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Advancing Environmental Rights in South Africa

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Our ref: RH/NL
26 April 2018

Dear Sir

COMMENTS ON NATIONAL PLANNING COMMISSION ECONOMY SERIES: ENERGY DISCUSSION PAPER

1. We write to you as the Centre for Environmental Rights (CER).[1] CER forms part of the Life After Coal campaign, a joint campaign with Earthlife Africa and groundWork, which 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]

2. We refer to the National Planning Commission (NPC) discussion paper titled 'NPC Economy Series: Energy' of January 2018 ("the paper").

3. We attended the roundtable public meeting on the paper in Cape Town on 12 April 2018 ("the meeting"), at which we made oral comments in relation to the paper. These written comments seek to supplement and add to the oral submissions made on 12 April at the meeting.

4. We also refer to and support the written comments already submitted by our partner organisations groundWork and Earthlife Africa on 4 April 2018.[3]

[1] https://cer.org.za/.
[2] https://lifeaftercoal.org.za/.
[3] groundWork and Earthlife's comments are available at http://www.groundwork.org.za/Documents/energy/NPC_Energy_Paper_Comment.pdf.

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5. We note that the deadline for formal comments on the paper has expired. However, at the meeting, members of the public were invited to record their comments in writing and to make further written submissions, which we now do.

6. As a general remark, we support and affirm the concerns raised by attendees at the meeting regarding the ultimate plans and intentions for the NPC paper. We would like the NPC to provide further **clarity on what it believes are the impacts that this paper and process might have on government policies, processes, and decision-making**, particularly in light of the fact that crucial policy documents such as the Integrated Resource Plan for Electricity (IRP), are likely to be promulgated before this paper is finalised (meaning that the paper/process will have no impact on the current revision of the IRP). **Please also confirm what the next steps, timeframes, and ultimate plans in relation to this document and the outcomes of the various consultations processes are?**

7. Our written comments are set out below under the headings as discussed during the meeting and in the paper.

Energy planning and governance framework

8. We reiterate the need – and requirement - for adequate public consultation with *all* interested and affected stakeholders in relation to energy planning. This is crucial, and requires more emphasis in the paper.

9. Current indications from the Department of Energy (DoE), are that an updated IRP is likely to be promulgated without any further consultation with civil society or other relevant stakeholders. This is unacceptable and would render the IRP susceptible to legal challenge. **We request that you advise how this paper and/or the NPC process will ensure that proper, reasonable consultation is conducted in relation to the IRP and the Integrated Energy Plan (IEP).**

10. In the meeting, we were requested to advise, in writing, what adequate consultation, in general, would entail. We therefore point out that this requires, at least:

    10.1. an **opportunity to see and comment** on a proposed draft document – and further iterations of that draft. In the case of the IRP, for example, this would entail an opportunity to consider and comment on not only the base case and assumptions (as has been the case), but also the scenarios to be applied and the policy adjusted version prior to promulgation;

    10.2. **sufficient time to consider and comment** on the draft. What is an adequate amount of time will depend on the circumstances, including the length and technical detail and content of the document, but we submit that – in any event – at the very minimum, 30 days should be given for each document;

    10.3. access to **adequate technical expertise and assistance**, to explain the document(s) or – at the very least – an explanatory memorandum, in circumstances where the documents for comment are technical and complex;

    10.4. meaningful stakeholder engagement, particularly with communities and individuals most affected and impacted; this requires, *inter alia*: meetings to be held **in the affected areas**; **sufficient notice** (at least 2 weeks) of meetings (held at reasonable times) to be given, with a description of what the meeting entails, and **a proposed agenda – for comment**; and provision to be made for translators to be available, where necessary;

    10.5. public comments and concerns must be properly **taken into account and responded to**. It is meaningless – and, of course, unlawful - to pay lip-service to the consultation process; if the input is, in any event, not being taken into account and the final product/decision already a foregone conclusion. At the very least, a comments and responses report should be drafted setting out responses to concerns raised and why

particular suggestions/comments are not being implemented. Meetings with stakeholders to discuss and engage on the comments would also be advisable; and

10.6. in terms of the requirements of the internationally accepted right of free, prior, and informed consent, communities have the right to say no to proposed developments on their land and should be at the forefront of the decision-making process that determines the type of development that can take place on their land. The right of free, prior, and informed consent for communities threatened by proposed projects on their land is recognised in the United Nations Declaration on the Rights of Indigenous Peoples.[4]

11. The Life After Coal campaign has repeatedly highlighted the need for broad and comprehensive public participation, with robust engagement with civil society and communities, in energy planning – particularly in relation to the long-awaited IRP as well as the IEP.

Electricity sector end-state

12. The Life After Coal campaign emphasises the urgent need for a rapid, but just transition from coal to a low-carbon future, recognising that:

12.1. current and forecasted demand for electricity has fallen dramatically since the IRP 2010;

12.2. renewables are much cheaper than new coal;

12.3. climate change and health impacts of coal-fired power stations are significant, with serious impacts on the realisation of the environmental constitutional right (section 24 of the Constitution of the Republic of South Africa, 1996);

12.4. the coal industry is in worldwide decline; and

12.5. renewable energy has significant job potential.

13. People in South Africa deserve to be supplied with the cheapest, cleanest electricity available.

14. We, as the Life After Coal campaign, have called on government and unions to start an urgent, broad-based consultation process to design appropriate measures to prepare the country for the transition away from coal – that is accelerating at a global scale – with a particular focus on support for workers in the coal industry.[5]

15. The paper states that:

"[a]lthough an updated detailed impact assessment regarding the options available for the end-state of South Africa's electricity sector will be necessary, at a high level, the NPC presents the following discussion points on electricity sector regulatory reform:

Regulator: Ensure that the regulator is sufficiently funded and capacitated to assess, monitor and appropriately manage any possible electricity regulatory reform process independently.

[4] See http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf. This issue is currently (in the context of proposed mining developments and mining rights) being adjudicated on by the Pretoria High Court http://aidc.org.za/historic-court-case-right-say-no-mining/.

[5] For more information please see this media release https://cer.org.za/news/the-transition-to-a-low-carbon-future-must-be-rapid-and-must-be-for-everyone.

*Generation (competitive): The **generation assets of Eskom are unbundled into a separate state-owned entity (or set of state-owned entities) or sold to a number of private investors competing with IPPs in the medium-term with the up-front provision of ensuring necessary developmental mandates are fulfilled**. In addition, easy to implement new alternative models for production and ownership of electricity generation should be explored in the short- to medium-term. This should include embedded generation (discussed below) as well as the ability for generation providers to sell to willing off-takers to remove constraints on the provision of reliable and sustainable electricity (whether municipalities or aggregated domestic, commercial and/or industrial customers) facilitated by a Transmission System Operator (TSO) outlined below.*

Transmission (regulated): The natural monopoly wires related businesses should be a company in itself in the long-term with a medium-term goal of splitting the procurement, operations and planning component into a separate entity (likely state-owned). This entity should have its own separate governance structures from the previously mentioned competitive generation business(es) to ensure appropriate separation of interests and the removal of any conflict of interest that currently exists as the status-quo" (emphasis added).

16. While we support many of the above recommendations, particularly in relation to the capacity of the regulator, we are concerned about the proposed unbundling or selling of all of Eskom's generation assets.

17. The Life After Coal campaign has written to the Eskom board, stating, *inter alia*, that "*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***" (emphasis added).[6]

18. In any event, we submit that, given the public interest in the future of Eskom and South Africa's electricity sector, this is a matter which must be subjected to extensive public consultation, including with affected communities, as well as consultation with a wide range of experts and other stakeholders.

19. We submit that the vision and end-state for South Africa's electricity sector must take the above submissions into account.

The future of coal and carbon pricing

20. We reiterate that South Africa needs to urgently transition away from coal-based electricity.

21. Any provision for new coal capacity in our electricity mix is unacceptable due to, *inter alia*:

    21.1. the significant health (from air and water pollution), environmental, and climate impacts caused by the burning of coal for electricity; and

    21.2. the fact that cheaper, feasible alternative electricity sources are available, which do not have these impacts.

22. South Africa's own national climate change response policy confirms that South Africa is extremely vulnerable to the effects of climate change.[7] The National Climate Change Response White Paper states, *inter alia*:

[6] A copy of this letter can be accessed at https://cer.org.za/wp-content/uploads/2018/02/LAC-Letter-to-Eskom-1-Feb-2018_final.pdf.

[7] Page 8, National Climate Change Response White Paper.

22.1. "*Climate change is already a measurable reality and along with other developing countries, South Africa is especially vulnerable to its impacts*";[8]

22.2. "***South Africa is extremely vulnerable and exposed to the impacts of climate change*** *due to our socio-economic and environmental context. Climate variability, including the increased frequency and intensity of extreme weather events, will disproportionately affect the poor. South Africa is* ***already a water-stressed country and we face future drying trends and weather variability with cycles of droughts and sudden excessive rains. We have to urgently strengthen the resilience of our society and economy to such climate change impacts*** *and to develop and implement policies, measures, mechanisms and infrastructure that protect the most vulnerable"* (emphasis added); and

22.3. "*South Africa is a water scarce country with a highly variable climate and has one of the lowest run-offs in the world – a* ***situation that is likely to be significantly exacerbated by the effects of climate change****. Uniquely, South Africa shares four of its major river systems with six neighbouring countries. These four shared catchments amount to approximately 60% of South Africa's surface area and approximately 40% of the average total river flow.* ***Based on current projections South Africa will exceed the limits of economically viable land-based water resources by 2050. The adequate supply of water for many areas can be sustained only if immediate actions are taken to stave off imminent shortages****. The water sector must balance the allocation of limited water resources amongst major users (agriculture, domestic urban use and industry), whilst addressing the need to ensure fair access to water for all South Africa's people as well as a sufficient ecological allocation to maintain the integrity of ecosystems and thereby the services they provide*"(emphasis added).[9]

23. Given the significance of the climate impacts, which are being and will increasingly be experienced by South Africa, the paper should be placing more emphasis on the urgency and immediate need to transition from coal to alternative renewable energy sources. The current paper does not afford climate change - in particular climate impacts - the gravity and urgency it requires and demands.

24. In addition, the air quality impacts from power plants and coal mines, severally and collectively, are notoriously bad. For example, in the Highveld Priority Area, the Department of Environmental Affairs (DEA) found that mine haul roads account for 49 percent of the particulate matter (PM^{10}) emissions, while power plants accounted for 12% of PM^{10}, 73% of nitrogen oxide (NO_x), and 82% of sulphur dioxide (SO_2) emissions, as primary pollutants alone[10] Elevated levels of these pollutants seriously threaten human health.

25. A 2017 study commissioned by groundWork[11] links the air pollution just from tiny particles ($PM_{2.5}$) emitted by Eskom's coal-fired power stations to **2 239 equivalent attributable deaths annually**. It also states that these pollution impacts **cost South Africa more than USD 2.3 billion annually**, through premature deaths, hospital admissions, and lost working days.[12]

26. Coal-fired power plants and mines also threaten water quality. Mining pollutes water in many ways.[13] One of the most damaging sources of water pollution is acid mine drainage (AMD) from both active and abandoned mines.[14] AMD is water flowing from mine sites that has become acidified by contact with sulphides in the mining

[8] Page 5, National Climate Change Response White Paper.
[9] Page 17, National Climate Change Response, White Paper.
[10] DEA, Highveld Priority Area Air Quality Management Plan (2011), Table 5.
[11] Available at https://lifeaftercoal.org.za/wp-content/uploads/2017/04/Annexure-A4.pdf.
[12] Holland Report, p15, https://lifeaftercoal.org.za/wp-content/uploads/2017/04/Annexure-A4.pdf.
[13] *See e.g.* Bench Marks Foundation, pp. 39-42; World Wildlife Fund South Africa, *Coal and Water Futures in South Africa* (2011), p. 41, available at http://www.wwf.org.za/?4981/coalwater.
[14] *See* Centre for Environmental Rights, *Zero Hour: Poor Governance of Mining and the Violation of Environmental Rights in Mpumalanga*, (May 2016) ("Zero Hour"), p.1, available at http://cer.org.za/wp-content/uploads/2016/06/Zero-Hour-May-2016.pdf, p. 4.

waste rock that have been exposed to air.[15] The resulting water is very acidic and high in salts and heavy metals. AMD often leaches into aquifers or flows into rivers and streams, causing widespread devastation by sterilising soils, contaminating food crops, and harming the health of humans, animals, and plants.[16]

27. Abandoned and closed mines are the biggest source of AMD in South Africa. As of 2014, South Africa had approximately 6000 abandoned mines from which acid water and heavy metals leak into the environment.[17] Active mining operations also contribute to the problem. For example, in 2012, a storm event caused run-off ponds at coal-handling facilities to overflow with AMD into the Boesmanspruit Dam near Carolina in Mpumalanga, contaminating the water in the reservoir and leaving the people of Carolina and the Silobela Township without a safe water supply for seven months. The community members had to purchase water from alternative sources at their own expense.[18]

28. A 2014 report by the Council for Scientific and Industrial Research (CSIR) on the Lower Olifants River contains alarming findings of the health impacts of the polluted river on communities that depend on it. The CSIR monitored environmental pollution and health risks related to water, fish, fruit and vegetable consumption, and soil contamination within five sites along the river (Botshabelo, Lepelle and Diphuti in South Africa, and two sites in Mozambique) and found, *inter alia*, that:

    28.1. the health risks predicted from the daily consumption of 1 litre of water is anticipated to be in the order of **64 times that considered to be safe for a life-time exposure** in South African study sites;

    28.2. water samples across study sites contained excess amounts of harmful pollutants, including antimony, arsenic, cadmium, mercury, uranium, and zinc. For example, **mercury levels were found to be more than 10 times the level considered to be safe for life-time consumption**, based on the very low daily consumption of just 1 litre of water. In one South Africa study site, **arsenic in water samples was found at levels considered to be responsible for a 1-in-1000 chance of developing cancer based on the consumption of only 1 litre of water per day. This is 100 times higher than the 1-in-100 000 acceptable risk as recommended by the World Health Organisation (WHO)**; and

    28.3. the health risks predicted from the daily consumption of 240g of home-grown vegetables is anticipated to be in the order of **140 times that considered to be safe for a life-time exposure** in South African study sites. This is **predominantly resulting from the unacceptably-high concentrations of iron, aluminium, manganese, barium, vanadium, mercury, and copper**.[19]

29. The Olifants River is heavily polluted as a result of activities such as coal mining and industrial development. More coal projects, which would pose pollution risks to the river are being proposed, namely the proposed KiPower and Khanyisa coal-fired power stations, with coal ash dumps that would pose unacceptable risks to the already dangerously polluted Olifants.[20] This is just an example of one of South Africa's precious water resource being heavily impacted by South Africa's energy choices, and of the resulting impacts for the environment and the health of people.

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[15] WWF South Africa, *Coal and Water Futures in South Africa* (2011), p. 40, http://awsassets.wwf.org.za/downloads/wwf_coal_water_report_2011_web.pdf.
[16] Zero Hour, p. 4.
[17] Bench Marks Foundation, *South African Coal Mining: Corporate Grievance Mechanisms and Mining Impacts* (2014), p. 34, available at http://www.bench-marks.org.za/research/policy_gap_9.pdf.
[18] Zero Hour, p. 5.
[19] The study is available here https://cer.org.za/wp-content/uploads/2017/09/Annexure-J-Final_Report_Lower_Olifants_31March2014_FINAL.pdf.
[20] See for example https://cer.org.za/news/proposed-new-coal-plants-would-make-already-dangerous-levels-of-water-pollution-in-olifants-river-catchment-even-more-toxic.

30. Evidently, the burning and mining of coal poses significant and unacceptable risks to human health and the environment.

31. Previously, such impacts were sought to be justified on the basis that coal was a necessary, cheap source of electricity, with no feasible or affordable alternatives. This is no longer the case.

32. Renewable energy sources from solar photovoltaic (PV) and wind are now much cheaper than they were when the IRP 2010 was promulgated. The IRP 2010 estimates that the cost of solar PV and wind energy would be between approximately 1-2 rand per kWh in 2015 and 1 rand per kWh respectively, while the actual cost – in the latest rounds of the renewable energy independent power producer (IPP) procurement programme - was 0.62 rand per kWh for both.[21] The price for new renewable capacity is also much cheaper than new coal. For example, the price of Thabametsi and Khanyisa (the two preferred bidder IPPs) electricity, should the power plant be built, will be R1.03 per kilowatt hour (KWh).[22]

33. Recent studies have concluded that there is no need for additional coal-fired power to meet South Africa's energy needs, and that Eskom can also retire many of its old plants. For example, a November 2017 report by Meridian Economics ("the Meridian report"),[23] relying on modelling by the CSIR, found that in a 34 year, least-cost optimised, power system operation and expansion plan, no new coal-fired power capacity is built after Eskom's Kusile power station. It stated, "***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*" (emphasis added).[24]

34. The Meridian report also concluded that **Eskom should accelerate the decommissioning of three 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. The report found that these interventions can be achieved without affecting security of supply and could save Eskom up to R17 billion. Notably, CSIR's system analysis for the study found that all of South Africa's projected energy demands in both moderate and high demand scenarios can be met by new solar PV and wind, and **without any new coal or nuclear energy**. The Meridian Report concluded:

> "*[i]n both demand scenarios, coal-fired power stations provide most electrical energy until about 2025, after which coal's contribution starts to decline (as older coal-fired plants are decommissioned). No new coal-fired power is built after Kusile (which is taken as committed in the reference scenarios),* ***as new coal is simply no longer competitive.*** *Demand is met primarily from new solar PV and wind generation. Renewable energy is supplemented by flexible technologies; storage (pumped storage and batteries) and open-cycle gas turbines for peaking. In the high demand scenario, combined cycle gas turbines are deployed after 2040. No new nuclear plants are built in any scenario either.* ***Coal and nuclear are no longer a part of South Africa's least cost electricity mix***" (emphasis added)".[25]

35. The Energy Systems, Economics, and Policy Group based at the Energy Research Centre (ERC), University of Cape Town, conducted a similar study that focused on the proposed Thabametsi and Khanyisa IPP coal-fired power stations, which are the preferred bidders under the Coal Baseload IPP Procurement Programme bid window 1. ERC presented the findings of its study at the 27 March 2018 National Energy Regulator (NERSA) generation licence application hearing for the proposed Thabametsi and Khanyisa coal IPP power stations. The presentation is attached as **Annexure A**. The study finds that Thabametsi and Khanyisa would:

    35.1. increase South Africa's total greenhouse gas (GHG) emissions by approximately **155-177 million tonnes** of CO_2 equivalent up to **2050**;

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[21] *Ibid*., at p. 6.

[22] See http://www.ee.co.za/wp-content/uploads/2016/10/New_Power_Generators_RSA-CSIR-14Oct2016.pdf at page 7.

[23] 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.

[24] P3, Executive Summary, Meridian Report.

[25] Meridian Study, p. 28.

35.2. result in additional costs in the electricity sector every year of up to **R4 billon to 2025-2027** - to be borne by consumers; and

35.3. increase the overall system costs by between **R19.3 billion (reference case) and R24.5 billion (low demand scenario)** in present value terms.[26]

36. The ERC presentation concludes that, because South Africa has a major surplus of baseload generation, further new capacity (from Medupi, Kusile, and renewables) is coming online, and electricity costs have risen and are putting the economy and citizens under increasing pressure, **Thabametsi and Khanyisa should not be built, as they would not provide least-cost, or even necessary, electricity to South Africa, and would prevent cheaper investments later**. Importantly, the power stations would **exacerbate the situation of over-supply of power** in the short- and medium-term. This would lower the load factors at Eskom plants and put those plants and jobs at risk, exacerbating the "utility death spiral". The study further noted that future energy demand could be met mostly by renewable energy options.

37. Despite the extensive research confirming that no new coal-fired power stations are needed or even desirable, given the high additional costs and the irreversible impacts, government appears to remain committed to bringing online new coal-fired electricity.

38. This also runs contrary to South Africa's international commitments, under the Paris Agreement, to: pursue efforts to keep temperature increases to "*well below 2 °C*"; and to submit new and stricter nationally determined contributions (NDC) every 5 years, as well as the acknowledgment in South Africa's current NDC that "[*n]ear zero emissions of CO2 and other long-lived GHGs are needed in the second half of the century to avoid even greater impacts that are beyond adaptation capability*."[27]

39. The paper currently states, *inter alia*, that:

39.1. "*there is a need for a phased approach in order to appropriately manage this transition and minimise the impact on government, SOEs, businesses, jobs and organised labour*";[28]

39.2. "*existing infrastructure and proposed new infrastructure investment in coal mines and transport links to ensure security of coal supply for the remaining life of existing coal power stations and/or existing local industrial use should be pursued on a case by case basis*";[29] and

39.3. "*there is an unresolved challenge of whether existing Eskom coal generation should be life-extended, under construction coal power stations should be completed or any new build coal power stations should be pursued. This forms part of the broader discussion on a just energy transition for South Africa*."[30]

40. This does not adequately convey the **urgent** need to: transition from coal by decommissioning existing old and non-compliant power stations, and **refrain from developing any further coal infrastructure**, nor does it make clear that an urgent transition would be in South Africa's best interests (from a health, environment, and economics perspective).

41. Based on the above, the NPC and the paper should **strongly recommend that no further coal infrastructure (coal mines or coal-fired power stations) is planned**, and more specifically:

[26] P32, ERC Presentation (Annexure A to these comments).
[27] P1, NDC, available at http://www4.unfccc.int/ndcregistry/PublishedDocuments/South%20Africa%20First/South%20Africa.pdf.
[28] Para 3.3.1, page 26.
[29] Para 3.3.2, page 26.
[30] "Challenges for focussed consideration", para 5, page xv.

41.1. the completion of the remaining units of Medupi and Kusile should be reconsidered, based on the Meridian report and information concerning excess capacity and the additional high costs of pursuing the remaining units of Kusile;

41.2. the 2 preferred bidder coal IPPs (Thabametsi and Khanyisa) not go ahead;

41.3. there should be no further coal baseload IPP procurement bid windows; and

41.4. government should reconsider its plans for costly infrastructure projects - such as the Mokolo Crocodile (West) Water Augmentation Project Phase 2 (MCWAP-2) - which are premised on the incorrect and harmful assumption of massive growth and expansion in South Africa's coal mining and coal-based electricity sectors. MCWAP-2, for example, which would entail the transfer of water from the Crocodile River to the water-scarce Waterberg to fuel the development of the coal industry to "*unlock the northern mineral belt"*, assumes that coal-fired power and coal mining in the Waterberg will increase significantly up to 2030.[31] This would have significant negative impacts on human health and wellbeing, and on the environment.

42. The paper should also more strongly emphasise the need for urgent steps to be taken to address reskilling of workers in the coal sector.

43. In relation to carbon pricing, we submit that there would be little purpose in implementing the carbon tax without adequate provision being made for consumers to choose alternative energy sources – in other words, the tax cannot properly incentivise a change in behaviour because consumers are unable to choose between coal-based or renewable electricity – given that the electricity generation and supply system is monopolised by Eskom. No alternative electricity options are available (save for grid defection, which is only an option for those that can afford embedded generation), and the consumer will ultimately have to bear the increased energy costs resulting from the tax. We therefore recommend that the paper addresses the need to ensure that electricity users have a chance to properly respond to carbon pricing. We also strongly recommend that the revenue from the tax should be apportioned to budgets, programmes and initiatives for GHG emission mitigation.

Modular, robust and sustainable energy investment

44. We submit that modular, robust, and sustainable energy investment must take into account South Africa's vulnerability and essential need for resilience to climate change impacts in determining appropriate and suitable energy sources.

45. A May 2017 report by the Academy of Science of South Africa entitled 'First Biennial Report to Cabinet on the State of Climate Change Science and Technology in South Africa' highlights the key climate change challenges and impacts in South Africa over the next 30 years.[32] The report states that *"[t]he strongest impacts of climate change in South Africa in the first half of the 21st century will be on the* ***security of freshwater supplies*** *to industry, towns and agriculture; on crop and livestock agriculture, due to* ***less favourable growing conditions****; on* ***human health, due to heat stress and disease spread****, particularly in urban areas; and on biodiversity, due to* ***shifting habitat suitability***" (emphasis added).[33]

[31] See Scoping Report, Table 3. The MCWAP-2 scoping report and our client's comments on the scoping report are available here https://cer.org.za/wp-content/uploads/2018/04/MCWAP-2-SCOPING-REPORT-COMMENTS-11-4-18.pdf.

[32] The Academy of Science of South Africa (ASSAf) The State of Climate Change Science and Technology in South Africa (May 2017), available at, http://www.dst.gov.za/index.php/media-room/latest-news/2236-report-investigates-climate-change-science-and-technology.

[33] *Ibid*. at p. 15.

46. The Thabametsi IPP's own Climate Resilience Assessment Report found that climate change is a high risk to the availability of water resources in the Mokolo Catchment.[34] It noted that climate change projections for the region indicate a likely increase in drought conditions and higher temperatures, which would reduce water availability. The report explained "*that climate-related variables will have an impact on water resources; notably, higher temperatures are likely to bring about increased evaporation losses from dams and rivers, and increased irrigation water requirements*",[35] and that climate change "*risks and impacts do not appear to be considered in the context of basin-level programs, including the Crocodile West River Reconciliation Strategy 2012 and the draft Limpopo WMA North Reconciliations Strategy 2016, both relevant to this project,* ***adding uncertainty in the extent to which proposed allocations will be met in the context of a changing climate***" (emphasis added).[36]

47. Bradley Udall, Senior Water and Climate Research Scientist/Scholar at the Colorado Water Institute in Colorado State University, has conducted climate change impact assessments for the Mokolo and Crocodile River, as well as for the Olifants River, attached as annexures **B** and **C** respectively. His findings in both reports are that the strong preponderance of scientific evidence indicates that flows in the Rivers will likely significantly decline as the 21st century warms.[37] In respect of the Olifants River, he finds that "*[t]he drying is between -5 and -25%, representing a precipitation loss of more than 100 mm/year in parts of the basin. These results are equal to the worst drying in all of South Africa shown in the SA Atlas. Thus, given the model leanings, it seems very likely that the catchment will see significant drying on an annual basis*."[38]

48. Udall, in his reports, also cautioned that South African water and infrastructure planners and government should prepare for significant river flow reductions and refrain from actions that will increase the risks of undesired outcomes. Maladaptive actions would include increasing the demands on these already over-allocated water systems, and contributing to additional warming by increasing emissions of greenhouse gasses through the construction of long-lasting, new coal-fired power plants.[39]

Nuclear new build programme

49. We submit that nuclear is a risky (posing health and environmental threats) and extremely costly electricity source, which is not needed. It also directly contradicts the paper's recommendation for more modular and flexible electricity sources – as nuclear (as an electricity source) is inherently inflexible.

50. As mentioned above, the Meridian report states that *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*".[40]

51. Nuclear is becoming obsolete around the world – as the cost of renewables falls – many countries are turning away from nuclear as an energy source, and abandoning nuclear projects, as nuclear simply does not make sense.[41]

52. We do not support the development of any new nuclear power infrastructure. This section should be removed from the paper, or it should simply recommend that no nuclear is needed, nor is it desirable.

[34] CRA pp. 31, 56 and p. xi.
[35] CRA, p31.
[36] CRA, p31.
[37] Udall Mokolo and Crocodile Report, p27 and p30 of the Udall Olifants Report.
[38] Udall Olifants Report, p30.
[39] Udall Mokolo and Crocodile Report, p28 and p31 of the Udall Olifants Report.
[40] P3, Executive Summary, Meridian Report.
[41] See https://www.theguardian.com/news/2017/dec/21/hinkley-point-c-dreadful-deal-behind-worlds-most-expensive-power-plant.

Existing and new-build energy infrastructure (mega-projects)

53. We agree with the report that "*in future South Africa should opt for smaller, modular, flexible, easily manageable and scalable projects depending on strategic needs*".[42]

54. Mega-projects such as Medupi and Kusile have proven to be massively over time and over budget and this is consistently the case for mega-projects.[43]

55. For this and other reasons, as mentioned above, the paper should be firmer in recommending that no new coal or nuclear infrastructure be adopted.

56. However, in relation to the recommendation in the paper that the completion of the Eskom new-build programme (Medupi, Kusile and Ingula) should be prioritised where economically viable, we refer to the recommendations of the Meridian report that the completion of the remaining 2 units of Kusile be abandoned, and suggest that the Meridian report recommendations be supported in the paper. We submit that, on the basis of the Meridian report recommendations and considering our submissions above, the prioritisation and completion of Medupi and Kusile is in fact not an economically viable option.

57. In line with the Meridian report, we also recommend that the decommissioning of Eskom's Grootvlei, Komati, and Hendrina plants be prioritised.

58. A 2017 report by Professor Eugene Cairncross reveals that numerous of Eskom's coal-fired power stations are in regular non-compliance with their atmospheric emission licence (AEL) emission limits.[44] An investigation of later records from Eskom reveals that such non-compliance persists. This is despite the fact that these AELs contain more lenient limits than the legislated minimum emission standards (MES). Eskom has sought and been granted postponements for compliance with the MES. It is currently applying for further postponements, despite the fact that all of its stations are located in polluted priority areas declared in terms of the National Environmental: Air Quality Act, 2004. In respect of pollutants such as SO_2, for most of its stations Eskom has indicated that it never intends to comply with the new plant MES (it will only comply at Kusile, and eventually at Medupi). Compliance with the law is not an option, it is mandatory, and we submit that rolling postponements are not legally permissible.

59. If Eskom cannot comply with the law, it must decommission its stations that are not compliant. **There can be no discussion of life extension for plants that will not comply with the MES.** CER's 2017 report, 'Broken Promises: The Failure of the Highveld Priority Area',[45] recommends (as one of the many recommendations) that when facilities reach their scheduled end-of-life (particularly certain Eskom coal-fired power stations), AELs must be withdrawn, and decommissioning and rehabilitation enforced.

Role of natural gas

60. We support the submission by groundWork and Earthlife, opposing all fossil gas, and we do not simply accept that gas should serve as a transitional replacement energy source, particularly not without an adequate assessment and evaluation of its need and desirability, and adequate public consultation and discussion on the issues related to relying on gas as an energy source. We recommend that further investigation be conducted into the role and impacts of gas as a potential energy source in South Africa.

[42] Paragraph 26, pxii, the paper.
[43] See https://www.dailymaverick.co.za/article/2016-07-07-medupi-kusile-and-the-massive-costtime-overrun/#.Wtn7CYhubIU.
[44] https://cer.org.za/wp-content/uploads/2016/07/AEL-Compliance-Assessment-of-Eskom-CFPSs-final-19-May-2017_final.pdf.
[45] https://cer.org.za/wp-content/uploads/2017/09/Broken-Promises-full-report_final.pdf.

Liquid fuel investments and strategic fuel stocks

61. In 2017, Sasol's total GHG emissions were 67 632 kilotons, or 67,632 Mt. To illustrate the magnitude of this figure, the total GHG emissions for 2014 (the latest estimates available) for the entire country of Portugal were 63,3Mt, for New Zealand 60,3Mt, for Ireland 58,3Mt, and for Switzerland 46,2Mt. This means that one company is emitting more GHGs annually than most small countries on earth. Sasol's emissions account for more than 10% of South Africa's total emissions. Furthermore, Sasol's Secunda complex is one of the largest – if not the largest - single sources of CO_2 in the world.

62. Sasol has been identified in the "Carbon Majors Report" as one of the 100 fossil fuel companies linked to 71% of global industrial GHG emissions since 1988.[46]

63. Over the period 2013 to 2017, Sasol's total GHG emissions have reduced by 7.42%. However, this reduction in annual GHG emissions is attributable to the reduction in Sasol's total production (production performance), which has dropped by 22% over the same period. In fact, Sasol's energy and GHG intensity has, over this same period, **increased** from 2.98 kilotons CO_2 equivalent to 3.66 kilotons CO_2 equivalent - an increase of almost 23%. This is highly concerning.

64. Sasol appears to have no plans to substantially reduce its GHG emissions. Indeed, it would be impossible for Sasol to do this without changing its core business model. We do not accept this as a justification for Sasol to continue operating and emitting unabated GHG emissions into the future, without any consequences.

65. Furthermore it is concerning that Sasol's Secunda facility is prioritised, and production capacity assumed to be unaltered up to 2050, in DEA's proposed Climate Change Mitigation Policies and Measures (PAMs) Final Draft Report of March 2018. This is without any rational basis and is also unacceptable.[47]

66. Again, we strongly suggest that more emphasis be placed on the urgent need to transition from harmful and climate-changing fossil fuels (particularly in the energy sector), given South Africa's extreme vulnerability to climate change, and the significant contribution of South Africa's energy sector (in particular liquid fuels) to local and global GHG emissions.

Electricity Access

67. We point out – as was noted in the meeting – that although many South Africans may have physical access to electricity in their homes, they are still impacted by energy poverty in that they cannot afford access to electricity.

68. Free basic electricity is still not sufficient and, despite the surplus electricity which Eskom has and the location of its generation fleet within the Highveld, Vaal and Waterberg, many people living in the Highveld, the Vaal, and the Waterberg do not have access to electricity, but have to bear the brunt of the air and water pollution caused by Eskom's coal-fired power stations and have their health and well-being impacted on a daily basis. This is a violation of section 24 of the Constitution and cannot continue.

Conclusion

69. We trust that our recommendations will be taken into account in finalising the NPC paper and we hope that you will keep us updated on progress in this regard. Let us know should you have any questions in relation to these submissions, or if you require copies of any additional resources.

70. Please also keep us informed and updated on any further scheduled consultations hosted by the NPC.

[46] See http://carbonmajors.org/ and https://link.springer.com/content/pdf/10.1007%2Fs10584-013-0986-y.pdf.
[47] See CER PAMs comments at paras 23 to 27.

Yours faithfully
CENTRE FOR ENVIRONMENTAL RIGHTS

per: 

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