

SUPPLEMENTARY OBJECTIONS BY EARTHLIFE AFRICA NPC IN RESPECT  
OF THE NERSA LICENCE APPLICATION OF THABAMETSI POWER COMPANY  
(PTY) LIMITED

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AFFIDAVIT

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I, the undersigned

PHILLIPINE LEKALAKALA

state under oath as follows:

1. I am the Director of Earthlife Africa ("**Earthlife**"), a registered non-profit company with registration number 2017/449921/08.
2. The facts contained in this affidavit are true and correct and, save where the context indicates otherwise, are within my personal knowledge.
3. Where I make legal submissions, I do so on the advice of my legal representatives. To avoid burdening these submissions unnecessarily, I have not attached all of the correspondence and other documents to which I refer, but copies of them are available, and can also be provided on request.

INTRODUCTION

4. In December 2016, Earthlife submitted objections ("**the initial NERSA objections**") – by way of an affidavit deposed to by me - to the application made by Thabametsi Power Company (Pty) Limited, to the National Energy Regulator of South Africa ("**NERSA**") for a licence to operate the first phase (630MW) of the proposed 1200MW independent power producer ("**IPP**") Thabametsi coal-fired power plant ("**Thabametsi**"), and the notification to stakeholders in terms of

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section 11 of the Electricity Regulation Act, 2006 ("ERA") of November 2016. The initial NERSA objections are attached (without annexures) marked "B1".

5. The applicant is Thabametsi Power Company (Pty) Limited and the proposed power station (1200MW at full capacity to be built in 2 phases) will be based in Lephalale, Limpopo.
6. These objections are made on behalf of Earthlife. Earthlife was founded as a non-profit organisation in 1988. It works to encourage and support individuals, businesses and industries to reduce pollution, minimise waste and protect our natural resources.
7. Earthlife forms part of the Life After Coal campaign - a campaign made up of the Centre for Environmental Rights ("CER"), Earthlife 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.
8. It was submitted – in the initial NERSA objections - that issuing a licence to Thabametsi would contravene the following provisions of the National Energy Regulator Act, 2004 ("NERA") and the ERA:
  - 8.1. section 10(2)(e) of ERA – as it is unlikely that Thabametsi will be able to comply with environmental and other legislation as required, and it has neglected to tender relevant information in this regard in its application;
  - 8.2. section 10(1) of NERA - as licensing Thabametsi would not be consistent with the Constitution of the Republic of South Africa, 1996 ("**the Constitution**") and other applicable laws, as required;
  - 8.3. section 10(1)(b) of NERA – as licensing the power station would not be in the public interest; and

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- 8.4. section 2 of ERA – as licensing the power station would not be in line with the objects of ERA, which include the following: *“to (a) to achieve the efficient, effective, sustainable and orderly development and operation of electricity supply infrastructure in South Africa; (b) ensure that the interests and needs of present and future electricity customers and end users are safeguarded and met, having regard to the governance, **efficiency, effectiveness and long-term sustainability of the electricity supply industry within the broader context of economic energy regulation in the Republic**;... and (g) facilitate a fair balance between the interests of customers and end users, licensees, investors in the electricity supply industry and the public.”* (emphasis added)
9. Thabametsi Power Company (Pty) Ltd responded to the initial NERSA objections, and the response was made available by NERSA on 9 February 2017 (**“Thabametsi’s response”**). While I do not address Thabametsi’s response in this affidavit, I place on record that Earthlife disputes the submissions made in Thabametsi’s response. CER will be able to address and respond to any issues that may arise in relation to the submissions in Thabametsi’s response, at the public hearing for Thabametsi’s application scheduled for 27 March 2018.
10. Since the initial NERSA objections, the following developments have occurred:
- 10.1. Research and studies have been conducted and reports published on the least-cost electricity options for South Africa by organisations such as the Council for Scientific and Industrial Research (**“CSIR”**) and Meridian Economics;
- 10.2. the Minister of Environmental Affairs’ decision on the appeal of the Thabametsi environmental authorisation has been taken on judicial review and judgment in this matter was handed down on 8 March 2017 (**“the Thabametsi case”**);

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- 10.3. Thabametsi submitted its final climate change impact assessment in June 2017, on which Earthlife commented in July 2017;
- 10.4. the Minister's re-decided Earthlife's appeal (of 30 January 2018) - in relation to the climate change ground of appeal – and Earthlife will imminently take that second decision on review to the High Court (“the **second Thabametsi case**”);
- 10.5. new information on Thabametsi's anticipated water and air impacts (demonstrated and explained in more detail in relation to Thabametsi's other licence applications – at paragraphs 57 to 63 below) has been made available;
- 10.6. objections have been submitted by groundWork and Earthlife – in March 2018 – in respect of Thabametsi's water use licence application; and
- 10.7. there have been additional engagements with NERSA.
11. Most of these developments were brought to NERSA's attention in correspondence referred to below. In any event, I hereby supplement Earthlife's initial NERSA objections with this submission.
12. This affidavit sets out below:
- 12.1. a brief summary of the risks and potential harms associated with the proposed Thabametsi power station;
- 12.2. relevant new developments that have taken place since the initial NERSA objections; and
- 12.3. Earthlife's objections to Thabametsi's NERSA application.

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13. On 28 February 2018, Earthlife's attorneys, CER, were advised by NERSA that the public hearings in respect of the NERSA generation licence applications for Thabametsi and the other preferred bidder under the Coal Baseload IPP Procurement Programme, Khanyisa (600MW to be based in Mpumalanga) would be taking place, at NERSA's offices in Pretoria, on 27 March 2018.
14. I place on record that Earthlife does not regard the Thabametsi application as being ripe for hearing, nor does it regard the process followed in relation to the hearings as procedurally fair. I say this based on, *inter alia*, the reasons set out in our letter to NERSA of 16 February 2018, wherein we (Earthlife and groundWork) requested that the hearings be postponed pending:
  - 14.1. the promulgation of a revised Integrated Resource Plan for Electricity ("IRP");
  - 14.2. the final determination of the upcoming court challenge against Thabametsi; and
  - 14.3. the issuing of the outstanding licences to Thabametsi.
15. In subsequent correspondence to NERSA (referred to below) – CER requested further information in relation to the process to be followed at the hearings and also pointed out its concern that the hearings were not being held in the areas where the proposed power stations will be based – effectively excluding community members who cannot travel to Pretoria to be at the hearings. CER strongly suggested that NERSA make the necessary arrangements to ensure that the hearings are fair, but no response has been received from NERSA.

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16. Our participation in the NERSA public hearings notwithstanding, Earthlife stands by its objection to this application proceeding and its concerns in relation to the hearings' procedural fairness, and continues to reserve its rights in this regard.

#### **BACKGROUND: THE PROPOSED THABAMETSI POWER STATION AND THE IMPLICATIONS OF LICENSING IT**

17. The Thabametsi power station would be located in the Mokolo Catchment, one of the most water-stressed catchments in South Africa, and in the Waterberg-Bojanala Priority Area, an air pollution priority area, designated by the Minister of Environmental Affairs in 2012 because of concerns regarding non-compliance with National Ambient Air Quality Standards ("NAAQS").
18. For an expensive and unnecessary contribution to the grid, Thabametsi would further threaten water resources and air, and exacerbate climate change in this already-impacted area, thereby threatening the health and well-being of nearby communities and ecosystems. This would not be in the public interest.
19. As demonstrated by the research of CSIR and Meridian Economics (see paragraphs 30 to 32), I am advised that power from Thabametsi is not necessary to meet South Africa's current or projected energy demand. Thabametsi would produce expensive coal-based electricity for Eskom SOC Limited ("Eskom"); and ultimately consumers – at least 40% more expensive than the latest renewable energy projects.<sup>1</sup> The research shows that South Africa does not need a coal (or nuclear or gas) power procurement or construction programme. Renewable energy, supplemented by flexible technologies and storage (and potentially open-cycle gas turbines for peaking), should instead be used meet South Africa's

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<sup>1</sup> See p7 of CSIR's Cost of new power generators in South Africa, available at [http://www.ee.co.za/wp-content/uploads/2016/10/New\\_Power\\_Generators\\_RSA-CSIR-14Oct2016.pdf](http://www.ee.co.za/wp-content/uploads/2016/10/New_Power_Generators_RSA-CSIR-14Oct2016.pdf).

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electricity demand.<sup>2</sup> This would be significantly less harmful to human health and the environment.

20. Thabametsi would – according to its own climate change impact assessment and a peer review that the Minister of Environmental Affairs commissioned (see paragraph 51) - also have very high greenhouse gas (“GHG”) emissions which cannot be substantially mitigated. South Africa has committed to reduce its GHG emissions through its ratification of the Paris Agreement. Thabametsi would move South Africa in the wrong direction in the urgent fight against climate change, contrary to the country's international obligations.
21. From a climate impacts perspective, not only would Thabametsi emit large quantities of GHGs, but its own water supply is also extremely susceptible to threats from climate change (see paragraphs 44 and 108 to 118). As discussed in Thabametsi's Climate Resilience Assessment Report (forming part of the climate change impact assessment, and addressed in more detail below) and the report of Brad Udall, Senior Water and Climate Research Scientist/Scholar at the Colorado Water Institute in Colorado State University, attached marked “B2”, climate change is very likely to reduce flows in the water catchments that would supply Thabametsi, putting it at risk of becoming a stranded asset.
22. Even without the effects of climate change, there is a strong likelihood that there will not be sufficient water to meet Thabametsi's water needs for the expected duration of the power station's lifespan (see paragraphs 108 to 118). Thabametsi is expecting to receive water from the Mokolo Dam, where demand will exceed supply by 2019,<sup>3</sup> 2 years prior to when Thabametsi is expected to be operational. Thabametsi's water security depends entirely on the successful and timely implementation of the Mokolo-Crocodile Water Augmentation Project Phase 2

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<sup>2</sup> See pili, Meridian Report, available at [http://meridianeconomics.co.za/wp-content/uploads/2017/11/Eskom-s-financial-crisis-and-the-viability-of-coalfired-power-in-SA\\_ME\\_20171115.pdf](http://meridianeconomics.co.za/wp-content/uploads/2017/11/Eskom-s-financial-crisis-and-the-viability-of-coalfired-power-in-SA_ME_20171115.pdf).

<sup>3</sup> DWS, Limpopo Water Management Area North Reconciliation Strategy (Draft), section 6.3.2, Figures 7.2 and 7.3.

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("MCWAP2") — which would transfer water from the Crocodile West to the Mokolo River catchment. However, MCWAP2 is long delayed and faces considerable technical, financial, and environmental risks. It is not certain that the project will be approved, much less by 2019, thus potentially threatening current and future water allocations in the catchment, including Thabametsi's potential supply.

23. Moreover, in a catchment where demand exceeds supply, and the future supply of water is uncertain, an allocation to an unnecessary coal-fired power station seriously threatens the water supply for existing water users, including the Lephalale Municipality, agriculture, and the (yet-to-be-determined) Ecological Reserve.
24. In addition, water and air pollution from Thabametsi's power plant and coal ash dump threatens the water resources and air quality in the Waterberg-Bojanala Priority Area. As discussed in the report of Evan Hansen, M.S., attached marked "B3", Thabametsi's proposed toxic coal ash dump would be built over several fault lines, seriously threatening the underlying aquifer, surrounding communities and ecosystem, should toxic coal ash leach out. This and other threats are further discussed in paragraph 59 below. Moreover, Dr. Ranajit Sahu and Dr. Andy Gray in the United States, have conducted air dispersion modelling and screening for the air pollutants sulphur dioxide ("SO<sub>2</sub>"), oxides of nitrogen ("NO<sub>x</sub>"), and particulate matter ("PM") from the proposed Thabametsi power plant, along with the emissions of the existing Eskom Matimba and Medupi power plants (within a 15km radius of Thabametsi's proposed site<sup>4</sup>), and the proposed Thabametsi mine that would supply coal to Thabametsi (see report attached (without annexures<sup>5</sup>) marked "B4"). As discussed in paragraph 63, the results indicate that the three power plants and the Thabametsi mine would significantly worsen air quality in the Waterberg-Bojanala Priority Area. In other words, the

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<sup>4</sup> Table 7.6, p140, Final Environmental Impact Report for Thabametsi Power Station.

<sup>5</sup> The raw data, referred to in, and attached to, the report, along with Dr Sahu and Gray's CVs can be made available on request.

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addition of Thabametsi (along with its mine) will degrade air quality in the Waterberg-Bojanala Air Quality Priority Area.

25. For these reasons, the licensing of Thabametsi would not be in line with the Constitution of the Republic of South Africa, 1996 ("**the Constitution**") and other applicable laws, would not be in the public interest, and would not help achieve the efficient, effective, sustainable and orderly development and operation of electricity supply in South Africa, as required by ERA.

## DEVELOPMENTS SINCE DECEMBER 2016 TO SUPPLEMENT THE INITIAL NERSA OBJECTIONS

### Research, studies, and reports on the least-cost electricity options for South Africa

26. The IRP 2010 – 2030 (promulgated in 2011) ("**IRP 2010**") states that the IRP is a "living plan" that is "*expected to be continuously revised and updated as necessitated by changing circumstances. At the very least, it is expected that the IRP should be revised by the Department of Energy (DoE) every two years*".<sup>6</sup> Although draft revised IRPs have been published in 2013 and then again in 2016, the IRP 2010 has yet to be formally revised and updated in the 7 years since its promulgation.
27. When the initial NERSA objections were made, a draft base case and assumptions for a revised IRP and a draft integrated energy plan ("**IEP**") had been published for comment in November 2016.<sup>7</sup> Although it was indicated in December 2017 (and then again in February 2018) by previous Energy Minister

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<sup>6</sup> P7, IRP 2010 – 2030.

<sup>7</sup> The relevant documents and presentations by stakeholders are available here on the DoE website <http://www.energy.gov.za/IRP/irp-2016.html>.

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(David Mahlobo) that the IRP had been approved by Cabinet,<sup>8</sup> the latest news on the IRP is that it has been sent back to Cabinet for "reprocessing".<sup>9</sup>

28. CER and numerous other organisations and companies submitted comments on the draft IRP base case and assumptions in or before March 2017. The CER comments highlighted the unlawfulness and unconstitutionality of an IRP that proposes new coal (including Thabametsi) in light of the health, air, water, and climate impacts and in light of the fact that no new coal is needed.<sup>10</sup>
29. Circumstances around electricity demand and planning have changed drastically since the IRP 2010 was promulgated.

29.1. Firstly, South Africa currently has - and for some time has had - excess capacity. In January 2017, Eskom confirmed that it had a surplus of 5 600MW at peak and could meet any increase in demand until 2021.<sup>11</sup> In a statement of August 2017 by the then Eskom Chief Executive Officer, Johnny Dladla, it was said that "*[w]hereas security of power supply was the key concern two years ago, the focus has now shifted to managing surplus capacity*".<sup>12</sup> Eskom's Medium Term System Adequacy Outlook for October 2017, concludes that "*the system is adequate in the short- to medium-term to meet demand from 2017 to 2022 in all the scenarios studied*".<sup>13</sup>

<sup>8</sup> Media articles on the energy indaba: <https://www.dailymaverick.co.za/article/2017-12-12-op-ed-irrational-irp-madness-grips-the-energy-sector-in-south-africa/#.Wf9trVWWbIV>; <https://www.dailymaverick.co.za/opinionista/2017-12-11-mahlobos-nuclear-farce-will-implode-our-future/#.WiAwfWWbIU>; <https://m.fin24.com/Economy/nuclear-will-happen-20171210-2>; <https://www.iol.co.za/business-report/economy/all-eyes-on-gazette-to-see-who-gets-what-from-integrated-energy-plan-12336483>; <https://www.iol.co.za/business-report/reviewed-integrated-resource-plan-gets-approved-12307588>; see also <https://www.ofm.co.za/article/local-news/257952/mahlobo-nuclear-not-done-deal>.

<sup>9</sup> See <https://www.businesslive.co.za/bd/national/2018-03-15-integrated-resource-plan-sent-back-to-cabinet-for-reprocessing/>.

<sup>10</sup> CER's comments are available here <https://cer.org.za/wp-content/uploads/2016/08/CER-IRP-Base-Case-IEP-Comments-31-3-2017.pdf>.

<sup>11</sup> See <http://www.eskom.co.za/news/Pages/lann24.aspx>.

<sup>12</sup> See <http://www.eskom.co.za/news/Pages/Augg10.aspx>.

<sup>13</sup> See section 6, page 12 at

[http://www.eskom.co.za/Whatweredoing/SupplyStatus/Documents/MTSAO\\_Oct2017Report.pdf](http://www.eskom.co.za/Whatweredoing/SupplyStatus/Documents/MTSAO_Oct2017Report.pdf)

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- 29.2. Secondly, renewable energy sources from solar photovoltaic ("PV") and wind are now much cheaper than they were when the IRP 2010 was promulgated. The price of Thabametsi's electricity will be R1.03 per kilowatt hour ("KWh"), whereas the price of electricity from solar PV and wind in the latest rounds of the renewable energy IPP procurement programme is 62c per KWh.<sup>14</sup> Excerpts of the comparative cost study of the CSIR, which confirm this, are attached marked "B5".
30. A November 2017 report by Meridian Economics ("the **Meridian report**"),<sup>15</sup> relying on modelling by the CSIR, finds 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 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***" (emphasis added).<sup>16</sup>
31. The Meridian report also concludes that 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. The report finds that these interventions can be achieved without affecting security of supply and could save Eskom up to R17 billion.
32. The Meridian report is attached marked "B6". In this instance, the CSIR modelling demonstrates that demand can be met at least cost without any new coal, including Thabametsi.
33. It is therefore clear that there is no need to licence new coal capacity and that NERSA should, instead, commit itself to rapidly increasing renewable energy

<sup>14</sup> See [http://www.ee.co.za/wp-content/uploads/2016/10/New\\_Power\\_Generator's\\_RSA-CSIR-14Oct2016.pdf](http://www.ee.co.za/wp-content/uploads/2016/10/New_Power_Generator's_RSA-CSIR-14Oct2016.pdf) at page 7.

<sup>15</sup> Available at [http://meridianeconomics.co.za/wp-content/uploads/2017/11/Eskom's-financial-crisis-and-the-viability-of-coalfired-power-in-SA\\_ME\\_20171115.pdf](http://meridianeconomics.co.za/wp-content/uploads/2017/11/Eskom's-financial-crisis-and-the-viability-of-coalfired-power-in-SA_ME_20171115.pdf).

<sup>16</sup> P3, Executive Summary, Meridian Report.

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sources, which are cheaper than coal power and do not have the same high environmental and health costs. It is also clear that a decision to license a new and expensive coal-fired power station with a lifespan of 30 – 40 years, while a revised IRP is pending, would be premature.

34. On 1 September 2017, the then Minister of Energy (Mmamoloko Kubayi) announced that all future IPP programmes would be on hold until the promulgation of the IRP.<sup>17</sup> CER wrote to the DoE IPP office to ascertain whether this included the preferred bidders under the first bid window of the coal baseload IPP programme<sup>18</sup> – it responded saying that it was likely (in light of the Minister’s statement) that the preferred bidders – Thabametsi and Khanyisa – would be afforded extensions in respect of the commercial and financial close deadline.<sup>19</sup>
35. CER has previously (in the letter to NERSA of 16 February 2018, referred to below) advised NERSA that it would be premature to make any decisions in respect of the two coal IPP preferred bidders (this includes the proposed Khanyisa coal-fired power station, which will be based in Mpumalanga) in the absence of a revised, updated and rational IRP. The Life After Coal campaign has also written to the Ministers of Energy - Mahlobo (previous) and now Jeff Radebe (current) - setting out the key principles which the IRP must, at a minimum, adhere to.<sup>20</sup> The Life After Coal campaign has always maintained that there must be full and reasonable consultation in relation to South Africa’s electricity plans. Furthermore, and in the letter to Minister Radebe (of 28 February 2018), it was pointed out that decisions on South Africa’s energy mix must be taken with proper regard to what is in the best interest of all South Africans, in accordance with the Constitution, and that there is simply no need for new coal or nuclear power in South Africa’s energy mix. The addition of such

<sup>17</sup> See <http://www.energy.gov.za/files/media/pr/2017/IPP-Media%20Statement-01September2017.pdf>.

<sup>18</sup> The letter to the IPP office can be accessed here <https://cer.org.za/wp-content/uploads/2016/07/CER-letter-to-IPP-office-15-Sept-2017.pdf>.

<sup>19</sup> See the IPP Office response here <https://cer.org.za/wp-content/uploads/2016/07/Response-to-CER-letter-15-Sep-17-111017.pdf>.

<sup>20</sup> See the latest letter of 28 February 2018 at <https://cer.org.za/news/south-africas-energy-future-at-stake-life-after-coal-campaign-writes-to-new-energy-minister-jeff-radebe>.

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sources would make the new IRP unreasonable, irrational, and unconstitutional. We maintain that any version of the IRP Update which contains new coal or nuclear power: will not provide South Africa with least-cost electricity, will not promote social and environmental justice, will not uphold and protect the health and wellbeing of South Africans, and will not enable South Africa to meet its international climate change obligations.<sup>21</sup>

36. The Life After Coal campaign, along with Greenpeace Africa, wrote to the Minister of Energy on 22 March 2018,<sup>22</sup> in response to the Minister's statement of 8 March 2018 advising that he had instructed the IPP Office and the Director General to sign the Coal Baseload IPP projects. Our letter emphasised that the coal IPP projects are not yet capable of reaching commercial and financial close. Both projects are embroiled in legal challenges from groundWork and Earthlife, and they still require numerous licences and authorisations – which are also likely to be challenged. Life After Coal and Greenpeace Africa – in recording our objections to the signing of the coal IPPs - explained in the letter, that finalising these projects would be premature and impermissible.

37. ERA (section 10(2)(g)) requires an applicant to provide evidence of compliance with any IRP applicable at that point in time. In the initial objections, I pointed out that this requirement was clearly premised on the assumption of there being a regularly updated accurate IRP – which is certainly not the case today. It is also worth pointing out that an irrational and unreasonable revised IRP is likely to be subject to legal challenges from civil society organisations, including the Life After Coal campaign. NERSA should independently assess whether its licensing decisions are aligned with accurate demand projections; current electricity prices; climate change and international obligations; and economic, social, and environmental circumstances.

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<sup>21</sup> A copy of the letter can be accessed at <https://cer.org.za/news/south-africas-energy-future-at-stake-life-after-coal-campaign-writes-to-new-energy-minister-jeff-radebe>.

<sup>22</sup> A copy of the letter can be accessed at [https://cer.org.za/wp-content/uploads/2018/03/LAC-and-GP-letter-to-Minister-Radebe-on-IPPs-22-3-18\\_signed.docx.pdf](https://cer.org.za/wp-content/uploads/2018/03/LAC-and-GP-letter-to-Minister-Radebe-on-IPPs-22-3-18_signed.docx.pdf) and the annexure is here: [https://cer.org.za/wp-content/uploads/2018/03/Letter-to-Minister-Radebe\\_March-2018.pdf](https://cer.org.za/wp-content/uploads/2018/03/Letter-to-Minister-Radebe_March-2018.pdf).

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### The Thabametsi case

38. The case of *Earthlife Africa Johannesburg v the Minister of Environmental Affairs & Others*<sup>23</sup> ("the Thabametsi case") was launched in 2016 to review the Minister of Environmental Affairs' decision to dismiss Earthlife's appeal of Thabametsi's environmental authorisation, and the decision of the Chief Director: Environmental Authorisations to issue an environmental authorisation to Thabametsi.<sup>24</sup>
39. The Minister, in her appeal decision of 2016, acknowledged that Thabametsi's climate change impacts had not been comprehensively assessed and she amended the authorisation conditions to require Thabametsi to conduct a climate change impact assessment ("CCIA") and a palaeontological impact assessment ("PIA"). Notwithstanding this acknowledgment, the Minister allowed the authorisation to remain in place: she did not set it aside pending the outcome of the CCIA and the PIA as she should have done. In the Thabametsi case, this decision, and the decision to authorise the power station, were taken on review by Earthlife – with a focus on the need for a CCIA as part of an environmental impact assessment ("EIA") for a proposed coal-fired power station and the need for climate impacts to be considered before a decision is taken in relation to an environmental authorisation.
40. The case was heard before Judge John Murphy in the Pretoria High Court in March 2017. The main legal issues before the court were, in short:

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<sup>23</sup> *Earthlife Africa Johannesburg v Minister of Environmental Affairs and Others* [2017] 2 All SA 519 (GP), available at: <https://cer.org.za/wp-content/uploads/2017/03/Judgment-Earthlife-Thabametsi-Final-06-03-2017.pdf>.

<sup>24</sup> The court papers are available on the CER website at <https://cer.org.za/programmes/pollution-climate-change/litigation/the-proposed-thabametsi-jpp-earthlife-africa-johannesburg-v-department-of-environmental-affairs-thabametsi-power-project-pty-ltd-and-others>.

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- 40.1. whether there is an obligation to consider climate impacts as part of an EIA for a proposed coal-fired power station; and
- 40.2. if there is such an obligation, whether the climate impacts were already adequately considered in Thabametsi's EIA – as alleged by the respondents (government and Thabametsi) opposing the application.
41. Judge Murphy's judgment of 8 March 2017,<sup>25</sup> found, *inter alia*, that:
- 41.1. climate change impacts are indeed relevant factors that must be considered as part of an EIA for a coal-fired power station in terms of the National Environmental Management Act, 1998 (NEMA). The court held that "*the respondents' complaint that without explicit guidance in the law on climate change impact assessments, Thabametsi could not be required to conduct a climate change impact assessment, as there is no clarity on what is required, is unconvincing*";
- 41.2. the alleged assessment of climate impacts by Thabametsi in its EIA "was *wholly insufficient*", and when the Chief Director made his decision to grant the EA, he was possessed of "*scant climate change information*";
- 41.3. a CCIA requires more than just a quantification of projected GHG emissions – broader impacts must be considered; such as consideration of the fact that the power station will be based in a water-stressed region thereby "*aggravat[ing] the impact of climate change in the region by contributing to water scarcity, raising in turn questions about the viability of the power station over its lifetime.*" It also stated that such an assessment would be best done by means of a professionally-researched report; and

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<sup>25</sup> The Thabametsi judgment can be accessed at <https://cer.org.za/wp-content/uploads/2017/03/Judgment-Earthlife-Thabametsi-Final-06-03-2017.pdf>.

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41.4. the mere existence of policy calling for new coal-based electricity (such as the IRP or a Ministerial Determination in terms of section 34 ERA) does not exempt the decision-maker from exercising its independent discretion on the assessment of the impacts, stating that the *"assertion that the instruments constitute binding administrative decisions not to be circumvented to frustrate the establishment of authorised coal-fired power stations is unsustainable, as is the notion that their mere existence precludes the need for a climate change impact assessment in the environmental authorisation process. Policy instruments developed by the Department of Energy cannot alter the requirements of environmental legislation for relevant climate change factors to be considered"*.<sup>26</sup>

42. The court set aside the Minister's decision in relation to the climate change ground of appeal of Earthlife's appeal; and ordered the Minister to reconsider the climate change ground of the appeal after considering, *inter alia*, Thabametsi's CCIA and public comment thereon.

#### **Thabametsi's climate change impact assessment**

43. In July 2017, Thabametsi's final CCIA and PIA were published for comment along with a revised Environmental Management Programme ("**EMPr**"). The draft CCIA and PIA had been published for comment in January 2017. CER, on behalf of Earthlife, commented on the draft CCIA and PIA in February 2017.<sup>27</sup>
44. The final CCIA – which consists of a Summary Report for the CCIA and PIA ("**the Summary Report**") and annexures, including a GHG Assessment Report (appendix D to the Summary Report); Climate Resilience Assessment Report

<sup>26</sup> See paras 95 – 96, Thabametsi judgment.

<sup>27</sup> The comments are available on our website at <https://cer.org.za/wp-content/uploads/2016/07/ELA-Comments-on-draft-CCIA-PIA-27-2-17.pdf>. The draft CCIA and PIA can be accessed here - <https://cer.org.za/wp-content/uploads/2016/07/Thabametsi-Draft-Summary-Report-Jan17.pdf>.

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(appendix E to the Summary Report); and a Water Resource Report (appendix E1 to the Summary Report) - finds, *inter alia*, that:<sup>28</sup>

- 44.1. *"the Project's GHG emissions are estimated to be 5 186 749 t CO<sub>2</sub>e annually during operations on completion of Phase 1, and 9 879 522 t CO<sub>2</sub>e annually on completion of Phase 2. Using benchmarks of international lender standards with respect to the magnitude of annual emissions from a development ... the magnitude of this Project's GHG emissions is considered to be 'Very Large' – the highest possible rating, which translated to an overall significance rating of 'High (Negative)';<sup>29</sup>*
- 44.2. *"[w]hilst the Project will likely have a High (Negative) impact with respect to GHG emissions, it is important to consider the contextual information relating to South Africa's energy context, national energy plans including the planned increases in baseload power to meet needs, the role of coal to meet increased baseload power requirements and the high emissions intensity of the older Eskom plants...";<sup>30</sup>*
- 44.3. *"[i]t is important to note that the choice of technology and the size of the plant constrain the extent to which technology-based GHG mitigation measures can be used";<sup>31</sup>*
- 44.4. *"[t]he Coal Baseload IPP Programme calls for projects with a maximum of 600MW capacity and the strong emphasis on and requirement for redundancy for IPP baseload projects means that the selected configuration for the Thabametsi plant is four 150 MW boilers and two 315 MW steam units. This has some important implications with respect to plant*

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<sup>28</sup> The relevant CCIA reports can be accessed at <https://cer.org.za/programmes/pollution-climate-change/key-correspondence>. The other documents that make up the CCIA, as well as the PIA and EMPr, can also be made available on request.

<sup>29</sup> P18, Summary Report.

<sup>30</sup> P18, Summary Report.

<sup>31</sup> P19, Summary Report.

*efficiency: ... It is not possible to use more efficient (and less GHG intensive) supercritical or ultra-supercritical steam technologies, which are rarely applied to 'small scale' 300 MW units due to the comparatively high cost of materials to support supercritical steam on a small scale ... Typical steam turbine configurations used in commercial power plants include non-reheat, single reheat and double reheat configurations. Double reheat offers the most efficiency but is used in larger 600 MW units ..."*<sup>32</sup> Water availability also impacts on the choice of technology, and thus the efficiency of the selected technology;<sup>33</sup>

44.5. The Climate Resilience Assessment Report highlights water availability as the main, as well as a high, risk;<sup>34</sup>

44.6. "[c]oncern exists amongst some residents that limited water resources are being diverted away from communities and farms to industrial users including mines and power plants. Water infrastructure issues exist in some communities and farms have suffered from drought impacts in the past. There is a risk that, under a scenario of increasing water stress in the region, industrial users are increasingly 'blamed' for water shortages, and this may threaten the social license (sic) to operate for industrial users in the region..."<sup>35</sup> and

44.7. the additional studies the (namely the CCIA and PIA) do not alter the conclusion in Thabametsi's original environmental impact report ("EIR") that the impacts are expected to be of "medium to low significance" with the implementation of appropriate mitigation measures; although the impact rating associated with the climate impacts is high. No further

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<sup>32</sup> p19, Summary Report.

<sup>33</sup> p20, Summary Report.

<sup>34</sup> p XI and XII, Climate Resilience Assessment Report.

<sup>35</sup> p XI, Climate Resilience Assessment Report.

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recommendations or conditions are required to be included in the Environmental Authorisation for the project.<sup>36</sup>

45. The Summary Report, Climate Resilience Assessment Report, and GHG Assessment Report are attached marked "B7", "B8" and "B9" respectively.

46. Thabametsi's revised EMPr (the relevant excerpts of which are attached marked "B10") proposes some of the following measures to mitigate GHG emissions and climate impacts:

46.1. developing and implementing a GHG management policy and plan;<sup>37</sup>

46.2. developing a plan to minimise coal feed variability and implement coal drying wherever possible to enhance plant thermal efficiency and reduce GHG emissions;<sup>38</sup>

46.3. implementing flue gas and cooling system heat recovery and recycling to enhance plant thermal efficiency and reduce GHG emissions;<sup>39</sup>

46.4. considering the use of co-firing of coal with low carbon sustainable biomass to reduce GHG emissions and reduce the GHG intensity of the plant in future if feedstock is available and costs are feasible,<sup>40</sup> and

46.5. during operation of the plant, *inter alia*, developing and implementing a GHG management policy; annually tracking and measuring GHG emissions and emissions intensity; employing the use of smart instrumentation and combustion controls; undertaking scheduled

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<sup>36</sup> P32, Summary Report.

<sup>37</sup> Section 6.1, Objective 2, p26, EMPr.

<sup>38</sup> Section 6.1, Objective 2, p26, EMPr.

<sup>39</sup> Section 6.1, Objective 2, p26, EMPr.

<sup>40</sup> Section 6.1, Objective 2, p26, EMPr.

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maintenance to recover efficiency losses; and integrating green building design principles into the construction of buildings.<sup>41</sup>

47. It is not clear which, if any, of these measures will actually be implemented, when, how, and what the anticipated emission reduction of these measures would be.
48. In any event, I am advised that none of the proposed measures could substantially and materially reduce the significant GHG emissions from Thabametsi. Carbon capture and storage ("CCS") would, be the only means to substantially reduce the high emissions of a coal-fired power station. However, this is neither technologically nor financially feasible, and has not yet been implemented in South Africa. The CCIA states that: "... *in order to drastically reduce GHG from coal-fired power stations (and the GHG intensity of the electricity they generate), carbon capture and storage (CCS) is required ... However, the use of CCS technologies creates cost challenges (increase the capital cost of CFB (circulating fluidised bed) plants by as much as 78% per MWh (EPRI, 2015) ... Whilst CCS is technically viable, its application is currently limited to demonstration plants and the technology has not yet been applied in South Africa*".<sup>42</sup> The GHG Assessment Report, also acknowledges that all coal plants will have a high significance rating.<sup>43</sup>
49. CER, on behalf of Earthlife, submitted comments on the final CCIA and PIA reports on 31 July 2017 (these comments – without annexures - are attached marked "B11").<sup>44</sup> The comments highlight concerns with the CCIA (such as the failure to consider external costs of the climate impacts and the ways in which the power station will exacerbate the vulnerability of the communities and environment in the Lephalale area to the impacts of climate change), as well as some of the following concerns with the climate impacts of the project in general:

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<sup>41</sup> objective 34, 33.1 – 33.4 and 33.6, page 71, EMPr.

<sup>42</sup> P39, GHG Assessment Report.

<sup>43</sup> P54 and 62, GHG Assessment Report.

<sup>44</sup> The comments can be accessed here <https://cer.org.za/wp-content/uploads/2016/07/ELA-Comments-on-Final-Thabametsi-CCIA-PIA-31-7-17.pdf>.

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- 49.1. the final conclusion (that the impacts are expected to be of medium to low significance) of the Summary Report is not supported by the evidence gathered in the CCIA;
- 49.2. the technology proposed for the Thabametsi plant means that South Africa will be bringing online a new coal plant which will emit the same amount or even more climate-changing GHGs than Eskom's old coal plants. Thabametsi is clearly not going to be better – in terms of GHG emissions - than South Africa's existing coal fleet;
- 49.3. there are no means to substantially mitigate Thabametsi's GHG emissions and the measures proposed in the CCIA are wholly inadequate. The CCIA also has no means of ensuring that the water availability risks to the power station are avoided – this is beyond Thabametsi's control. Because the significant climate impacts cannot be avoided, the CCIA fails to recommend – as it should – that the power station cannot go ahead;
- 49.4. there is a real risk that Thabametsi will be unable to operate for its intended operational lifespan as South Africa has commitments under the Paris Agreement to reduce GHG emissions and it will be required to improve on its targets - this, in all likelihood will mean moving its emissions trajectory closer to the 'required by science' curve that will seek to avoid exceeding the 2°C global temperature rise. This means that the proportional contribution of Thabametsi to national GHG emissions will become significantly greater. In addition, the impacts of climate change on Thabametsi, such as increased temperatures and water scarcity, are likely to impact on Thabametsi's ability to operate efficiently throughout its anticipated lifespan; and
- 49.5. if Thabametsi is permitted and enabled to emit GHGs as anticipated up until 2050, this will take South Africa beyond the 'peak plateau decline' ("PPD")

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