  21. In our attempts to obtain the information, we have submitted numerous Promotion of Access to Information Act (PAIA) requests, generally resulting in delays with Eskom falling well outside of the statutory timeframes prescribed by PAIA, before any documents (often redacted) are provided. We highlight this, as following the most recent PAIA request and subsequent internal appeal lodged in December 2017, Eskom's Information Officer, Mr Eddie Laubscher, stated that "Eskom would also like to engage with you post this request in order to see if we can't establish a more amicable relationship going forward". As we responded in an email, dated 16 January 2018,

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<sup>23</sup> Lauri Myllyvirta is a coal and air pollution specialist from Greenpeace International.

<sup>24</sup> [http://cer.org.za/wp-content/uploads/2014/02/Annexure-5\\_Health-impacts-of-Eskom-applications-2014- final.pdf](http://cer.org.za/wp-content/uploads/2014/02/Annexure-5_Health-impacts-of-Eskom-applications-2014- final.pdf). See also <http://www.groundwork.org.za/specialreports/groundWork%20The%20Health%20Impact%20of%20Coal%20final%2020%20May%202014.pdf>

<sup>25</sup> The external costs of coal mining: the case of collieries supplying Kusile power station. Nonophile P Nkambule & James N Bignaut. Journal of Energy in Southern Africa, Vol 23 No 4, November 2012.

<sup>26</sup> <https://mg.co.za/article/2014-06-19-power-stations-are-deadly-internal-report-reveals>; see "Eskom health studies" at <https://cer.org.za/programmes/pollution-climate-change/key-information>

<sup>27</sup> [https://cer.org.za/wp-content/uploads/2014/02/Annexure-5\\_Health-impacts-of-Eskom-applications-2014- final.pdf](https://cer.org.za/wp-content/uploads/2014/02/Annexure-5_Health-impacts-of-Eskom-applications-2014- final.pdf)

<sup>28</sup> [https://www.environment.gov.za/mediarelease/environmental\\_compliance\\_enforcement\\_2017report](https://www.environment.gov.za/mediarelease/environmental_compliance_enforcement_2017report)

<sup>29</sup> [https://cer.org.za/wp-content/uploads/2016/07/AEL-Compliance-Assessment-of-Eskom-CFPSs-final-19-May-2017\\_ final.pdf](https://cer.org.za/wp-content/uploads/2016/07/AEL-Compliance-Assessment-of-Eskom-CFPSs-final-19-May-2017_ final.pdf)

we are certainly receptive to a more amicable and transparent relationship with Eskom, especially regarding environmental legal compliance information, which is clearly in the public interest.

### Water Impacts

22. Coal-fired power stations also have significant impacts on water through coal mining, coal washing, post-mine acid mine drainage, acid rain and storage of coal ash post combustion. The costs associated with this, much of which will have to be incurred in perpetuity, have not yet been quantified, even by the Department of Water and Sanitation, but are likely to be significant.
23. South Africa is a water-scarce country. Preservation of its water courses, especially those on which communities rely - such as the Olifants River - is of paramount importance. It is noteworthy that, in addition to the impacts on water associated with the coal sector that supplies Eskom, its coal-fired power stations, compared to other available generation technology, are highly water-intensive with a net annual water consumption of 314.685 million cubic metres.<sup>30</sup>

### Climate Change Impacts

24. The greenhouse gases emanating from Eskom's stations are enormous – it is one of the biggest emitters of carbon dioxide in the world.
25. We make reference again to the open letter, dated September 2016, and reiterate that, although we maintain that South Africa's Nationally Determined Contribution (NDC)<sup>31</sup> fails to make adequate commitments to address the devastating impacts of climate change, the NDC does recognise the need to “transition to a low-carbon energy sector”, by replacing “an inefficient fleet of ageing coal-fired power plants with clean and high efficiency technology”.
26. Several of Eskom's power stations are reaching their end-of-life, having been commissioned in the 1960s and 1970s. More specifically, the following decommissioning dates have been provided by Eskom:<sup>32</sup> Camden (2020); Hendrina (2020); Arnot (2021); Komati (2024); Grootvlei (2025); and Kriel (2026). However, contrary to this, and as indicated above, Eskom has indicated that it does not intend to decommission its stations, but it will rather extend their lifespans to 60 years. It was further confirmed in our latest PAIA request that no decommissioning plans (or cost assessments) exist.
27. Eskom's intention to extend the lives of its ageing carbon-intensive coal-fired power stations is extremely concerning, as it is in conflict with South Africa's international climate change commitments and the 50 year lifespan on which the IRP is based. During a Parliamentary Committee on Environmental Affairs (PCEA) Workshop on the Status of Minimum Emission Standards held in November 2017, the Department of Environmental Affairs confirmed that South Africa's “built in” plateau and decline trajectory model to meet its Paris Agreement obligations is based on a 50 year lifespan for Eskom's stations. Life extensions would result in a failure to meet South Africa's NDC.
28. The LAC Campaign regards Eskom's current strategy of not taking steps to decommission its ageing stations (particularly those that are legally non-compliant) as a destructive pathway of no return. We argue that, in executing your fiduciary duties in the best interests of Eskom as the state-owned power utility, and South Africans at large, extending stations' lives would be wholly unreasonable. Instead, these stations should be decommissioned as soon as possible and replaced with renewable energy. This would not only reduce Eskom's

<sup>30</sup> Eskom Integrated Annual Report 2016.

<sup>31</sup> <http://www4.unfccc.int/submissions/INDC/Published%20Documents/South%20Africa/1/South%20Africa.pdf>

<sup>32</sup> See Table 6 in Section 2.8 'Eskom Plant Life and Air Quality Retrofit' - Integrated Resource Plan Update, Assumptions, Base Case Results and Observations (Revision 1) at <http://www.energy.gov.za/IRP/2016/Draft-IRP-2016-Assumptions-Base-Case-and-Observations-Revision1.pdf>.

average generation costs, but also reduce its total air emissions and health impacts, climate impacts, water consumption and pollution, and land pollution.

## Conclusion

29. We appreciate the mammoth task before you and the newly-appointed Board of Eskom during this tumultuous period.
30. In the current circumstances, however, we are of the view that Eskom has little option but to transform itself completely. At present, it is a state-owned utility company that has trapped itself in old, polluting technology, literally holding toxic assets, and a financial model that relies on generating electricity in the most expensive way. Instead, we would like to see Eskom transformed into an organ of state that promotes clean, healthy, affordable energy for everyone – becoming the owner of significant renewable energy assets in the interest of all, of cheap, clean electricity for South Africans, including support for local and community ownership of renewable energy facilities.
31. We fully support Eskom's transition to a new type of institution. We would appreciate an opportunity to meet with you to discuss the content of this letter.

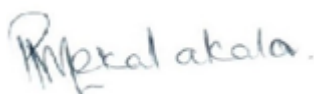
Yours sincerely

The Life After Coal Campaign (made up of groundWork, the Centre for Environmental Rights and Earthlife Africa, Johannesburg)

per:



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