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TEL 086 100 0779

IN THE HIGH COURT OF SOUTH AFRICA

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61561/17

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REGISTRAR'S CLERK

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In the matter between:

**THE
TRUSTEES FOR THE TIME BEING OF
THE GROUNDWORK TRUST**

Applicant

and

THE MINISTER OF ENVIRONMENTAL AFFAIRS

First Respondent

**CHIEF DIRECTOR: INTEGRATED
ENVIRONMENTAL AUTHORISATIONS,
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**

Second Respondent

**THE DIRECTOR: APPEALS AND LEGAL REVIEW
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**

Third Respondent

**ACWA POWER KHANYISA THERMAL
POWER STATION RF (PTY) LTD**

Fourth Respondent

NOTICE OF MOTION

KINDLY TAKE NOTICE that the Applicant will make application on a date to be determined by the registrar for an order in the following terms:

- 1 The decision taken by the then Deputy Director General: Legal Authorisations, Compliance and Enforcement on 31 October 2013 to grant the environmental authorisation with reference number 12112/20/2067, as amended, is reviewed and set aside.

- 2 The matter is remitted back to the Second Respondent, the Chief Director: Integrated Environmental Authorisations ("**Chief Director**"), for reconsideration.

- 3 The Chief Director is directed to take into account the need for a thorough climate change impact assessment, in light of this Court's judgment in *Earthlife Africa Johannesburg v Minister of Environmental Affairs and Others* [2017] ZAGPPHC 58; [2017] 2 All SA 519 (GP).

- 4 To the extent necessary, the 180-day time limit prescribed in section 7(1) of the Promotion of Administrative Justice Act 3 of 2000 ("**PAJA**") for bringing this review application is extended, in terms of section 9 of PAJA, to the date of this application and any delay in bringing this application is condoned.

- 5 In the alternative to paragraphs 1 to 4 above:
 - 5.1 The decision taken by the Minister of Environmental Affairs ("**Minister**"), dated 20 June 2017, refusing the Applicant's application to extend the period for filing its notice of intention to appeal under regulation 60(4) of the 2010 Environmental Impact Assessment Regulations, GNR 543 in *Government Gazette* No 33306 of 18 June 2010 ("**2010 EIA Regulations**"), is reviewed and set aside.

 - 5.2 The Minister's decision is substituted as follows:
 - 5.2.1 In terms of regulation 60(4) of the 2010 EIA Regulations, the Applicant is granted an extension to file its notice of intention to appeal against the environmental authorisation granted to the

Fourth Respondent on 31 October 2013 with reference number 12112/20/2067 (as amended).

5.2.2 The Applicant is directed to file its notice of intention to appeal together with its appeal submissions within 20 days of this order, in terms of regulation 60(1) and 61(1) of the 2010 EIA Regulations.

5.2.3 The Applicant's appeal is to proceed in terms of the procedures and timelines specified in Chapter 7 of the 2010 EIA Regulations.

6 The costs of this application are to be paid, jointly and severally, by any respondents opposing this relief, in accordance with section 32(3) of the National Environmental Management Act 107 of 1998.

7 Further and / or alternative relief.

TAKE NOTICE FURTHER that the affidavit of **SVEN EATON PATRICK PEEK**, the attached annexures, along with the confirmatory affidavits of **THOMAS MNGUNI**, **EUGENE KENNETH CAIRNCROSS** and **NICOLE LOSER**, will be used in support of this application.

TAKE NOTE FURTHER that the Applicant appoints the address of its attorneys, as set out below, as the address at which it will accept service of all process in these proceedings.

TAKE NOTICE FURTHER that:

- (a) In terms of Rule 53(1)(a) of the Uniform Rules of Court, the First to Third Respondents are called upon to show cause why the decisions referred to in prayer 1 above should not be set aside;
- (b) In terms of Rule 53(1)(v), the First to Third Respondents are called upon, within fifteen days of receipt of this notice of motion, to despatch to the Registrar the record of all documents and all electronic records that relate to the making of the decisions referred to in prayers 5 and 5.1 above, together with such reasons as the respondents are by law required or may require to give or make, and to notify the applicant's attorneys that they have done so.
- (c) In terms of Rule 53(4), the Applicant may within 10 days of receipt of the record from the Registrar, amend, add to, or vary the terms of its notice of motion and supplement the founding affidavit, by delivery of a notice and accompanying affidavit.

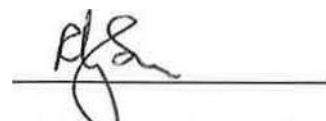
TAKE NOTICE FURTHER that any respondents who wish to oppose the relief sought are required:

- (a) within 15 days of receipt of this notice of motion or any amendment thereto as contemplated in Rule 53(4), to deliver a notice to the Applicant's attorneys that such respondents intend to oppose this application;
- (b) to appoint an address within 15 kilometres of the office of the Registrar at which the respondents will accept notice and service of all process in such proceedings; and

- (c) within 30 days of the expiry of the time period referred to in Uniform Rule of Court 53(4), deliver such affidavits as they may desire in answer to the allegations made by the applicant.

Kindly place the matter on the roll accordingly.

DATED at PRETORIA on this the _____ day of September 2017.



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**TO: THE REGISTRAR OF THE ABOVE COURT
 PRETORIA**

AND TO: THE MINISTER OF ENVIRONMENTAL AFFAIRS
 First Respondent
 Environment House
 473 Steve Biko Road
 Arcadia
 Pretoria

**AND TO: CHIEF DIRECTOR: INTEGRATED
ENVIRONMENTAL AUTHORISATIONS
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**
Second Respondent
Environment House
473 Steve Biko Road
Arcadia
Pretoria

**AND TO: THE DIRECTOR: APPEALS AND LEGAL REVIEW
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**
Third Respondent
Environment House
473 Steve Biko Road
Arcadia
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**AND TO: ACWA POWER KHANYISA THERMAL POWER STATION RF (PTY)
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IN THE HIGH COURT OF SOUTH AFRICA

GAUTENG DIVISION, PRETORIA

Case number: 61s-61111

In the matter between:

**THE TRUSTEES FOR THE TIME BEING
OF THE GROUNDWORK TRUST**

Applicant

and

THE MINISTER OF ENVIRONMENTAL AFFAIRS

First Respondent

**CHIEF DIRECTOR: INTEGRATED
ENVIRONMENTAL AUTHORISATIONS,
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**

Second Respondent

**THE DIRECTOR: APPEALS AND LEGAL REVIEW
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**

Third Respondent

**ACWA POWER KHANYISA THERMAL
POWER STATION RF (PTY) LTD**

Fourth Respondent

FOUNDING AFFIDAVIT

I, the undersigned

SVEN EATON PATRICK PEEK

state under oath as follows:

1 I am an adult male working as the Director of the groundWork Trust
("groundWork").

- 2 groundWork's trustees have approved the institution of these proceedings and have authorised me to depose to this affidavit on its behalf. I attach a resolution to this effect, marked **Annexure "SP1"**.
- 3 The facts contained in this affidavit are true and correct and, save where the context indicates otherwise, are within my personal knowledge.
- 4 Where I make legal submissions, I do so on the advice of the applicant's legal representatives.

PARTIES

- 5 The applicant is the body of **TRUSTEES FOR THE TIME BEING OF THE GROUNDWORK TRUST ("groundWork")**.
 - 5.1 groundWork is a trust, with its main objective being to promote increased, sustained, and more effective civil society-driven environmental justice action. I attach a copy of groundWork's Deed of Trust marked **Annexure "SP2"**.
 - 5.2 groundWork operates as a non-profit environmental justice service and developmental organisation with NPO-number 045-235-NPO, with its principal place of business at 6 Raven Street, Pietermaritzburg.
 - 5.3 It works with South and Southern African communities and organisations on environmental justice and human rights issues, focusing on coal, climate and energy justice, waste, and environmental health.

- 5.4 It is a registered interested and affected party ("**I&AP**"), in respect of the environmental authorisation that is the subject of this review application.
- 6 As such, groundWork has legal standing in terms of section 32(1) of the National Environmental Management Act 107 of 1998 ("**NEMA**"), read with section 38 of the Constitution, to bring this review application:
- 6.1 in its own interest, as an I&AP;
- 6.2 in the public interest; and
- 6.3 in the interest of protecting the environment.
- 7 The first respondent is the **MINISTER OF ENVIRONMENTAL AFFAIRS** ("**Minister**").
- 7.1 The Minister is cited in her official capacity as the appeal authority in terms of section 43(1) of NEMA, who made the decision - dated 20 June 2017 and with reference number LSA 162101 - to refuse groundWork's request for leave to appeal the environmental authorisation (also referred to as the "**condonation decision**"). groundWork sought condonation for the late filing of an appeal against the granting of the environmental authorisation. This application seeks to review and set aside this condonation decision.
- 7.2 Service will be effected on the Minister at Environment House, 473 Steve Biko Road, Arcadia, Pretoria.

8 The second respondent is the **CHIEF DIRECTOR: ENVIRONMENTAL AUTHORISATIONS, DEPARTMENT OF ENVIRONMENTAL AFFAIRS ("Chief Director")**:

8.1 The Chief Director is cited in his official capacity as the competent authority responsible for integrated environmental authorisations.

8.2 The environmental authorisation, dated 31 October 2013 and with Department of Environmental Affairs ("**the Department**") reference number 12/12/20/2067, that is the subject of this review application (the "**environmental authorisation**"), was granted by the then Deputy Director-General: Legal Authorisations, Compliance & Enforcement (hereinafter referred to as the "**Deputy Director-General**").

8.3 I am advised that the Chief Director is now the responsible authority in charge of environmental authorisations such as the present environmental authorisation held by ACWA. The Chief Director has issued the subsequent amendments to the environmental authorisation, as dealt with below.

8.4 This application seeks to review and set aside the decision to issue the environmental authorisation.

8.5 Service will be effected on the Chief Director at Environment House, 473 Steve Biko Road, Arcadia, Pretoria.

9 The third respondent is **THE DIRECTOR: APPEALS AND LEGAL REVIEW OF THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS ("Appeals Director")**.

- 9.1 The Appeals Director is cited in his official capacity as the authority responsible for administering appeals and making recommendations to the Minister.
- 9.2 Service will be effected on the Appeals Director at Environment House, 473 Steve Biko Road, Arcadia, Pretoria.
- 10 The fourth respondent is **ACWA POWER KHANYISA THERMAL POWER STATION RF (PTY) LTD RF (PTY) LIMITED ("ACWA")**.
- 10.1 ACWA is a limited liability company duly registered in accordance with the laws of the Republic of South Africa with its registered address at 7th Floor, 90 Grayston Drive, Sandton, Gauteng;
- 10.2 ACWA is the holder of the environmental authorisation that is the focus of this dispute. The environmental authorisation was amended on 2 February 2017 to change the applicant and holder of the environmental authorisation from Anglo Operations Limited ("**Anglo**") to ACWA;
- 10.3 I attach a copy of the SearchWorks CIPC search document confirming the current name and address of ACWA marked **Annexure "SP3"**.
- 11 Collectively, the first to fourth respondents are referred to as the "**respondents**", and the first to third respondents as the "**government respondents**".

OVERVIEW OF THIS APPLICATION

- 12 This application is brought in the wake of this Court's judgment in *Earthlife Africa Johannesburg v Minister of Environmental Affairs* ("the **Thabametsi judgment**"), which was handed down by Murphy J on 8 March 2017.¹
- 13 The *Thabametsi judgment* makes clear, for the first time in our law, that the climate change impacts of a proposed coal-fired power station must be thoroughly assessed and considered before an environmental authorisation can be granted under NEMA.
- 14 This application concerns a proposed coal-fired power station that was granted an environmental authorisation (and subsequent amendments) without an adequate climate change impact assessment.
- 15 The fourth respondent, ACWA, is seeking to operate a 600 megawatt ("**MW**") independent coal-fired power station with associated infrastructure near eMalahleni in Mpumalanga, South Africa. I will refer to this proposed coal-fired power station and all of the associated infrastructure collectively as the "**Khanyisa Project**".
- 16 ACWA is one of two "preferred bidders" that are appointed as independent power producers ("**IPPs**") under the Department of Energy's ("**DOE**") Coal Baseload IPP Procurement Programme ("**Coal Baseload IPP Programme**"). The other

¹ *Earthlife Africa Johannesburg v Minister of Environmental Affairs and Others* (65662/16) [2017] ZAGPPHC 58 (8 March 2017); [2017] 2 All SA 519 (GP).



preferred bidder, Thabametsi Power Company (Pty) Ltd ("**Thabametsi**"), was the subject of this Court's *Thabametsi* judgment.

17 On 31 October 2013, the Khanyisa Project was granted an environmental authorisation under NEMA. This authorisation was subsequently amended on four occasions, most recently on 3 April 2017. These amendments included an amendment on 28 July 2015 which substantially increased the capacity of the proposed power station from 450MW to 600MW.

18 If ACWA's Khanyisa Project is finally approved and constructed, this coal-fired power station will remain in existence for at least 50 years (final environmental impact report, page 385). Given this long lifespan, it was necessary for the climate change impacts of the Khanyisa Project to be thoroughly assessed.

19 However, as I explain in greater detail below, the environmental authorisation and subsequent amendments were granted without a proper assessment of the climate **change impacts of the Khanyisa Project. While the various environmental impact** assessments briefly acknowledged some of the climate change impacts of this project, these assessments contain glaring omissions and errors. In particular:

19.1 there was no full assessment of the greenhouse gas ("**GHG**") emissions of the coal-fired power station over its life-cycle, taking into account emissions during construction, operation and decommissioning. There was also no accurate assessment of the increase in GHG emissions arising from the proposed increase in the capacity of the power station from 450 to 600 megawatts. Nor was there a proper quantification of nitrous oxide ("**N2O**")

emissions from the plant, which is a GHG that has a Global Warming Potential ("**GWP**") 268 times higher than that of carbon dioxide ("CO₂"), thus resulting in gross underestimation of the GHG emissions;

19.2 there was no assessment of how the coal-fired power station will aggravate the effects of climate change in the Mpumalanga region, particularly the increasing water scarcity in the region, and on the already water-stressed Upper Olifants River Catchment;

19.3 there was no assessment of how climate change will impact on the functioning of the coal-fired power station over its lifetime; and

19.4 finally, given these omissions, there was no adequate assessment of avoidance, mitigation and remedial measures to address these climate change impacts.

20 My organisation, groundWork, only became aware of the Khanyisa Project's environmental authorisation in June 2015. As I explain in great detail below, groundWork was confronted with approximately 9 other proposed coal-fired power stations and did not have the capacity or resources, at the time, to challenge this authorisation. This position was further complicated by the Department's opposition to climate change impact assessments, which made the prospects of any internal appeal to the Minister, on this basis, very slim.

21 After this Court handed down the *Thabametsi* judgment on 8 March 2017, groundWork wasted no time in seeking to lodge an internal appeal with the Minister against the Khanyisa Project's environmental authorisation. groundWork's notice

of intention to appeal was delivered on 29 March 2017, in terms of regulation 6(1) of the 2010 Environmental Impact Assessment Regulations ("**2010 EIA Regulations**") published under **NEMA**.²

22 groundWork was subsequently informed that it had **to** file an application to the Minister for an extension of the 20-day time period for filing notices of appeal. This application was submitted on 18 April 2017.

23 On 20 June 2017, the Minister ultimately rejected this application for extension, preventing groundWork from bringing an internal appeal. As a result, groundWork has been left with no option but to approach this Court.

24 In this application, groundWork seeks two alternative sets of relief:

24.1 First, groundWork seeks an order reviewing and setting aside the Khanyisa Project's environmental authorisation (and amendments) and remitting the matter back to the Chief Director to consider the application for environmental authorisation afresh, with the direction to take into account the need for a comprehensive climate change impact assessment in light of the *Thabametsi* judgment.

24.2 Second, and alternatively, groundWork seeks an order reviewing and setting aside the Minister's condonation decision and substituting her decision with a decision to allow groundWork's internal appeal to proceed.

² GNR 543 in *Government Gazette* No 33306 of 18 June 2010.

25 groundWork brings this application in terms of the Promotion of Administrative Justice Act 3 of 2000 ("**PAJA**") and the constitutional principle of legality, in accordance with the requirements of Rule 53 of the Uniform Rules of Court.

26 In what follows, I address the following issues in turn:

26.1 first, I explain the threat of climate change and the significance of the *Thabametsi* judgment (paragraphs 26-57 of this affidavit);

26.2 second, I set out the history of the environmental authorisation for the Khanyisa Project and the failure to conduct an adequate climate change impact assessment during this process (paragraphs 58-104 of this affidavit);

26.3 third, I explain ACWA's appointment as a preferred bidder under the Coal Baseload IPP Programme (paragraphs 105-113 of this affidavit);

26.4 fourth, I set out the steps taken by groundWork to seek an extension for the late filing of its appeal against the environmental authorisation and the Minister's decision to refuse this extension (paragraphs 114-134 of this affidavit);

26.5 fifth, I set out the grounds to review and set aside the environmental authorisation and amendments (paragraphs 135-164.3 of this affidavit); and

26.6 finally, I set out the grounds to review and set aside the Minister's condonation decision (paragraphs 165-196.4 of this affidavit).

CLIMATE CHANGE AND THE THABAMETSI JUDGMENT

The threat of climate change

27 Section 24 of the Constitution guarantees all a right to an environment that is not harmful to their health or well-being and commits the state to protecting the environment for the benefit of present and future generations. Section 24 provides:

"Everyone has the right —

- (a) to an environment that is not harmful to their health or well-being; and*
- (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that —*
 - (i) prevent pollution and ecological degradation;*
 - (ii) promote conservation; and*
 - (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."*

28 The South African government recognises that climate change is one of the most serious threats to these environmental rights enshrined in section 24 of the Constitution.

29 This threat is acknowledged in the National Climate Change Response White Paper of 2011 (the "**White Paper**") which *"presents the South African government's vision for an effective climate change response and the long-term, just transition to a climate-resilient and lower carbon economy and society."* (White Paper, page 5) I attach relevant excerpts from **the White Paper, marked Annexure "SP4"**.

30 The White Paper defines climate change as:



"an ongoing trend of changes in the earth's general weather conditions as a result of an average rise in the temperature of the earth's surface often referred to as global warming. This rise in the average global temperature is due, primarily, to the increased concentration of gases known as greenhouse gases (GHGs) in the atmosphere that are emitted by human activities. These gases intensify a natural phenomenon called the "greenhouse effect" by forming an insulating layer in the atmosphere that reduces the amount of the sun's heat that radiates back into space and therefore has the effect of making the earth warmer." (White Paper, page 8)

31 The government acknowledges that South Africa is extremely vulnerable to the effects of climate change:

"Climate change is already a measurable reality and along with other developing countries, South Africa is especially vulnerable to its impacts." (White Paper, page 5)

"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." (White Paper, page 8)

32 In particular, the White Paper recognises that water scarcity in South Africa will be aggravated by climate change:

"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." (White Paper, page 17)

33 This threat of water scarcity is also acknowledged in a report published in May 2017.

This report, titled *"The State of Climate Change Science and Technology in South Africa"*, was undertaken by the Academy of Science of South Africa ("**the ASSAf Report**") on behalf of the Department of Science and Technology and was endorsed by Cabinet. It highlights the key climate change challenges and impacts in South Africa over the next 30 years and notes that *"The 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"* (ASSAf Report, page 15). Relevant excerpts of this report are attached marked **Annexure "SP5"**.

34 South Africa's reliance on coal for the generation of electricity makes South Africa a significant global contributor to greenhouse gas emissions. The White Paper acknowledges this fact:

"It is acknowledged that Africa, as a whole, has contributed least to GHG concentrations in the atmosphere, but also faces some of the worst consequences and generally has the least capacity to cope with climate change impacts. However, it is also recognised that South Africa is a relatively significant contributor to global climate change with significant GHG emission levels from its energy intensive, fossil-fuel powered economy." (Emphasis added). (White Paper, page9)

35 Furthermore, the White Paper recognises that South Africa's reliance on coal for electricity generation is the most significant contributor to its emissions:

"South Africa has relatively high emissions for a developing country, measured either per capita or by GHG intensity (emissions per unit of GDP). By any measure, South Africa is a significant emitter of GHGs."

The energy intensity of the South African economy, largely due to the significance of mining and minerals processing in the economy and our coal-intensive energy system, has resulted in an emissions profile that differs substantially from that of other developing countries at a similar stage of development as measured by the Human Development Index. Since coal is the most emissions-intensive energy carrier, South Africa's economy is very emissions-intensive ... In 2000, average energy use emissions for developing countries constituted 49% of total emissions, whereas South Africa's energy use emissions constituted just under 80% of total emissions. Even in some fast-developing countries with a similar reliance on coal for energy, energy use emissions are lower than South Africa.

In terms of South Africa's latest Greenhouse Gas Inventory (base year 2000), the majority of South Africa's energy emissions arose from electricity generation, which constituted around half of South Africa's energy emissions and just under 40% of total emissions in 2000." (Emphasis added). (White Paper, page 26)

36 The Department's Greenhouse Gas Inventory for South Africa 2000 — 2010 (the "**GHG Inventory Report**") notes that the largest source of emissions for the period 2000 — 2010 was electricity generation, which accounted for 55.1% (2 316 071 Gg (gigagrams) of carbon dioxide equivalent ("**CO2-eq**") of total accumulated emissions (GHG Inventory Report, pages 73-74) I attach the relevant pages of the GHG Inventory Report, marked **Annexure "SP6"**.

37 The South African government has committed to a peak in CO2-eq emissions from 2020 to 2025, with a lower limit of 398 Mt of CO2-eq, and an upper limit of between 583Mt CO2-eq and 614Mt CO2-eq (White Paper, page 27).

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37.1 According to the final environmental impact assessment report of 2012 ("**2012 FEIR**"), the annual GHG emissions from Eskom's new Medupi and Kusile coal-fired power stations, when fully operational, will together, be 59.8 Mt of 002-eq (an amount of 29.9 Mt of 002-eq each) (2012 FEIR, page 200, Table 7-32).

37.2 According to the 2012 FEIR, the Khanyisa Project is to contribute approximately 4.3 million metric tons of CO₂ per year *"assuming the operation of a 450 MW power station with an emission factor of 1100 g CO₂ per kWh (kilowatt hour) sent out, operating with FGD (flue gas desulphurisation) on Kleinkopje discard for 8700 h per year"* (page 199, 2012 FEIR) over its 50 year design life with *"no feasible directly applicable measures that can be implemented at the project level"* to mitigate these CO₂ emissions (page 203, 2012 FEIR). The non-technical summary as well as the relevant pages of the 2012 FEIR are attached as **Annexure "SP7"**.

38 If South Africa is to achieve its national targets to reduce GHG emissions, then future developments of coal-fired power stations, such as the Khanyisa Project, will require careful assessments of their impacts, which assessments may conclude that such carbon-intensive projects cannot proceed at all, given the significant impacts. Importantly, decision-makers must give careful and full consideration of such impacts when making decisions to authorise such projects.

39 The need for these impact assessments is underlined by the growing body of international law on climate change.



South Africa's international obligations to combat climate change

40 I am advised that section 233 of the Constitution requires that all legislation be interpreted in a manner that is consistent with international law, whilst section 39(1)(b) of the Constitution requires the Bill of Rights to be interpreted in a manner consistent with international law.

41 South Africa has signed and ratified the United Nations Framework Convention on Climate Change (the "Framework **Convention**") and its Kyoto Protocol - international agreements that seek to address climate change.

42 Under the Framework Convention, South Africa has a number of binding obligations, including the following:

42.1 Article 3(3) of the Framework Convention sets out a "precautionary principle" which requires all state parties to take precautionary measures to anticipate, prevent or minimise causes of climate change. Given that coal-fired power stations are a substantial contributor to climate change, this precautionary principle favours a proper climate change impact assessment before granting environmental authorisation for a coal-fired power station.

42.2 Article 4(1)(f) of the UN Framework Convention specifically addresses the need for impact assessments as it imposes the obligation on all states parties to —

"Make climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined



nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change"

43 As a party to the Framework Convention, South Africa participated in the 21st (twenty first) Annual Conference of Parties which resulted in the adoption of the Paris Agreement in December 2015.

44 The Paris Agreement is an international climate change agreement that commits parties to, *inter alia*, limit the global average increase in temperature to "*well below 2°C above pre-industrial levels*" and to "*pursue efforts to limit the temperature rise to 1.5°C above pre-industrial levels*" (Paris Agreement, Article 2(a)).

45 In line with these commitments, the Paris Agreement requires each state party to formulate their goals and objectives in an Intended Nationally Determined Contribution (now the Nationally Determined Contribution) ("**NDC**"), to report on compliance with their NDC, and to revise their NDC every five years to adopt more stringent targets (Paris Agreement, Article 4(9)).

46 South Africa's NDC currently states, *inter alia*, that:

46.1 South Africa is firmly committed to working with others to ensure temperature increases are kept well below 2°C above pre-industrial levels, which could include a further revision of the temperature goal to below 1.5°C in light of emerging science, noting that a global average temperature increase of 2°C translates to an increase of up to 4°C for South Africa by the end of the century (NDC, page 1);

46.2 there needs to be near zero emissions of CO₂ and other long-lived GHGs after 2050 to avoid even greater impacts that are beyond adaptation capability (NDC, page 1);

46.3 the timeframes communicated are 2025 to 2030; during this time, South Africa's emissions will be in a range between 398 and 614 Mt CO₂—eq, as defined in national policy. This is the benchmark against which the efficacy of mitigation actions will be measured (NDC, page 6);

46.4 South Africa's GHG emissions will peak between 2020 and 2025, plateau for approximately a decade, and decline in absolute terms thereafter (NDC, page 7); and

46.5 South Africa's NDC was formulated in the context of, *inter alia*, the environmental right set out in section 24 of the Constitution, the National Development Plan, and the White Paper. The full implementation of these policies and plans will bend the curve of South Africa's GHG emissions towards a peak, plateau and decline trajectory range. At the heart of this transition to a low-carbon energy sector is a complete transformation of the future energy mix (NDC, page 2).

I attach a copy of the relevant excerpts of South Africa's NDC, marked **Annexure "SP8"**.

47 I am advised that South Africa's NDC is particularly relevant in light of the Khanyisa Project's projected operation of at least 50 years (2012 FEIR, page 385) from the date of commissioning. This coal-fired power station will remain in existence far



beyond the period that South Africa has committed to reduce its GHG emissions in absolute terms.

48 On 4 November 2016, the Paris Agreement came into force after attaining the required number of ratifications.

48.1 At least 55 state parties, accounting for over 55% of the total global GHG emissions, had to ratify the agreement before it could come into force. This threshold was achieved on 5 October 2016 and the agreement entered into force 30 days after this date.

48.2 This happened at an unprecedented and record speed for a multilateral agreement. Currently 160 parties, including South Africa, have ratified the Agreement.

49 I am advised that section 231(2) of the Constitution confirms that an international agreement binds the Republic once it has been approved by resolution in both the National Assembly and the National Council of Provinces. South Africa is bound by the provisions of the Paris Agreement because it ratified the agreement on 1 November 2016 (after having signed the Agreement in April 2016).

The significance of the Thabametsi judgment

50 As I have indicated, this review application was precipitated by the *Thabametsi* judgment delivered by Murphy J on 8 March 2017. This judgment concerns the environmental authorisation that was granted to the Thabametsi Power Company



(Pty) Ltd for the construction of a coal-fired power station in the Waterberg region of Limpopo.

51 In the *Thabametsi judgment*, Murphy J interpreted the relevant provisions of NEMA and the 2010 EIA Regulations in light of the section 24 constitutional rights and the international law on climate change that I have just outlined.

52 Murphy J held that the climate change impacts of a proposed coal-fired power station must be assessed and comprehensively considered as part of an environmental impact assessment ("**EIA**") in terms of NEMA, before a decision can be made on whether to issue an environmental authorisation (see in particular, paragraphs 78 and 91 of the *Thabametsi judgment*).

53 Like the Khanyisa Project, Thabametsi is a proposed coal-fired power station which is planned as part of the Coal Baseload IPP Programme. Thabametsi was granted an environmental authorisation despite the absence of an adequate climate change impact assessment.

54 Earthlife Africa Johannesburg ("**Earthlife**") appealed this environmental authorisation to the Minister. While the Minister agreed with Earthlife that the climate change impacts of the project had not been comprehensively assessed, she proceeded to uphold the environmental authorisation. Earthlife subsequently brought an application in this Court to review and set aside the Minister's decision and the environmental authorisation.

55 Murphy J set aside the Minister's decision on appeal and remitted the matter back to the Minister to allow her to reconsider the environmental authorisation after receiving a comprehensive climate change impact assessment and public comment on this assessment.

56 I am advised that the *Thabametsi judgment* establishes several principles that are central to the resolution of this case:

56.1 First, this Court held that the climate change impacts of a coal-fired power station are relevant considerations that must be assessed by competent authorities, in terms of section 240(1) of NEMA, before granting an environmental authorisation. Murphy J held that:

"a plain reading of Section 240 (1) of NEMA confirms that climate change impacts are indeed relevant factors that must be considered. The injunction to consider any pollution, environmental impacts or environmental degradation logically expects consideration of climate change" (paragraph 88)

56.2 Second, this Court held that a climate change impact assessment must, at the very minimum, consider the following factors:

"(I) the extent to which a proposed coal-fired power station will contribute to climate change over its lifetime, by quantifying its GHG emissions during construction, operation and decommissioning; (ii) the resilience of the coal-fired power station to climate change, taking into account how climate change will impact on its operation, through factors such as rising temperatures, diminishing water supply, and extreme weather patterns; and (iii) how these impacts may be avoided, mitigated, or remedied" (paragraphs 6 and 94).

56.3 Third, this Court held that these climate change impacts are best assessed by means of a *"professionally researched climate change impact report"*:



"[T]he legislative and policy scheme and framework overwhelming support the conclusion that an assessment of climate change impacts and mitigating measures will be relevant factors in the environmental authorisation process, and that consideration of such will best be accomplished by means of a professionally researched climate change impact report. For all these reasons, I find that the text, purpose, ethos and intra- and extra-statutory context of section 240(1) of NEMA support the conclusion that climate change impacts of coal-fired power stations are relevant factors that must be considered before granting environmental authorisation" (paragraph 91).

56.4 Fourth, this Court found that it is not permissible for competent authorities to shirk this duty under section 240(1) of NEMA by leaving the assessment of climate change impacts to other licensing authorities or departments. Moreover, this Court also held that the government's energy policies cannot obviate the need for a thorough climate change impact assessment of each proposed coal-fired power station (paragraphs 95, 97 and 124).

57 As I explain in detail below, the *Thabametsi* judgment requires a fundamental shift in the way that the Department assesses environmental authorisations for coal-fired power stations. Before this judgment, the Department adopted the position that climate change impact assessments were neither necessary nor permitted under NEMA. The *Thabametsi* judgment is a sharp rejoinder to that approach.

58 In the wake of the *Thabametsi* judgment, groundWork immediately gave notice of its intention to appeal against ACWA's environmental authorisation for the Khanyisa Project. I now turn to address the circumstances surrounding ACWA's environmental authorisation.

ACWA'S ENVIRONMENTAL AUTHORISATION

The Khanyisa Project

- 59 ACWA plans to construct a 600MW coal-fired power station and associated infrastructure on a site that is approximately 10 to 15 km south of central eMalahleni, within the eMalahleni District Municipality of Mpumalanga Province.
- 60 The full scale of the Khanyisa Project is described in the 2012 FEIR submitted in respect of the environmental authorisation. The non-technical summary of the 2012 FEIR and relevant excerpts of the 2012 FEIR are referred to above and attached as Annexure "SP7".
- 61 The Khanyisa Project is to include, *inter alia*:
- 61.1 a 600MW power station using four units of 150MW Circulating Fluidised Bed ("**CFB**") technology to burn coal and produce electricity;
 - 61.2 coal silo and sorbent stockyards;
 - 61.3 coal, ash, sorbent and gypsum conveyors;
 - 61.4 a high voltage ("**HV**") yard within the power station precinct;
 - 61.5 water and wastewater treatment facilities;
 - 61.6 ash and spent sorbent disposal systems and dump site;
 - 61.7 gypsum (sorbent) storage facility;
 - 61.8 access roads (temporary and permanent, and external and internal roads);



61.9 maintenance, medical, administration, services, control buildings;

61.10 water supply pipeline for construction and operational phases;

61.11 raw water pipeline and reservoirs;

61.12 dams for storage of "clean" and "dirty" water; and

61.13 general and hazardous waste storage and handling facilities (temporary and permanent).

62 The initial application and environmental authorisation issued in 2013 were for a 450MW power station. Initially three 150MW CFB boilers were proposed for the 450MW Project.

63 The capacity of the proposed coal-fired power station was subsequently increased in July 2015, to 600MW, with the proposed addition of a fourth boiler. A further environmental impact assessment report was submitted in 2015 ("**the 2015 FEIR**") to provide for the increase in capacity.

64 The Khanyisa Project will be in an area with a high density of existing coal-fired power stations. Eskom's Kendal, Kriel and Matla power stations are within a 20km to 31km radius of the intended location of the Project.

65 The Project required a land area - on a single plot — of approximately 197 hectares ("**Ha**"). However, as such single portion was not available the plant will be on approximately 21Ha and the coal ash disposal will require 150Ha.

66 The proposed site of the Khanyisa Project will be located on the B11F quaternary catchment of the Olifants Water Management Area ("WMA"), which falls within the Upper Olifants River Catchment of the Olifants River. The Upper Olifants River Catchment is significantly impacted by coal mining, coal-fired power stations and other industrial activities. (Appendix L: Surface Water Impact Assessment Report, 2012 FEIR, Pages 9-11). According to the 2012 FEIR:

66.1 the Olifants River originates near Bethal in the Highveld region of Mpumalanga. The river initially flows northwards before curving in an easterly direction through the Kruger National Park *and into Mozambique, where it joins the Limpopo River before discharging into the Indian Ocean* (2012 FEIR, page xviii);

66.2 *"there are no natural surface water resources (streams, wetlands, or water bodies) located on and/or close to the site. The site consists of "bare rock and soil" and "cultivated land" (National Landcover 2000). The only water body close to the site is a stormwater dam (called the Kleinkopje-Klippan Dam) which is located ± 800 m south of the site. This stormwater dam is part of the mine's dirty water management system."* (2012 FEIR, page xviii);
and

66.3 *"Whree distinct superimposed groundwater systems are present within the occurring geology. They can be classified as the upper weathered Eccca aquifer, the fractured aquifers within the unweathered Eccca sediments and the aquifer below the Eccca sediments"* (2012 FEIR, page xviii).

67 As I explain below, the Upper Olifants River Catchment is a water-stressed area, in large part due to the demands of heavy industry, mining and coal-fired power stations in this region.

The Coal Baseload ► ndependent Power Producer Programme

68 Khanyisa is one of two "*preferred bidders*" that have been appointed as IPPs under the Coal Baseload IPP Programme. As mentioned above, the other "preferred bidder" is Thabametsi, the subject of the *Thabametsi* judgment.

69 The Coal Baseload IPP Programme has its origins in two instruments:

69.1 First, the 2011 Integrated Resource Plan for Electricity 2010-2030 ("**IRP**"), developed by the DOE, provides that 6.3 gigawatts ("**GW**") of coal-based electricity is required to meet South Africa's energy demands, of which a portion must be acquired from IPPs. Relevant pages of the IRP are attached, marked **Annexure "SP9"**.

69.2 Second, in December 2012, the Minister of Energy issued two determinations regarding the procurement of electricity generation capacity from IPPs, in terms of section 34(1) of the Electricity Regulation Act 4 of 2006. These determinations include one for 2 500 MW of baseload coal-powered energy from "new build" Coal IPPs for connection to the grid between 2014 and 2024 under the Coal Baseload IPP Programme. A copy of the relevant determination on coal baseload power is attached, marked **Annexure "SP10"**.

70 Tenders under the Coal Baseload IPP Programme are to be awarded following a competitive bidding process.

71 On 15 December 2014, the DOE issued the Request for Qualifications and Proposals for New Generation Capacity (the "**Request for Proposals**"), which sets out the procedures and requirements for this bidding process.

72 The Legal Qualification Criteria, incorporated as part 1 of volume 2 in the Request for Proposals, state that, in order for a bid to be considered, a project must, *inter alia*, meet the following specific qualification criteria, by having the following in place when a bid response is submitted:

72.1 an environmental authorisation in the name of the project company for the whole of the project;

72.2 a written confirmation of a water allocation for all the water consumption needs of the project from a water services provider, or a written non-binding confirmation of water availability for the project from the Department of Water and Sanitation ("**DWS**");

72.3 a fully developed integrated water use licence application ("**IWULA**") or a water use licence application ("**WULA**"), which is ready for submission and processing with the relevant provincial branch of the DWS if the applicant is appointed as a preferred bidder;

72.4 written confirmation from DWS that the IWULA or WULA is fully developed, has satisfied the DWS's pre-application requirements, and is ready for submission, should the bidder be appointed as preferred bidder; and

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72.5 a waste management licence ("**WML**").

I attach the Legal Qualification Criteria (volume 2, part 1 of the Request for Proposals), marked **Annexure "SP11"**.

73 The Coal Baseload IPP Programme will consist of several bidding windows. According to the Request for Proposals; first phase projects must be capable of beginning commercial operation before the end of December 2021. The first phase bid submission deadline was extended to 2 November 2015.

74 The Coal Baseload IPP Programme process is closed to the public. This meant that there was little way of knowing which prospective IPPs intended to bid under the first bid window of the Coal Baseload IPP Programme, which IPPs had, in fact, submitted bids and which were likely to be appointed as preferred bidders. On the date of the bid submission deadline (2 November 2015) there were at least 9 IPPs of which groundWork was aware.

75 As I explain in greater detail below, groundWork only became aware of ACWA's environmental authorisation in June 2015. It only became aware of its intention to operate as an IPP within the Coal Baseload IPP Programme when it was appointed as a "preferred bidder" on 10 October 2016.

ACWA's environmental impact assessment

76 Section 24(1) read with 24(2) of **NEMA** provides that any activities which are listed or specified by the Minister of Environmental Affairs must obtain an environmental authorisation before they may commence.

77 The construction of a coal-fired power station is one such listed activity.³ The Deputy Director-General was the "*competent authority*" that considered and decided on ACWA's application for an environmental authorisation. As indicated above, the Chief Director has now been assigned as the competent authority responsible for these environmental authorisations.

78 Once an application for environmental authorisation has been made, an environmental impact assessment process must be undertaken. Section 24(1) of NEMA requires that the environmental impacts of a listed activity "*must be considered, investigated, assessed and reported on*" to the competent authority tasked with making decisions on environmental authorisations.

79 Section 24(1) of NEMA makes it mandatory for competent authorities to take account of "*all relevant factors*" in deciding on these applications, including "*any pollution, environmental impacts or environmental degradation likely to be caused if the application is approved or refused*".

³ "Listing Notice 2: List of Activities and Competent Authorities Identified In Terms Of Sections 24(2) and 24D", GNR 545 in *Government Gazette* No 33306 of 18 June 2010.

79.1 I am advised that the Constitutional Court has confirmed that section 240(1) imposes "*peremptory*" requirements.

79.2 Moreover, the *Thabametsi* judgment holds that the climate change impacts of a project are relevant factors that must be considered by the decision-makers.

80 The application for environmental authorisation for the Khanyisa Project was made and considered under the 2010 EIA Regulations,⁴ which specify the procedure that must be followed in conducting an EIA.

81 In terms of the EIA process, the applicant must appoint an independent environmental assessment practitioner ("**EAP**") to conduct this process. At the time, Anglo (the initial applicant for the environmental authorisation) appointed Aurecon (Pty) Ltd ("**Aurecon**") as the practitioner to conduct the EIA.

82 Aurecon submitted the 2012 FEIR report during March 2012.

83 At all material times, groundWork was not aware of and as such was not involved in the application process for the Khanyisa Project's environmental authorisation.

⁴ The 2014 Environmental Impact Assessment Regulations subsequently came into force in December 2014 ("2014 EIA Regulations"). In terms of the transitional provisions, the 2010 EIA Regulations continued to apply to all pending applications and appeals. As a result, the 2010 EIA Regulations continue to apply to the Khanyisa Project.

The content of the final environmental impact report

84 The 2012 FEIR contains several sections, which touch on or otherwise suggest the scale of the climate change impacts of the Khanyisa Project. However, as I explain in the next section, there are material deficiencies in the assessment of these climate change impacts.

85 The non-technical summary to the 2012 FEIR details that the Khanyisa Project proposes to use discard low-grade coal. Each proposed CFB boiler will be a sub-critical unit with a thermal efficiency of 35.5% (2012 FEIR, page 96).

86 While the Project proposes pollution controls for major pollutants such as sulphur dioxide ("SO₂") and particulate matter ("PM"), no technologies are proposed for other pollutants that will be emitted including the Project's carbon monoxide ("CO"); volatile metals such as mercury and — the GHG — CO₂.

87 Section 7.4 of the 2012 FEIR provides a brief assessment of some of the climate change impacts of the Project. It states,

87.1 *"the establishment of a new coal-fired power station will emit greenhouse gases to the atmosphere, adding to the greenhouse effect on a regional, national and international scale"* (2012 FEIR, section 7.4.1);

87.2 *"Greenhouse gases released from a coal-fired power station are primarily CO₂ with minor amounts of nitrous oxide (N₂O)."* (2012 FEIR, section 7.4.2)

87.3 *"the proposed power station is likely to contribute about 4.3 million metric tons of CO₂ per year (assuming the operation of a 450 MW power station with an emission factor of 1100 g CO₂ per kWh sent out, operating with FGD on Kleinkopje discard for 8700 h per year)" (2012 FEIR, section 7.4.2);*

87.4 *"the emissions from Khanyisa power station would increase South Africa's CO₂ equivalent emissions by some 0.85 % and would increase the country's contributions to global emission of greenhouse gases by some 0.01 %. This is a limited increase in greenhouse gas emissions, given the aims of the Kyoto Protocol, which aims to reduce overall emission levels of the six major greenhouse gases to 5 % below the 1990 levels, between 2008 and 2012 in developed countries. While South Africa, as a developing country, is not obliged to make such reductions, the increase in greenhouse gas (GHG) emissions must be viewed in light of global trends to reduce these emissions significantly" (2012 FEIR, section 7.4.3);*

87.5 *"the proposed station has a slightly higher emission factor than that of the average Eskom coalfired power station (approx. 1100 g/kWh vs 1065 g/kWh) but it should be taken into account that the proposed station includes an emission premium for FGD of approximately 50 g/kWh and will replace power generation from Eskom's marginal (not average) station. The latter may be expected to have a considerably higher GHG emission factor than the average. The proposed station will therefore have a neutral or slightly positive effect on GHG emissions" (2012 FEIR, section 7.4.3); and*

87.6 in terms of impact on climate change, the 2012 FEIR noted that *"the decommissioning of the power station would discontinue the carbon and*

GHG emissions. As such the impact on climate change would discontinue, although the impact on climate change would be irreversible." (2012 FEIR, paragraph 9.3.3, pages 387-388).

88 The 2012 FEIR states, in relation to GHG emission mitigation, that

88.1 *"The requirements for CO2 capture equipment have been identified and included in the proposal requirements for the IPP bidders to ensure their retrofit in the future. This means that should it become feasible and necessary to incorporate CO2 capture technology on the proposed power station in the future, this would be possible";*

88.2 *"Should CO2 capture become necessary in the future the IPP would be required to undertake the necessary processes to obtain any relevant permits. At this point it is not possible to say which processes may be required since there is no legislation yet **but it** is possible that an ESIA process may be required." (2012 FEIR, page 25)*

The deficiencies in the 2012 FEIR

89 In light of the *Thabametsi* judgment and international best-practice, a climate change impact assessment of a coal-fired power station requires, at minimum, an assessment of the following:

89.1 First, there must be a full assessment of how the Khanyisa Project will contribute to climate change, taking into account:



89.1.1 the direct GHG emissions of the Khanyisa Project including CO₂, N₂O and methane ("C1-14") emissions;

89.1.2 indirect and full life-cycle emissions of the Khanyisa Project, including emissions from all associated activities such as its construction, the mining of coal (which would include fugitive emissions from coal mines supplying the Khanyisa Project), transport of sorbent and fuel, decommissioning etc.;

89.1.3 the cumulative emissions, taking into account the combined GHG emissions from other coal-fired power stations, mines, heavy industry, and other polluters in the area, and how this will potentially impact on South Africa's emissions targets; and

89.1.4 an assessment of the social and environmental cost of the GHG emissions, including livelihood, health and safety (I am advised that these are external costs to be factored into the assessment of a project's climate change impacts, or at least into the assessment of the financial feasibility of a project, given the principle in NEMA section 2(4)(p) that the 'polluter' must 'pay' for damage or environmental degradation).

89.2 Second, the assessment must consider how the Khanyisa Project may aggravate the harmful effects of climate change in the region.

89.3 Third, an analysis must also be conducted on the Khanyisa Project's climate change resilience, taking into account how climate change will impact the

efficiency and continued operation of the Khanyisa Project for its anticipated 50 year lifespan.

89.4 Finally, the assessment must propose measures for the avoidance, mitigation or remedy of the Khanyisa Project's climate change impacts including:

89.4.1 emission management measures and their probable effect;

89.4.2 the maximum improvement in emissions intensity that could be achieved, and whether this improvement would be a material reduction of GHG emissions; and

89.4.3 an assessment of the "no go option" (as required in a consideration of alternatives under regulation 31(2)(g) read with regulation 1(1) of the 2010 EIA regulations).

90 As the *Thabametsi* judgment held, these climate change impacts are best assessed by means of a professionally researched climate change impact report, prepared by specialists in the field. Khanyisa did not commission such a report. We attach a copy of the relevant pages from Thabametsi's final climate change impact assessment summary report ("**Thabametsi CCIA**"), marked as **Annexure "SP12"**. The Thabametsi CCIA serves as an example of the kind of professionally researched report envisaged by the *Thabametsi* judgment, although even this report is still deficient in some respects.⁵

⁵ A full copy of the Thabametsi CCIA can be made available on request.

91 Moreover and in any event, there are a number of substantial omissions and deficiencies in the 2012 FEIR.

92 First, the 2012 FEIR is deficient as it does not contain a full assessment of the GHG emissions from the Khanyisa Project over its full life-cycle.

92.1 The 2012 FEIR failed to properly quantify GHG emissions, other than CO₂ emissions, such as emissions of CH₄ (methane) and N₂O (nitrous oxide). The 2012 FEIR acknowledges that these other GHGs must be considered, but it only provides an estimate of the likely CO₂ emissions (2012 FEIR paragraph 7.4.2, page 199).

92.2 I am advised that CFB technology proposed for the Khanyisa Project will result in significantly higher N₂O emissions in comparison with other coal plant technologies, and that N₂O has 168-298 times the GWP than that of CO₂. Further, the Thabametsi CCIA for the Thabametsi Project (which also proposes to use CFB technology), showed a 19% increase in GHG emission intensity once N₂O was accounted for in the total estimated GHG emissions for the Thabametsi Project. A **supporting affidavit** by **Eugene Kenneth Cairncross**, a retired chemical engineer and Emeritus Professor of the Cape Peninsula University of Technology, will be attached in support hereof.

92.3 The estimations of GHG emissions contained in the 2012 FEIR only take into account the emissions during the operation of the coal-fired power station. This does not take into account the emissions that will be involved in the construction and decommissioning of the Khanyisa Project, as well as

indirect emissions from activities linked to the power station operation, such as transportation and mining.

92.4 The section of the 2012 FEIR dealing with the construction phase is entirely silent on these emissions. This phase is estimated to last between 9 to 27 months, and will generate GHG emissions (2012 FEIR, paragraph 8.1, pages 319 — 320).

92.5 The section of the 2012 FEIR dealing with decommissioning merely contains the glib statement that this phase will "*discontinue the carbon and GHG emissions*" (2012 FEIR, paragraph 9.3.3, page 387-388). This is despite the fact that the 2012 FEIR estimates that this process of decommissioning will last more than three years, involving the demolition of the power station, the removal of all infrastructure and the reconstruction of the site (2012 FEIR paragraph 9.2, page 385). All of these activities will potentially generate further GHG emissions which have not been assessed or accounted for.

93 Second, the 2012 FEIR makes no attempt to assess the impact of the Khanyisa Project on the climate change resilience of the surrounding region. In particular, there is no assessment of how climate change will impact on the already water-stressed, water resources in the region and how the addition of another coal-fired power station, with its significant water usage and water pollution, will exacerbate this water stress.

93.1 As the Department's White Paper acknowledges, one of the most serious dangers of climate change in South Africa is that it will aggravate water scarcity.

93.2 The ASSAf report referred to above (the relevant excerpts of which are attached as Annexure "SP5", highlights the key climate change challenges and impacts in South Africa over the next 30 years, and confirms that the strongest impacts of climate change in the first half of the 21st century will be on, *inter alia*, the security of freshwater supplies to industry, towns and agriculture.

93.3 Furthermore, the Department's Draft 3rd National Communication to the Framework Convention (the "**Draft Report to the Framework Convention**") confirms projected changes in rainfall for the northern interior (zone 1), which includes the Olifants River. It states that "*projections indicate general drying (but with possible slight wetting... this is an area of considerable uncertainty*" (pages 357 — 358). The relevant excerpts of the Draft Report to the Framework Convention are attached as **Annexure "SP13"**.

93.4 Mpumalanga is known to be a water-stressed area, and the Upper Olifants River Catchment, in the area of the Khanyisa Project is a stressed catchment due to the extent of coal mining and industrial development.

93.5 In the DWS's Integrated Water Quality Management Plan for the Olifants River System Inception Report of 2016 (the "**IWQMP Report**"), the DWS acknowledges that the Olifants River Catchment is "*a highly utilised and*

regulated catchment...and its water resources are becoming more stressed from both a water quantity and water quality point of view. This is due to an accelerated rate of development and the scarcity of water resources. There is therefore an urgency to ensure that water resources in the Olifants River System are able to sustain their level of uses and be maintained at their desired state." (IWQMP Report, page ix). The relevant excerpts of the IWQMP Report are attached as **Annexure "SP14"**.

93.6 A further illustration of the water stress in the Olifants River Catchment, is the fact that Mpumalanga was declared a drought disaster area in 2015 by notice in Government Gazette 2619 on 4 December 2015. I attach a copy of this declaration, marked **Annexure "SP15"**.

93.7 Coal-fired power stations are notoriously water-intensive, as substantial volumes of water are required for their operation. Adding yet another coal-fired power station in the region is therefore likely to place substantial strain on the diminishing and stressed water resources in the area.

93.8 The 2012 FEIR contains no assessment of how much water the Khanyisa Project will require and how its demand for water may aggravate the effects of climate change in the region. This is certainly a relevant factor that ought to have been addressed.

93.9 The 2012 FEIR suggests that the Khanyisa Project will make use of reclaimed and treated mine water from the eMalahleni Waste Water Treatment Works. However, there is no indication whether this will be the

only source of water for the coal-fired power station and what additional burden this may impose on the water supply in the area.

93.10 A further consideration of potential and relevant climate change impacts to water sources in the region is a likely increase in irregular rainfall patterns, which could lead to high frequency of extreme events such as intense droughts and flooding. The Department has also identified that flooding and droughts will impact on water quality, as this will have a direct impact on the dilution or concentration of dissolved substances in water (Draft Report to the Framework Convention (Annexure "SP13"), page xii-xiii, xv, 18, 360361, 369).

93.11 In respect of the Khanyisa Project, the potential for water contamination and seepage is envisaged only in respect of breakage of the lining for the coal ash dam. The 2012 FEIR does not take into account the effect of potential increases in intense flooding as a result of climate change, which may impact on the Khanyisa Project's water treatment plant capacity, water storage systems, ash disposal system (which will contain discharged stormwater), contaminated water storage system, dams, or any runoffs from the opencast storage sites.

93.12 These impacts should have been fully measured and assessed in the 2012 FEIR. However the 2012 FEIR is silent on these issues.

94 Third, the 2012 FEIR also makes no attempt to assess how climate change will impact on the operation and viability of the Khanyisa Project over its 50-year lifespan. Rising average temperatures, diminishing water supplies and increased

flooding will potentially have a substantial impact on the operation and efficiency of the power station. These impacts should have been fully assessed, but again the 2012 FEIR is silent on these matters.

95 Finally, as a consequence of these omissions, there was also no adequate assessment of how to avoid, mitigate or remedy these climate change impacts.. Such an assessment can only be made once all of the relevant impacts have been identified.

95.1 The 2012 FEIR only contains a brief assessment of measures to mitigate the CO2 emissions of the Khanyisa Project, concluding that there are *"no feasible directly applicable measures that can be implemented at the project level"* to mitigate these emissions (2012 FEIR, page 203).

95.2 However, given that the 2012 FEIR omitted other key climate change impacts, it did not sufficiently investigate the measures required to avoid, mitigate or remedy those impacts.

The decision to grant the environmental authorisation

96 As indicated above, the Deputy Director-General decided to grant the environmental authorisation on 31 October 2013. The environmental authorisation is an integrated environmental authorisation as envisaged by section 24L of NEMA, regulation 36(3) of the 2010 EIA Regulations, and section 44 of the National Environmental Management: Waste Act 59 of 2008 ("**NEMWA**"), because it also serves as a WML in terms of NEMWA. A copy of this environmental authorisation is attached, marked **Annexure "SP16"**.



97 The Deputy Director-General's reasons for granting the environmental authorisation are set out in Annexure I to the environmental authorisation. The Deputy Director-General found, *inter alia*, that:

97.1 "The *identification and assessment of Impacts are detailed in the EIR dated March 2012 and sufficient assessment of the key identified issues and impacts have been completed*" (page 18, paragraph 2(a));

97.2 the impact assessment procedure was "*adequate for the decision-making process*" (page 18, paragraph 2(e)); and

97.3 that "*proposed mitigation of impacts identified and assessed adequately curtails the identified impacts*" (page 18, paragraph 2(f)).

98 On this basis, the Deputy Director-General concluded that the authorised activities would not conflict with the NEMA objectives of integrated environmental management and that "*any potential detrimental environmental impacts resulting from the activity can be mitigated to acceptable levels*" (environmental authorisation, page 19).

99 The Deputy Director-General made no mention at all of the climate change impacts of the Khanyisa Project. Moreover, even if the Deputy Director-General had applied his mind to these impacts, there would have been no basis to conclude that there was "sufficient" assessment of the climate change impacts, given the substantial deficiencies in the 2012 FEIR.

Amendments to the environmental authorisation and further approvals

100 The Khanyisa Project's environmental authorisation has since been amended on the following four occasions:

100.1 on 28 July 2015, the environmental authorisation was amended to increase the capacity of the power station from 450MW to 600MW and to make provision for road realignment;

100.2 on 25 February 2016, the environmental authorisation was again amended to make provision for road realignment;

100.3 on 2 February 2017, an amendment was approved to change the name of the applicant and the name of the property on which the power station will be constructed; and

100.4 most recently, on 3 April 2017, the environmental authorisation was again amended to postpone the date by which kinetic leach testing for the plant must be conducted.

101 The 28 July 2015 amendment was preceded by the 2015 FEIR, which was finalised on 18 June 2015. I attach relevant excerpts of the 2015 FEIR and Appendix E Air Quality Impact Assessment Report of the 2015 FEIR, marked **Annexure "SP17"**.

102 There is a glaring error in this 2015 FEIR, which demonstrates that the climate change impacts of this expansion were not properly assessed. The Air Quality Impact Assessment, which was annexed as Appendix E to the 2015 FEIR,

contains a brief estimation of the likely GHG emissions from the expanded Project. What is striking is that the figures contained in this report are identical to the estimates contained in the original 2012 FEIR, despite the fact that the capacity of the coal-fired power station would be increased by 150 MW (that is, expanded by one-third).

102.1 The 2015 FEIR assessment of the GHG emissions of the 600MW power station is as follows:

"The proposed power station is likely to contribute about 4.3 million metric tons of CO₂ per year (assuming the operation of a 600 MW power station with an emission factor of 1100 g CO₂ per kWh sent out, operating with Flue Gas Desulfurisation (FGD) on Kleinkopje discard for 8700 h per year) (Mott McDonald 2011).

"The emissions from Khanyisa Power Station would increase South Africa's CO₂ equivalent emissions by some 0.85 % and would increase the country's contributions to global emission of greenhouse gases by some 0.01 %." (Annex E, Air Quality Impact Assessment, pp 70 - 71)

102.2 Compare this with the virtually identical assessment contained in the 2012 FEIR:

"The proposed power station is likely to contribute about 4.3 million metric tons of CO₂ per year (assuming the operation of a 450 MW power station with an emission factor of 1100 g CO₂ per kWh sent out, operating with FGD on Kleinkopje discard for 8700 h per year). (Mott McDonald, 2011)

The emissions from Khanyisa power station would increase South Africa's CO₂ equivalent emissions by some 0.85 % and would increase the country's contributions to global emission of greenhouse gases by some 0.01 %. This is a limited increase in greenhouse gas emissions, given the aims of the Kyoto Protocol, which aims to reduce overall emission levels of the six major greenhouse gases to 5 % below the 1990 levels, between 2008

and 2012 in developed countries." (2012 FEIR para 7.4.3, pp 200 — 201).

103 This blatant copying and pasting from the 2012 **FEIR** suggests one of three scenarios: either the 2012 emissions figures were incorrect, or the 2015 emissions figures were incorrect, or both were incorrect. In either of these scenarios, it is clear that mistakes were made in calculating these emissions.

104 In addition to this glaring error, the 2015 FEIR contains all of the deficiencies of the original **2012 FEIR**:

104.1 there is no assessment of the life-cycle emissions of the coal-fired power station and no assessment of the full range of GHG emissions;

104.2 there is no assessment of how the coal-fired power station will contribute to the severe impacts of climate change in the region, including water scarcity;

104.3 there is no assessment of how climate change will impact on the operation of the coal-fired power station over its 50-year lifespan; and

104.4 given these deficiencies, there was no adequate assessment of how these impacts can be avoided, mitigated or remedied.

105 The Khanyisa Project has also been issued with further separate environmental authorisations, relating to the Project. On 5 May 2016, an environmental **authorisation was granted for a proposed bulk water supply pipeline which would connect the eMalahleni Water Reclamation Plant with the Khanyisa Project. On 13**

May 2016, a further environmental authorisation was granted for a 400kV substation and power line for the Khanyisa Project.

ACWA'S APPOINTMENT AS A PREFERRED BIDDER AND OUTSTANDING APPROVALS

106 As indicated above, ACWA was appointed as a preferred bidder under the Coal Baseload IPP Programme on 10 October 2016. The other preferred bidder is the proposed 1200MW Thabametsi IPP coal-fired power station, near Lephalale, Limpopo.

107 On 10 October 2016, the DOE announced in a press release that *"both Thabametsi and Khanyisa will collectively add 863.3MW to the country's grid in the next five years, which is set to begin commercial operation in December 2020."* The press release also stated that these projects are collectively backed by *"foreign developers from Korea, Japan and Saudi Arabia, the SA banking sector, including the Development Bank of South Africa (DBSA), the PIC (Public Investment Corporation) and IDC (Industrial Development Corporation), the two bidders already have a formidable set of partners committed to enabling their projects' success, said the minister."* The press release is attached marked **Annexure "SP18"**.

108 The Coal Baseload IPP Programme Request for Proposals stipulates various requirements that must be met by a preferred bidder. The relevant pages of the Request for Proposals are attached as **Annexure "SP19"**. The Khanyisa Project and Thabametsi are under an obligation to meet these requirements, which include that:

108.1 not later than 15 days from the announcement of the preferred bidders, it must provide a signed PB PD Undertaking, which is defined as "*the undertaking to be provided to the Department by each Preferred Bidder, for the purposes of developing a Project under this Coal Baseload IPP Procurement Programme substantially in the form of Appendix 2 ... of the [Request for Proposals]*" to DOE (page 33 and clause 12 of page 97, Part A, Request for Proposals);

108.2 preferred bidders must reach commercial⁶ and financial close within 6 months after the announcement of the preferred bidders - this is in terms of the Timetable for the Coal Baseload IPP Programme (clause 12 of page 97, Part A, Request for Proposals); and

108.3 in order for a preferred bidder to reach financial and commercial close, such bidder must, at least one month before the scheduled commercial close, provide DOE with *inter alia*:

108.3.1 the approval of all outstanding environmental consents integral to the Project, including, but not limited to the following: an environmental authorisation; a WUL; and any provisional atmospheric emission licence ("**AEL**") required in terms of the National Environmental Management: Air Quality Act, 2004 ("**AQA**") (section 5.2.2, volume 2, part 5, Request for Proposals);

⁶ "Commercial Close" is defined in the Request for Proposals, Part A as "the Effective Date as defined in the Implementation Agreement", p18. The Implementation Agreement is the agreement to be entered into between the Seller and the DOE, p28.

⁷ "Financial Close" is defined in the Request for Proposals, Part A as "...the date on which the Seller, as the Borrower under the Financing Agreements, has received confirmation that all suspensive conditions to the Financing Agreements have either been met to the relevant Lender's satisfaction or have been appropriately waived by the Lenders", p27.

108.3.2 a generation licence from the National Energy Regulator of South Africa ("**NERSA**") (section 5.5.8, volume 2, part 5, Request for Proposals); and

108.3.3 proof of the resolution or settlement of any appeals and/or reviews which may have been lodged or instituted against a decision to grant any environmental consent for the project (section 5.2.3, volume 2, part 5, Request for Proposals).

109 ACWA was initially required to reach financial and commercial close by 10 April 2017. I am advised that this deadline has subsequently been extended to 3 November 2017, as explained below.

110 I am advised that ACWA is still in the process of obtaining various licences and environmental approvals, including a licence to generate electricity from NERSA, and a WUL. groundWork has submitted objections to both applications:

110.1 On 23 January 2017, groundWork submitted objections to ACWA's application for a WUL for the Khanyisa Project.

110.2 On 27 February 2017 groundWork submitted written objections to ACWA's application for a licence to generate electricity from NERSA.

110.3 To avoid overburdening these papers, I have not attached copies of these objections, but they will be made available if necessary.

111 Furthermore, the validity of the provisional AEL issued for the Khanyisa Project in 2015 is in dispute. groundWork has objected to the transfer of the provisional AEL from Anglo to ACWA.

112 On 6 April 2017, groundWork's attorneys, the Centre for Environmental Rights ("**CER**"), wrote to the DOE's IPP Office recording numerous concerns regarding the Khanyisa Project's environmental authorisation and provisional AEL, and the fact that ACWA has not yet obtained a WUL or licence from NERSA. The letter asked the DOE IPP Office to advise whether extended deadlines for commercial and financial close have been granted to either Thabametsi and/or ACWA, and if not, what steps will be taken in relation to this likely non-compliance. The letter is attached marked **Annexure "SP20"**.

113 On 2 June 2017, CER received a response from the DOE IPP Office, which advised, *inter alia*, that the deadline for reaching commercial and financial close had been extended to 3 November 2017. A copy of this letter is attached marked **Annexure "SP21"**.

114 It is therefore clear that ACWA has not yet reached financial and commercial close, and there are a series of issues still pending in this regard.

THE APPLICATION TO THE MINISTER FOR CONDONATION

115 As described above, the *Thabametsi* judgment was handed down on 8 March 2017.

This judgment provided much-needed clarity that the climate change impacts of proposed coal-fired power stations must be comprehensively assessed

and considered before any decisions can be made to grant environmental authorisations.

116 groundWork sought leave to appeal the environmental authorisation and a notice of intention to appeal was submitted on 29 March 2017. I attach a copy of this notice of intention to appeal marked **Annexure "SP22"**.

117 Section 43 of NEMA designates the Minister as the relevant appeal authority. Section 43(6) of NEMA affords the Minister wide powers on appeal, including the powers to *"confirm, set aside or vary the decision, provision, condition or directive or make any other appropriate decision."*

118 I am advised that new regulations on appeals (**"the 2015 National Appeal Amendment Regulations"**) were published on 12 March 2015. Regulation 3 stipulates that an appeal lodged against a decision taken in terms of the 2010 EIA Regulations must be dispensed with in terms of the 2010 EIA Regulations, as if they had not been repealed. As a result, groundWork's notice of intention to appeal and the appeal — had it been allowed - would follow the procedures prescribed in the 2010 EIA Regulations.

119 On 30 March 2017, the Appeals Director sent an email to CER, advising that, given the delay in bringing the appeal, the Minister would first need to make a decision on whether or not to grant an extension of the appeal period. The Appeals Director provided groundWork with an opportunity to make any further submissions to the Minister in terms of Regulation 60(4) of the 2010 EIA Regulations. This email is attached marked **Annexure "SP23"**.

120 Regulation 60(1) of the 2010 EIA Regulations requires notices of appeal to be filed within 20 days of a decision under the regulations. This is subject to regulation 60(4), which empowers the Minister to extend this deadline on "good cause" shown. This provision provides:

"(4) The Minister, MEC or designated organ of state, may, as the case may be, in writing, on good cause extend the period within which a notice of intention to appeal must be submitted."

121 On 18 April 2017, groundwork filed further submissions for condonation for the late filing of an appeal ("**the Condonation Submission**"). The Condonation Submission is attached marked **Annexure "SP24"**. Some of the arguments made by groundWork included that:

121.1 the *Thabametsi* judgment is significant for the appeal in that it holds that the Khanyisa Project's environmental authorisation was unlawful and invalid as there was no adequate assessment of the climate change impacts of this Project, and the Department made no attempt to engage with the climate change impacts of this Project in its reasons for granting the authorisation;

121.2 while as a strict matter of legal theory it may be correct that the *Thabametsi* judgment merely recognised a pre-existing legal position, as a practical matter, the *Thabametsi* judgment produced a considerable shift in the prevailing position;

121.3 furthermore, there are changed circumstances that warrant the reconsideration of the environmental authorisation on appeal. Since the Khanyisa Project's environmental authorisation was issued in 2013, the circumstances around: air quality impacts; international climate change

commitments; and water impacts in the Project area have changed substantially. Public interest dictates that these changed circumstances be considered on appeal, particularly in light of the fact that the Khanyisa power station will be operational for at least 50 years (2012 FEIR, page 385);

121.4 there is good cause to grant an extension under regulation 60(4) of the 2010 EIA Regulations in that the importance of the climate change issues and the potential long-term impacts of the Khanyisa Project, over a period of more than 50 years, far outweighs any delay in launching this appeal;

121.5 ACWA is still a long way from being able to commence construction of its Khanyisa power station. It still requires various outstanding licences and approvals. While it is a "preferred bidder" under the Coal Baseload IPP Programme, it has yet to satisfy the requirements for financial and commercial close. Any expense and effort that ACWA has already incurred is a normal part of the process of applying for regulatory approval. It has voluntarily assumed this risk and expense and must bear the costs if its applications are invalid;

121.6 any minor prejudice that ACWA may experience is far outweighed by the importance of the issues at stake and the merits of this appeal, taking into account the fact that this power station will operate for at least 50 years; and

121.7 fairness and consistency required that the Khanyisa Project should also be required to conduct a comprehensive climate change impact assessment, on the same terms that have been imposed on Thabametsi.

122 On 16 May 2017 ACWA responded to groundWork's Condonation Submission. A copy of this condonation response is attached marked **Annexure "SP25"**.

123 On 20 June 2017, the Minister issued her decision refusing condonation, which is attached, marked **Annexure "SP26"**. Some of the Minister's reasons for refusing condonation were, *inter alia*, as follows:

123.1 even if the Minister were to consider the date on which groundWork became aware of the environmental authorisation (June 2015) as the effective date of the environmental authorisation for purposes of the condonation application, the application will still have been made almost 2 years from becoming aware of the existence of the environmental authorisation and the status of the Project (paragraph 4.2.5);

123.2 the *Thabametsi* judgment does not make new law, it simply interprets section 240 NEMA (paragraph 4.2.6);

123.3 fairness and legal certainty dictate that given the substantial degree of lateness in the filing of a notice of intention to appeal there can be no justification for the grant of the condonation to groundWork (paragraph 4.2.7); and

123.4 ACWA had indicated that it submitted correspondence to the Department on 25 May 2017 to notify the relevant officials of its intention to commence with construction activities for the authorised coal-fired power station on 12 June 2017 (paragraph 4.2.8).

124 As is clear from the Minister's decision, she placed great store in the fact that ACWA intended to commence construction activities on 12 June 2017. groundWork still has no knowledge of the nature or extent of this intended construction.

125 On 29 June 2017, groundWork's legal representatives, CER, addressed urgent correspondence to both the government respondents and to ACWA's attorneys seeking clarity on whether construction had indeed commenced and contesting ACWA's entitlement to commence construction.

125.1 In the letter addressed to the government respondents, CER:

125.1.1 requested a copy of the letter that ACWA had sent to the Department on 25 May 2017, informing the Department of the intention to commence construction;

125.1.2 emphasised that ACWA had not yet reached financial and commercial close and had not yet obtained a WUL or a licence to generate electricity from NERSA; and

125.1.3 contended that the commencement of construction before the requisite authorisations and approvals have been obtained, would be unlawful, and will be stringently opposed by groundWork.

125.2 In addition, the letter to ACWA requested an urgent indication whether ACWA had indeed commenced construction of the Khanyisa Project and requested an undertaking that no further construction would take place.

125.3 Copies of these letters are attached, marked **Annexures "SP27"** and **"SP28"** respectively.

126 As at date hereof, the government respondents have not responded to this letter.

127 On or around 26 June 2017, the EAP for the Khanyisa Project, Anne-Man White of Aurecon, advised groundWork's attorneys that, to her knowledge, construction had not yet commenced on the Khanyisa Project. A **confirmatory affidavit** of CER attorney **Nicole Loser** will be attached hereto.

128 On 24 July 2017, CER finally received a substantive response to the letter of 29 June 2017. This followed two previous holding letters of 30 June 2017 and 18 July 2017 in which ACWA's legal representatives had indicated that they were still awaiting instructions. In the letter of 24 July 2017, attached marked **Annexure "SP29"**, ACWA's legal representatives:

128.1 issued a bald denial that ACWA was engaged in any unlawful activities;

128.2 refused to give groundWork a copy of the letter that had been sent to the Department on 25 May 2017; and

128.3 asserted that *"any activities embarked upon by [ACWA] in anticipation of reaching financial close are being conducted lawfully and within the parameters of the applicable regulatory framework."*

129 In the interim, groundWork had sent representatives to the site of the Khanyisa Project to investigate the nature and extent of any construction work. On 25 July

2017, groundWork's community activist Thomas Mnguni, visited the proposed Khanyisa site and noted that some form of exploratory drilling was taking place on the site, but this could not be described as full-blown construction. An engineer of SRK Consulting who was on the site confirmed that the location was the proposed Khanyisa Project site. A **confirmatory affidavit** of **Thomas Mnguni** will be attached hereto.

130 On 31 July 2017, CER addressed further correspondence to ACWA's legal representatives, attached marked **Annexure "SP30"**.

130.1 This letter recorded that some form of drilling was taking place on the site but that groundWork did not know the nature, extent or purpose of this work. As a result, CER again requested information about the current and planned construction work on the site.

130.2 This letter also repeated that ACWA was not entitled to commence activities for which it did not yet have licences or authorisation and again requested an undertaking that ACWA would not engage in activities without the necessary authorisations.

130.3 The letter further informed ACWA of ground Work's intention to review the environmental authorisation and informed ACWA that any steps taken by ACWA to commence construction on the site, in the shadow of this litigation, are entirely at their own risk.

131 On 21 August 2017, ACWA's legal representatives replied to this letter, stating that

"our client has already responded to and dealt with the subject matter of your letter

... and sees no purpose in repeatedly traversing matter to which you already have a response". No information was provided about the nature of the work taking place on the site. I attach a copy of this reply, marked **Annexure "SP31"**.

132 I invite ACWA to indicate in its answering affidavit, unambiguously, the precise nature and extent of construction work that had been undertaken by it:

132.1 on 29 March 2017, when groundWork submitted its notice of intention to appeal;

132.2 on 18 April 2017, when groundWork submitted its application for condonation;

132.3 on 16 May 2017, when ACWA responded to the condonation application; and

132.4 as at the date of the launch of the present application.

133 In respect of each of these dates, I specifically invite ACWA to indicate the approximate percentage of total construction work in respect of the Khanyisa Project, which had already occurred.

134 In the event that ACWA does not fully and unambiguously disclose this information, groundWork will ask this Court to draw the inference that no material portion of the construction work had occurred as at any of the four dates set out above.

135 I now turn to address the grounds for reviewing and setting aside the environmental authorisation and the Minister's decision.

REVIEW OF THE ENVIRONMENTAL AUTHORISATION

136 Having applied for and been refused condonation for the late filing of the internal appeal, groundWork has now exhausted the internal remedies available to it in respect of the environmental authorisation.

137 As a consequence, groundWork now seeks to review and set aside the decision to grant the environmental authorisation, including the amendments.

138 I am advised that the Deputy Director-General's decision to grant the environmental authorisation is administrative action that falls to be reviewed in terms of PAJA.

Grounds to review and set aside the environmental authorisation

139 In terms of the peremptory requirements under section 240(1)(b) of NEMA, a competent authority must make its decision in compliance with NEMA and must:

*"take into account all relevant factors which may include -
any pollution, environmental impacts or environmental
degradation likely to be caused if the application is approved or
refused;*

(ii) measures that may be taken —

*(aa) to protect the environment from harm as a result of the activity
which is the subject of the application; and*

(bb) to prevent, control, abate or mitigate any pollution, substantially detrimental environmental impacts or environmental degradation;

(viii) any guidelines, departmental policies, and environmental management instruments that have been adopted in the prescribed manner by the Minister or MEC, with the concurrence of the Minister, and any other information in the possession of the competent authority that are relevant to the application"

140 Regulation 31(2) of the 2010 EIA Regulations sets out the prescribed content for an EIA report, requiring that it *"must contain all information that is necessary for the competent authority to consider the application and to reach a decision"*. This must include, *inter alia*:

"(I) an assessment of each identified potentially significant impact, including((()
cumulative impacts;
(ii) the nature of the impact;
(iii) the extent and duration of the impact;
(iv) the probability of the impact occurring;
(v) the degree to which the impact can be reversed;
(vi) the degree to which the impact may cause irreplaceable loss of resources; and
(vii)the degree to which the impact can be mitigated".

141 Regulation 31(2) further requires that this information include:

"(d) a description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity

(g) a description of potential identified alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity".

142 In terms of regulation 34(2)(b), the competent authority must reject the environmental impact assessment report if it *"does not substantially comply with the requirements in regulation 31(2)"*.

143 These provisions must also be read with the 2(4)(a)(vii) "precautionary principle" in NEMA. This principle requires decision-makers to adopt a risk-averse and cautious approach in the face of incomplete information about environmental impacts. I am advised that this is a binding principle that must inform all decisions taken under NEMA, including decisions on environmental authorisations and condonation for late appeals. This principle requires that decisions should be taken on the basis of the best available evidence and that, in cases of uncertainty, decision-makers should err on the side of protecting the environment.

144 The *Thabametsi* judgment holds that the climate change impacts of a coal-fired power station are relevant considerations for the purposes of section 240(1) that must be considered by the decision-maker and must be addressed in the EIA.

145 It was therefore necessary for the then Deputy Director-General (now Chief Director) to consider the climate change impacts as a relevant factor before making a decision on the environmental authorisation, in accordance with NEMA section 240(1)(b)(i). It was also necessary for the Deputy Director-General to consider any measures to avoid, mitigate or prevent the Project's anticipated climate change impacts as a relevant factor before making a decision on the environmental authorisation, in accordance with NEMA section 240(1)(b)(ii).

- 146 There is no evidence that the Deputy Director-General applied his mind to these climate change impacts in reaching his decision.
- 147 The failure to consider the above was also a departure from NEMA section 240 (1)(b)(viii), as the Deputy Director-General did not give full consideration to the National Climate Change Response Policy embodied in the White Paper of 2011.
- 148 Furthermore, the 2012 FEIR was substantially non-compliant in terms of regulation 31(2) and ought to have been rejected as it did not contain "*all information that is necessary for the competent authority to consider the application and to reach a decision*", in particular, the identified impacts, environmental description, and potential identified alternatives of a climate change impact assessment report.
- 149 As set out above, the 2012 FEIR and the updated 2015 FEIR are deficient in several material respects.
- 149.1 First, there is no evidence of a full assessment of the GHG emissions from the Khanyisa Project over its life-cycle, including construction, operation and decommissioning.
- 149.2 Second, the estimation of GHG emissions is not accurate, as the 2012 FEIR only considers the CO₂ emissions from the plant and does not adequately assess other GHG emissions. Moreover, there was also a glaring error in the 2015 FEIR, as it contained emissions figures that were identical to the earlier 2012 FEIR. This suggests that either or both of the emissions estimations were incorrect.

149.3 Third, no attempt was made to assess how the coal-fired power station may aggravate the effects of climate change in the region, particularly the impact that the power station will have on water scarcity and water quality in the region.

149.4 Fourth, there was also no attempt made to assess how climate change will impact on the Khanyisa Project over its full life-cycle and how the power station will impact on the climate change resilience of the surrounding region.

149.5 Finally, as a consequence of these omissions, there was no adequate assessment of how to avoid, mitigate or remedy these climate change impacts.

150 On this basis, the environmental authorisation stands to be reviewed and set aside in terms of section 6(2)(b) of PAJA and the principle of legality as the Deputy Director-General failed to comply with the mandatory and material requirements of section 240(1) of NEMA and regulation 31(2) of the 2010 EIA Regulations by failing to take into account the full climate change impacts of the Project and by failing to ensure that the FEIRs contained an adequate and comprehensive assessment of climate change impacts.

151 The Deputy Director-General also overlooked relevant considerations in granting the environmental authorisation, in the absence of a proper climate change impact assessment. On this basis, the decision also stands to be reviewed and set aside in terms of section 6(2)(e)(iii) of PAJA and the principle of legality.

152 The Deputy Director-General's failure to take into account the climate change impacts of the Khanyisa Project was also irrational and unreasonable in the circumstances. Accordingly, this decision also stands to be reviewed and set aside in terms of sections 6(2)(f)(ii) and 6(2)(h) of PAJA.

153 Moreover, the Deputy Director-General's decision was otherwise unconstitutional and unlawful, as it failed to give proper effect to the section 24 environmental rights in the Constitution and the section 2(4)(a)(vii) precautionary principle in NEMA. Accordingly, this decision also stands to be reviewed and set aside in terms of section 6(2)(i) of PAJA.

Extension of the 180-day period and condonation, to the extent necessary

154 I am advised that section 7(1) of PAJA provides that a review application must be instituted no later than 180 days from the date on which internal remedies are exhausted.

155 The Minister's condonation decision is dated 20 June 2017 and groundWork was only notified of this decision on 26 June 2017. It was that decision which put an end to groundWork's attempts to exhaust its internal remedies. Accordingly, I submit that the 180-day period for reviewing the environmental authorisation therefore expires on 23 December 2017, this being 180 days from the date of the condonation decision. This application is therefore instituted well within the 180-day period.

156 In the alternative, if it is found that the 180-day period started running earlier and that this application is brought outside the 180-day period or that this application is deemed to have been unreasonably delayed in any way, I submit that there are ample grounds to condone this delay and to grant an extension to the 180-day period in terms of section 9 of PAJA.

157 The explanation for the delay and the grounds for condonation are set out in detail in groundWork's Condonation Submission (Annexure "SP24") to the Minister, at paragraphs 26 to 60. While I am advised that the test for condonation under section 9 of PAJA is somewhat different to the test for condonation under regulation 60(4) of the 2010 EIA Regulations, the facts and considerations are the same. I therefore expressly ask that ground Work's Condonation Submission be read as incorporated here.

158 At the risk of repetition, I will now briefly summarise these submissions in favour of condonation.

159 First, there is a full explanation for the delay in bringing this application

159.1 As I have indicated, groundWork only became aware of Khanyisa's environmental authorisation in June 2015 — almost 2 years after the authorisation had been granted.

159.2 During 2015 and 2016, groundWork and its attorneys, CER, were confronted with numerous applications for environmental authorisations and other requisite environmental licences for proposed coal-fired power stations under the Coal Baseload IPP Programme.

- 159.3 At the time, there were, at least 9 proposed IPPs of which CER and groundWork were aware. It was not known, in 2015, which of the proposed IPPs intended to submit bids under the first bid window of the Coal Baseload IPP Programme, and which would be appointed as preferred bidders.
- 159.4 In 2015, groundWork and CER, and other interested and affected parties represented by CER, decided to direct their limited capacity and resources at 3 environmental authorisation processes that were still under way: the Thabametsi, KiPower, and Colenso IPPs.
- 159.5 At that stage, groundWork did not have the capacity nor the resources to take a risk on a condonation application and appeal against Khanyisa's environmental authorisation, which had been granted in 2013. This was particularly so, since the prospects of success were doubtful, given that the Minister was of the view that climate change impact assessments were not legally required by NEMA for proposed coal-fired power stations.
- 159.6 It was only once the *Thabametsi* judgment was handed down that it became clear that the Khanyisa Project's environmental authorisation was unlawful and susceptible to appeal, and it was necessary and appropriate to expend the limited capacity and resources on pursuing the matter.
- 159.7 groundWork acted with all appropriate haste to launch its appeal to the Minister in the wake of the *Thabametsi* judgment. That judgment was handed down on 8 March 2017 and groundWork filed its notice of intention to appeal the environmental authorisation on 29 March 2017.

159.8 On 30 March 2017, groundWork was informed that it had to submit a condonation application to the Minister, which was filed on 18 April 2017.

159.9 After receiving the Minister's decision on 26 June 2017, groundWork consulted with its legal team and gave instructions to prepare this application.

160 Second, I submit that any delay in launching this application must be weighed against the danger of allowing a coal-fired power station with a lifespan of 50 years to proceed without a proper assessment of its climate change impacts. In the *Thabametsi* judgment, Murphy J emphasised the substantial prejudice that would be caused by granting an environmental authorisation before these impacts are fully assessed:

"[T]he decision to grant the authorisation without proper prior consideration of the climate change impacts is prejudicial in that the permission has been granted to build a coal-fired power station which will emit substantial GHG's in an ecologically vulnerable area for 40 years without properly researching the climate change impacts for the area and the country as a whole before granting authorisation"⁸

161 Third, the prospects of success in this review application are strong. The *Thabametsi* judgment held that the climate change impacts of a proposed coal-fired power station must be properly assessed and considered. As I explained above, it is clear that the environmental authorisation granted for the Khanyisa Project falls foul of these requirements.

⁸ *Thabametsi judgment* para 119.

162 Fourth, any costs and expenses that ACWA has incurred to date are the type of costs and expenses that any would-be IPP must incur in obtaining all of the relevant authorisations and approvals required for a coal-fired power station. ACWA has not incurred these costs in reliance on its environmental authorisation.

163 Moreover, contrary to what the Minister may have been led to believe, it appears that ACWA had not and still has not commenced construction of the Khanyisa Project, barring, what appeared to be, some exploratory drilling. In any event, ACWA could not complete this construction or begin operating the power station without obtaining the outstanding WUL and NERSA licenses. It is incorrect to regard the commencement of the Khanyisa Project as a foregone conclusion as DWS and NERSA still have the discretion to refuse the required respective licences. Therefore, this review application does not stand in the way of the commencement or completion of this Project. Instead, ACWA's failure to secure the outstanding approvals and authorisations is the source of any delays for the Khanyisa Project.

164 Fifth, to the extent that this application may cause some financial prejudice to ACWA, this financial prejudice is more than sufficiently outweighed by the need to ensure that environmental authorisations are granted in a lawful manner that adequately assesses the climate change impacts of a project. The substantial risks of climate change in South Africa more than outweigh mere commercial prejudice.

165 Finally, allowing this review application to proceed will ensure fairness and consistency in the Department's treatment of the Khanyisa Project and Thabametsi. Khanyisa and Thabametsi are identical in all relevant respects. Both are preferred bidders under the Coal Baseload IPP Programme and neither has commenced construction in earnest, given the various outstanding licences and approvals.

165.1 Following the *Thabametsi* judgment, the appeal against Thabametsi's environmental authorisation is now before the Minister for reconsideration, on receipt of a final climate change impact assessment.

165.2 If the Khanyisa Project is allowed to proceed without any assessment of its climate change impacts, this will not only be unlawful, but will also result in unequal and unfair differentiation between Khanyisa and Thabametsi.

165.3 Therefore, this review application will allow the Department to ensure fairness and consistency in the environmental authorisation process.

REVIEW OF THE MINISTER'S CONDONATION DECISION

166 In the event that the review of the environmental authorisation fails, for any reason, groundWork seeks to review and set aside the Minister's decision on condonation. This is necessary to allow groundWork's internal appeal against the environmental authorisation to proceed.

167 The Minister exercises wide powers on appeal, which would allow her to fully reconsider the environmental authorisation, taking into account new information that was not before the Deputy Director-General. Accordingly, this internal appeal



would be capable of addressing any deficiencies in the environmental authorisation.

168 I am advised that a decision on condonation under regulation 60(4) of the 2010 EIA Regulations requires the weighing up of various competing considerations.

168.1 These considerations include the importance of the issues at stake, the prospects of success in the appeal, the explanation offered for the delay, and any prejudice to the parties. All of these considerations must be weighed in the balance and none is individually decisive.

168.2 While this weighing exercise involves a discretion, the Minister must exercise this discretion lawfully, rationally and reasonably, taking into account all relevant considerations.

169 The Minister's reasoning shows that she treated the delay in bringing this application as a decisive consideration that precluded any justification for condonation. At paragraph 4.2.7 of her decision she concluded that:

"[F]airness and legal certainty dictate that given the substantial degree of lateness in the filing of a notice of intention to appeal, coupled with the unconvincing nature of the reasons for such delay, there can be no justification for the grant of condonation to the appellant."

170 In adopting such a narrow focus, the Minister committed several reviewable errors

First error: Failure to appreciate the significance of climate change impacts

171 As is clear from the Minister's reasoning, she showed no regard to the importance of climate change and the need for a climate change impact assessment for proposed coal-fired power stations.

172 In its Condonation Submission, groundWork placed great emphasis on these issues. As I have emphasised above, the Khanyisa Project will have a 50-year lifespan. If proper measures are not put in place at the outset to prevent or mitigate its climate change impacts, these harms will remain with us for generations. This is an important consideration that goes to establishing "*good cause*" under regulation 60(4) of the 2010 EIA Regulations, particularly when this provision is interpreted in light of section 24 of the Constitution.

173 Given these dangers, the Department must be able to form a full assessment of the climate change impacts of a coal-fired power station before granting an environmental authorisation. This is necessary to determine whether the Project should be allowed to proceed at all or, if it is to proceed, whether measures should be put in place to limit, mitigate and remedy its impacts.

174 The Minister's decision makes no mention of these considerations. The Minister also makes no attempt to weigh these matters in the balance in determining whether to condone the delay.

175 The Minister's decision merely contains the glib statement that "*Un arriving at my decision on the aforementioned condonation application, it should be noted that I*

have not responded to each and every statement set out by the appellant and applicant, and where a particular statement is not directly addressed, the absence of any response should not be interpreted to mean that I agree with or abide by the statement made" (Minister's decision, para 4.1).

176 This type of boiler-plate language cannot be regarded as evidence of any genuine attempt to engage with this important issue. The Minister's reasoning shows a failure to apply her mind to the dangers of climate change and the need for a proper climate change impact assessment. In doing so, she failed to take into account relevant considerations and reached an irrational and unreasonable decision on condonation.

177 Moreover, the Minister's decision is also in breach of the "*precautionary principle*", reflected in section 2(4)(a)(vii) of NEMA. This precautionary principle applies to all environmental impacts, but it has particular significance for climate change. Faced with a coal-fired power station that will be in existence for at least 50 years, the risk-averse and cautious approach would have been to grant the extension for filing the appeal and then to take one of two courses of action:

177.1 the Minister could remit the matter back to the Department for reconsideration, based on a comprehensive climate change impact assessment report; or

177.2 alternatively, the Minister could use her wide powers on appeal to order ACWA to prepare a comprehensive climate change impact assessment



report and then she may take a decision on whether to set aside or uphold the environmental authorisation after considering this report.

178 The Minister's refusal to grant condonation deprived her of these options in an appeal, in breach of the precautionary principle.

Second error: Failure to assess the prospects of success on appeal

179 In her reasoning, the Minister at no point considered the prospects of the appeal succeeding in the wake of the *Thabametsi* judgment. This is certainly a weighty and material consideration that ought to have been central to her analysis.

180 As set out in groundWork's Condonation Submission and as elaborated upon above, there are very strong prospects of success in any appeal, given that the climate change impacts of the Khanyisa Project have not been adequately assessed.

181 As a result, there is a strong case that the environmental authorisation was granted in breach of section 240(1) of NEMA and the 2010 EIA Regulations. This consideration, too, far outweighs any delay in bringing the appeal.

Third error: Failure to credit groundWork's explanation for the delay

182 In its submissions on condonation, groundwork accepted that its appeal would be more than 3 years after the deadline, but set out a full explanation for the delay, drawing particular attention to the significance of the *Thabametsi* judgment. The

notice of appeal was lodged on 29 March 2017, within 20 days of the *Thabametsi* judgment.

183 The Minister rejected groundWork's explanation for this delay out of hand as being "*unconvincing*".

184 I submit that in doing so, the Minister failed to apply her mind to groundWork's explanation for the delay, set out in detail at paragraphs 45 to 51 of its Condonation Submission.

185 In particular, the Minister failed to credit the fact that groundWork acted swiftly to launch its appeal in the wake of the *Thabametsi* judgment. This judgment has brought about a substantial change in the way that environmental impacts of coal-fired power stations must now be assessed.

186 In her decision, the Minister sought to downplay the significance of the *Thabametsi* judgment when she asserted that it "*does not make any new law but instead simply interprets section 240 of NEMA in the context of coal-fired power stations*".

187 In a purely technical sense, it is correct that judicial interpretation of legislation does not change the law. However, the *Thabametsi* judgment is directly contrary to the stance that the Minister and her Department previously and consistently adopted on climate change impact assessments. In this respect, it has introduced a substantial change in the way that the law must now be understood and applied by the Department.

188 Before *Thabametsi*, the Minister and the Department had adopted the stance that a climate change impact assessment is neither required nor permitted under NEMA.

This stance was reflected in various official documents:

188.1 In its answering affidavit in the *Thabametsi* application, the Department explicitly denied that NEMA allows for such an assessment. I attach relevant excerpts from this affidavit, marked **Annexure "SP32"**. The Department's affidavit stated the following, which the Minister endorsed in her confirmatory affidavit:

"21. There is no provision in South African law requiring that a climate change impact assessment must be conducted as part of the EIA process. Nor are there presently any guidelines or standards that define GHG emission thresholds.

22. Whilst the Department is in the process of developing and implementing a comprehensive mitigation system (which will amongst other things, include emission reduction goals and targets), there are presently no sanctions within the legal framework for companies that do not reduce their greenhouse gas emissions.

23. In the absence of emission thresholds, it is premature to include a requirement in the EIA process making it mandatory for companies to consider climate change impacts. At present, there is nothing against which such impacts can be assessed. The applicants and decision-makers will have no way of determining whether the climate change impacts of a particular project fall within an acceptable range." (emphasis added)

188.2 In November 2016, in 2 separate appeals against the environmental authorisations for the proposed Colenso and the KiPower IPP coal-fired power stations, the Minister again rejected the arguments that a climate change impact assessment is permissible or necessary. I attach the relevant

portions of both these decisions as **Annexures "SP33" and "SP34"** respectively. Both the Colenso and KiPower appeal decisions state:

"Whilst the appellants' contentions in respect of the necessity to undertake a climate change impact assessment for the proposed project are noted, it must be emphasised that although South Africa has confirmed its nationally determined contribution at an international level, through its adoption of the Paris Agreement on Climate Change in December 2015, there is currently no legal basis to inform such assessments within the EIA framework.

As a result of the foregoing, this ground of appeal is dismissed."

189 In this light, the Minister's attempt to downplay the significance of the *Thabametsi* judgment is disingenuous at best. The *Thabametsi* judgment requires a substantial change in the way that the Department must now assess the environmental impacts of coal-fired power stations, overturning its previous opposition to climate change impact assessments.

190 Given that the Department had previously set itself against any climate change impact assessments, groundWork cannot be blamed for not taking the risk of launching an appeal to the Minister, which would surely have been rejected. After the *Thabametsi* judgment, groundWork took swift action to launch its appeal.

Fourth error: No basis to assert prejudice to ACWA

191 Finally, the Minister erred by placing emphasis on the prejudice to ACWA if the environmental authorisation is set aside. She stated:

"I have also taken note of the fact that the applicant has indicated that it submitted correspondence to the Department on 25 May 2017 to notify the relevant officials of its intention to commence with

construction activities for the authorised coal. fired power station on 12 June 2017. Considering that the applicant has spent approximately R28 million rand and committed a further R32 million to the project on the strength of a valid EA, there is likely to be substantial prejudice suffered by the applicant should an internal appeal be allowed to proceed at this stage."

192 As I have indicated above, groundWork has been unable to obtain the correspondence sent by ACWA to the Department. ACWA has flatly refused to give groundWork a copy of this correspondence or to explain the nature of the work currently being undertaken on the site. From what groundWork has been able to ascertain, the only work that has been commenced is some exploratory drilling. This is hardly the full-blown commencement of construction.

193 Moreover, the Minister should be aware that ACWA is still awaiting regulatory approvals and it has not yet reached commercial and financial close. As a result, any work that has been commenced could hardly be so significant that ACWA would suffer any prejudice.

194 Moreover, the Minister took into account irrelevant considerations in crediting the costs already incurred by ACWA. These amounts are merely the costs of obtaining the necessary regulatory approvals and preparations for constructing a coal-fired power station. There is no evidence to suggest that these costs have been incurred in "reliance" on the environmental authorisation. Moreover, these are the types of risks that any person incurs when engaging in a project of this nature. Applications for licences and approvals necessarily carry the risk of rejection.

195 ACWA may well still fail to secure a WUL, a NERSA licence, or the final Coal Baseload IPP Process approval. The Project is not a foregone conclusion. Now is the appropriate time to consider the legal validity of the environmental authorisation, before the Khanyisa Project commences.

196 Therefore, the Minister relied on irrelevant considerations in reaching her decision and failed to take relevant considerations into account. Moreover, the weight given to the prejudice to ACWA was both irrational and unreasonable in the circumstances.

Legal basis of review

197 On the basis of these numerous errors, I submit that the Minister's decision on condonation falls to be reviewed and set aside in terms of:

197.1 sections 6(2)(b), 6(2)(e)(i) and 6(2)(f)(i) of PAJA, as the Minister's failure to apply the precautionary principle in reaching her decision was in breach of section 2(4)(a)(iv) of NEMA;

197.2 section 6(2)(e)(iii) of PAJA as the Minister failed to apply her mind to ground Work's submissions, she took into account irrelevant considerations in reaching her decision, and failed to consider relevant considerations;

197.3 section 6(2)(f)(ii) and section 6(2)(h) as the Minister's decision was irrational and unreasonable; and

197.4 section 6(2)(i) as the Minister's decision was otherwise unconstitutional or unlawful.

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REMEDY

198 There are two sets of remedial options available in this case.

199 First, this Court may review and set aside the environmental authorisation, as amended, and remit the matter to the Chief Director for reconsideration afresh, with appropriate directions.

199.1 This relief is set out in prayers 1 to 4 of the Notice of Motion.

199.2 If this Court reviews and sets aside the environmental authorisation, it would be just and equitable to remit the matter back to the Chief Director to reconsider the matter, with the direction to take into account the need for a comprehensive climate change impact assessment in light of the *Thabametsi* judgment.

200 Second and alternatively, this Court may review and set aside the Minister's decision refusing condonation and direct that the internal appeal proceed. The Minister would then have the ability to exercise her wide powers of appeal to reconsider the environmental authorisation.

200.1 This relief is set out in prayer 5 of the Notice of Motion.

200.2 In the event that this Court reviews and sets aside the Minister's decision, I submit that there are ample grounds to substitute the Minister's refusal of condonation with a decision allowing groundWork's appeal to proceed. Such a substitution order is appropriate for the following reasons:



200.2.1 First, for the reasons set out above and in groundWork's Condonation Submission to the Minister, I submit that the outcome of this decision is a foregone conclusion.


200.2.2 Second, I submit that this Court is as well placed to determine whether there is good cause to grant condonation for the late filing of an appeal. This is ultimately a legal question which this Court is fully equipped to determine.

200.2.3 Third, I submit that a decision allowing the appeal to proceed would also prevent unnecessary delays in pursuing the appeal and ensure that this matter reaches finality.

CONCLUSION

201 For these reasons, I submit that groundWork has made out a case for the relief sought in the Notice of Motion.

202 groundWork is instituting these proceedings in the public interest and in the interest of protecting the environment. groundWork has at all times, acted reasonably and has made due efforts to use other means reasonably available for obtaining the relief sought. Accordingly, in terms of section 32(2) of NEMA, groundWork should not be held liable for any costs arising from this application.

 30-08-17

SVEN EATON PATRICK PEEK

Signed and sworn before me at ReG122q2 =Pk on this the go⁴"day of MAGUS r .Do
2017, the deponent having acknowledged that he knows and understands the contents
of the affidavit, that he has no objection to taking the prescribed oath and that he
considers such oath to be binding on his conscience.



COMMISSIONER OF OATHS

EX OFFICIO:

FULL NAMES:

ADDRESS:

COMMISSIONER OF OATHS (RSA)

Karlien Searle

Ex Officio -Attorney

Route 21 Business Park

69 Regency Drive, Centurion

SP1

RESOLUTION OF THE TRUSTEES OF THE GROUNDWORK TRUST ("GROUNDWORK")

It was resolved that:


1. groundWork, on its own behalf; and/or in the interests of protecting the environment; and/or as member of, or in the interests of, a group or class of persons; and/or in the public interest; and/or as an association acting in the interests of its members, institute legal proceedings:
 - 1.1 to review and set aside the decisions taken by the Minister of Environmental Affairs and the Chief Director: Integrated Environmental Authorisations in relation to the environmental authorisation issued to ACWA Power Khanyisa Thermal Station RF (Pty) Ltd ("ACWA") for the construction and operation of a 600 megawatt independent coal-fired power station with associated infrastructure ("Khanyisa power station") in terms of the National Environmental Management Act, 1998 (NEMA); and/or
 - 1.2 to seek an order and/or launch such other court proceedings as may be required to ensure that ACWA does not commence with the construction of the proposed Khanyisa power station pending: the final determination of the legal proceedings described above; and the fulfilment of all other legal requirements, including obtaining all authorisations as may be required; and
 - 1.3 to seek an appropriate costs order against the respondents should groundwork **be** successful in any of the legal proceedings described above, and to enforce such costs order.
2. Authorised persons
 - 2.1 Sven Eaton Patrick Peek, in his capacity as Director of groundWork, is hereby authorised to depose to any affidavit and sign any other documents which may be required in respect of the aforesaid legal proceedings and to take all other necessary steps to fulfil this **resolution on behalf** of groundWork.
 - 2.2 Robby Makwetlang Mokgalaka, in his capacity as coal campaign manager, is also hereby authorised to depose to any affidavit and sign any other documents which may be required in respect of the aforesaid legal proceedings on behalf of groundWork.
3. The Centre for Environmental Rights (CER) is hereby appointed as the attorneys of record for groundWork to represent groundWork in the aforesaid legal proceedings, and Melissa Fourie, Executive Director of the CER, Robyn Hugo, attorney at the CER, and/or

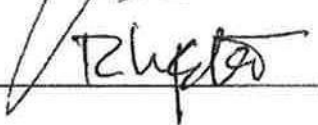


any other attorney employed as such by the CER are hereby authorised to depose to any affidavit and take any steps as may be required in respect of the aforesaid legal proceedings.

- 4. All steps already taken by groundWork and the CER in respect of the aforesaid legal proceedings are hereby ratified.

Signed:



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DATED AT Pi 4-vpiii.a.2(7.4. on the L.4_ day of ,T I, lot 7

DATED AT SAA¹'6CAA/s-
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July 2017

SP2

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groundWork TRUST

DEED OF TRUST

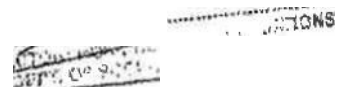
BROWNE, BRODLE & FOURIE

ATTORNEYS, NOTARIES & CONVEYANCERS

**219 BERG STREET
INETERMARITZBURG 3291
P.O. SOX 10
PIETERMARTZBURG 3200**

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ground Work TRUST

90

DEED OF TRUST

entered into between:

JONATHAN MICHAEL WHITE
(hereinafter referred to as Founder)

, **RICHARD LYSTER**

and

SANDILE NDAWONDE

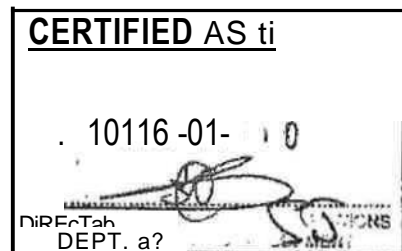
and

JONATHAN MICHAEL WHITE

(hereinafter referred to as Trustees):.

WHEREAS the Founder wishes to create a Trust by way of a donation to the Trustees for the purpose of establishing a Trust Fund subject to the terms and conditions as set out in this Deed;

AND WHEREAS the Trustees have indicated their willingness to accept and invest the donation subject to the terms and conditions as set out herein



[Handwritten signatures and initials]

IT IS AGREED:

NAME

The Trust shall be known as groundWork TRUST

2

DONA:110N

The Founders hereby donate to the Trustees an amount of R100,00 (ONE . HUNDRED RAND), which donation is accepted by the Trustees and which shall be the initial Trust Fund of the Trust.

3

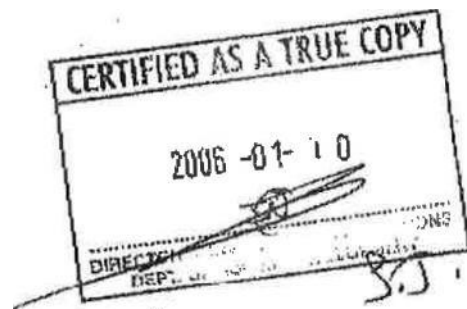
MAIN OkiLIEcTive

The main objective of the Trust is to promote increased, Sustained and more effective civil society-driven environmental justice action.

4

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- 4.1 To capacitate marginalised and vulnerable groupings to organisa more effectively in developing and sustaining successful local environmental justice campaigni.



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- 4.2 To provide campaign organising and advocacy assistance; insights and learnings; applied research and information; as well as global access to technical and legal support, decision-makers, partnerships, learning through exchange and solidarity.
- 4.3 To provide support to organised groups of people engaged in potentially precedent-setting local environmental justice campaigns of national and international significance.
- 4.4 To provide dedicated support to a small number of selected local campaigns per year, while also providing a limited information clearing house and referral centre facility for other campaigns

5

NOIY-PROFJT ORGANISATION

The income and property of the Trust shall be aoolied solely towards the promotion of its main and ancillary objectives and no portion thereof shall be distributed to its Trustees or office bearers except as reasonable compensation for services rendered.

6

LEGAL PERSON/V.17Y

The Trust shall have a legal personality, identity and existence distinct from its Trustees or employees.

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~~DIHEC ... WARTONS~~

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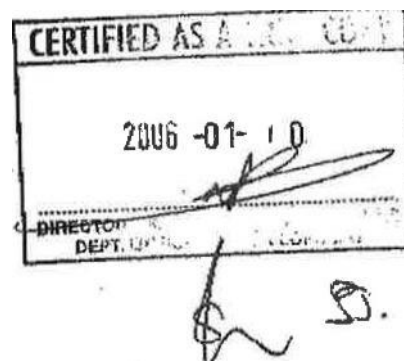
7

TRUSTEES

- 7.1 There shall at all times be not less than three nor more than seven Trustees, provided that if the number of Trustees falls below three the remaining Trustees may continue to function until a'n additional Trustee has been appointed
- 7.2 The Trustees may assume other suitable persons to ad with them as Trustees and shall be obliged to make such assumption if the number of Trustees falls below three,

MEETINGS OF TRUSTEES

- 8.1 The first meeting of the Trustees shall take place within two months of the date hereof,
- 8,2 At such first meeting, the Trustees shall from amongst their number elect a Chairperson of *the* Trust. The Chairperson shall take the chair at ail meetings of the Trust. In the event of the Chairperson not being present at any' such meeting, the Trustees present shall elect one of their number to act as Chairperson of that meeting
- 6.3 There shall be a minimum of three meetings of the Trustees per financial year. All matters dealt with at such meetings shall be recorded in a Minute Book,



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- 8.4 There shall be an annual general meeting of Trustees within 12 months of the date hereof and further annual general meetings every year thereafter,
- 8.5 The position of Chairperson shall come up for election at each annual general meeting,
- 8.6 At all meeting of Trustees, two (2) Trustees shall form a quorum

4

9

TERMINATION OF OFFICE OF Trustees

The office of Trustees shall be terminated:

- 9.1 on the written resignation of a Trustee:
- 9.2 if any Trustee is found to be of unsound mind;
- 9.3 if any Trustee is finally sequestrated as insolvent or surrenders his or her estate:
- 9.4 if any Trustee is convicted of an offence involving dishonesty:
- 9.5 if, in terms of the provisions of the Companies Act No.61 of 1973 he/she is disqualified from serving as a director of a company: or
- 9.6 if the majority of Trustees decides to terminate the office of a Trustee on the grounds that he/she is no longer regarded as being a fit and proper Person to be a Trustee,



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90

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In furtherance of the main and ancillary objectives of the Trust, the Trustees will have the following powers:

10.1 to acquire movable or immovable property by purchase, donation, exchange or lease;

10.2 to sell, transfer, mortgage or otherwise alienate movable or immovable property;

10.3 to employ and dismiss staff;

10.4 to enter into contracts;

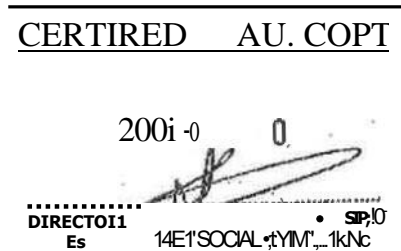
10.5 to borrow money;

10.6 to lend money;

10.7 to insure the assets of the Trust Fund;

10.8 to make the use of the services of experts for the affairs of the Trust and to pay for such services out of the Trust Fund;

10.9 to accept donations on behalf of the Trust:



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10,10 to formulate financial policy for the Trust in respect of one or more of, but not limited to the following

10.10.1 travel policy,

10.10.2 telephone and

10.10.3 procurement

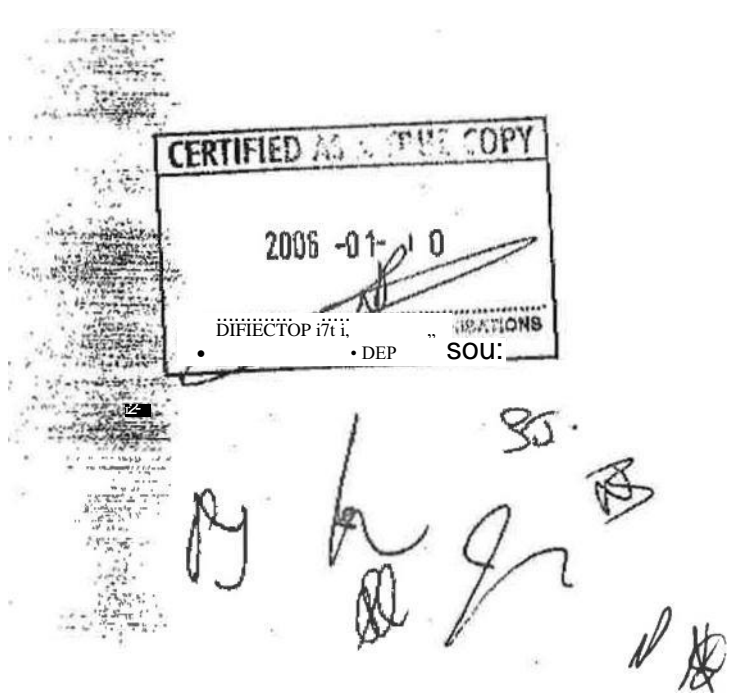
10,11 to sign all documents and take all such steps deemed necessary for the meaningful exercise of any of the abovementioned powers; and

10.12 generally to do all such things as may be necessary or desirable to give effect to the main and ancillary objectives of the Trust

11

SIGNING OF CONTRACTS

Any contracts concluded by or on behalf of the Trust shall be signed by one Trustee and the Trust's senior employee, provided that contracts involving less than TWENTY THOUSAND RAND (R20 000,00) may be signed by the senior employee without a counter-signature by a Trustee



12

AREA OF OPERATION OF TRUST

The activities of the trust will be confined to Southern Africa and the funds of the trust will be applied within this area.

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13

FILING OF SECURITY

The trustees shall be exempt from filing security in terms of the Trust Property Control Act No 57 of 1988 or any other legislation

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14

TRUST ACCOUNT

14.1 The Trustees shall appoint a firm of Attorneys to manage the Trust Fund.

14.2 All monies received by the Trust shall be received directly into the Attorneys own Trust account.

14.3 No payment shall be made from the Trust. Without the absence of a written request signed by any two persons nominated by the Trustees which persons need not necessarily be Trustees themselves.



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16

FINANCIAL YEAR OF THE TRUST

The financial year of the Trust shall run from 1 June to 31 May in each year.

18

BOOKS OF ACCOUNT

Proper books of account shall be kept by the Trustees, Such books of account of the Trust fund shall be audited annually by auditor appointed by the Trustees for such purpose and the cost of such audit shall be paid by the Trustees from the Trust Fund.

17

LIABILITY OF TRUSTEES

No Trustee shall be liable for any loss or damage incurred by the Trust.

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TRUSTEES OF CAPITAL AND INCOME 7.

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, a SOCIAL DEVELOPMENT

The Trustees shall make any payments which in accordance with this Deed from the Trust in insufficient for these purposes.

reasonably required to make
from capital if the income is



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19

CREATION OF FURTHER TRUSTS

The Trustees shall have the right to create any further Trusts which they may consider necessary or desirable for the purpose of carrying out the objects contained in this Deed and to appoint separate Trustees for such Trusts.

20

AMENDMENT OF THE TRUST DEED

This Deed may be amended by a two-thirds majority decision of Trustees provided that amendments to clauses 3, 5, 14 and 21 require a unanimous decision of the Trustees.

21

DISSOLUTION

21.1 The Trust may be dissolved by a unanimous decision of the Trustees.

21.2 On dissolution, the assets of the Trust shall be transferred to another non-profit organisation having similar objectives.

21.3 In the event of the Trustees being unable to decide to whom the assets should be transferred, the matter shall be referred to the Director of Fundraising or his/her successor in office, whose decision shall be final.

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DATED AT Prutretart+4, THIS _____ DAY OF Attousf 1999

AS WITNESSES:

1 [Signature]
2 [Signature]

[Signature]
FOUNDER

DATED AT V le 104⁰.4⁴ THIS 1-41tN DAY OF August 1999

AS WITNESSES:

I Mbutha

[Signature]
TRUSTEE

-76⁴⁰-1999

2 A thatarlst

DATED AT eivit-r "0171" THIS _____ DAY OF August 1999

AS WITNESSES:

1 [Signature]
2 [Signature]

[Signature]

DATED AT PIC,tenviAtM_n THIS Z4

AS WITNESSES:

CER
2006-01-10
DIRECTOR
USA

TRUSTEE

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2

AB

ACWA POWER KHANYISA THERMAL STATION (RF) (2012/120292/07)

CIPC Company

Search Information

Summary

Search Type CIPC COMPANY
Search Description ACWA POWER KHANYISA THERMAL STATION (RF) (2012/120292/07)
Reference P
Date 24/08/2017

Company Information

Summary

Name ACWA POWER KHANYISA THERMAL POWER STATION (RF)
Registration Number 2012/120292/07
Type PRIVATE COMPANY (PTY) LTD
Status IN BUSINESS
Registration Date 10/07/2012
Average Age of Director 48

SARS Verification Matches

Active Director(s)

Resigned Director(S)

Deceased Director(s)

Trading Name

ACWA POWER KHANYISA THERMAL POWER STATION (RF)

VAT Registration Number

4600277034

Area

JOHANNESBURG

Director Name

PRABASHEN GOVENDER
RAJIT NANDA
KASHIF MAHBOOB RANA

ID Number

6905075113088
22922629
518178710

Status

ACTIVE
ACTIVE
ACTIVE

Appointed

18/12/2014
28/02/2017
13/03/2017

Director Name

IAN HEWETT
KIRSTIN FISHER
BRENNON CRAIG KNOTT

ID Number

6602175251088
7408101376083
7206085040082

Status

RESIGNED
RESIGNED
RESIGNED

Appointed

10/07/2012
21/02/2013
18/10/2013

Resigned

21/D2/2013
21102/2013
18/12/2014

Director Name

No information available.

ID Number

Status

Appointed

Director Timehne

Status Up.. Per Pear



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Gender Breakdown (%)



UN Male Female

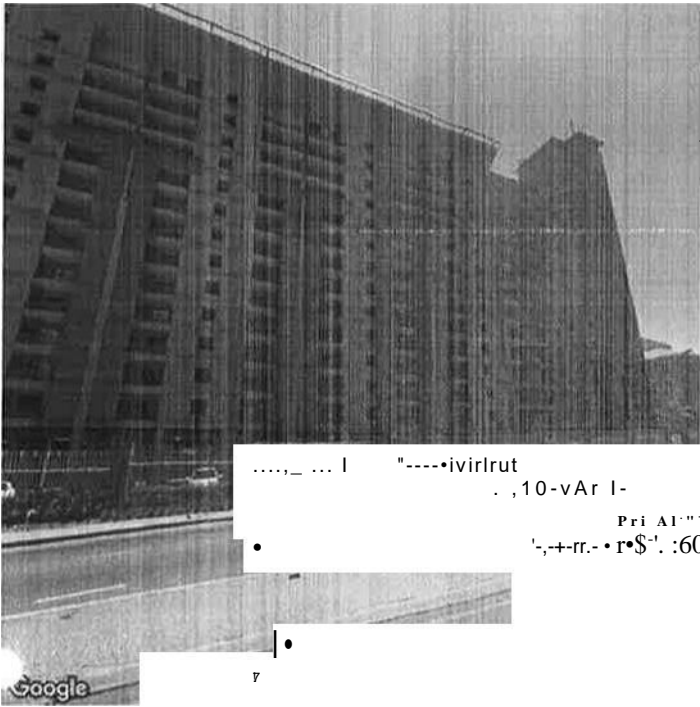
Auditor(s)

Auditor Name	Profession Code	Status	Start Date
THORT CHARTERED ACCOUNTANTS	SAICA	CURRENT	

Company Information

Summary

Name	ACWA POWER KHANYISA THERMAL POWER STATION (RF)
Short Name	
Translated Name	
Registration Number	2012/120292/07
Old Registration Number	
Type	PRIVATE COMPANY (PTY) LTD
Short Type	(PTY) LTD
CIPC Company Act Type	COMPANY (REGISTERED ACCORDING TO NEW 2008 CO ACT)
Status	IN BUSINESS
Tax Number	9328580171
Type Date	10/07/2012
Registration Date	10/07/2012
Start Date	10/07/2012
Status Date	
Principal Description	
etails Withdrawn From Public	NO
Standard Industrial Classification	
Financial Year End	FEBRUARY
Financial Effective Date	10/07/2012
Registered Address	7TH FLOOR, 90 GRAYSTON DRIVE, SANDTON, GAUTENG, 2196
Postal Address	PO BOX 650200, BENMORE, BENMORE, GAUTENG, 2010
Region	GAUTENG
Country of Origin	
Country	
Authorised Capital	0
Issued Capital	0
Authorised Shares	0
Issued Shares	0
Form Received Date	
Date on Form	
Conversion Number	



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Director(s)

Director 1 of 6

First Name	IAN
Surname	HEWETT
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Age	51
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Type	DIRECTOR
Status	RESIGNED
Appointment Date	10/07/2012
Resignation Date	21/02/2013
Member Contribution	0%
Member Size	0%

Director 2 of 6

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Surname	FISHER
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Status	RESIGNED
Appointment Date	21/02/2013
Resignation Date	21/02/2013
Member Contribution	0%
Member Size	0%

Director 3 of 6

First Name BRENNON CRAIG
 Surname KNOTT
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 Status RESIGNED
 Appointment Date 18/10/2013
 Resignation Date 18/12/2014
 Member Contribution 0%
 Member Size 0%

Director 4 of 6

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 Surname GOVENDER
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 Postal Address 26 COPLEY AVENUE, ELTON HILL, SANDTON, GAUTENG, 2196
 Type DIRECTOR
 Status ACTIVE
 Appointment Date 18/12/2014
 Resignation Date
 Member Contribution 0%
 Member Size 0%

Director 5 of 6

First Name RAJIT
 Surname NANDA
 ID Number Z2922629
 Date of Birth
 Gender
 Age
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 Postal Address P 0 BOX 450056, DUBAI, DUBAI, UAE, 0000
 Type DIRECTOR
 Status ACTIVE
 Appointment Date 28/02/2017
 Resignation Date
 Member Contribution 0%
 Member Size 0%

Director(s) (continued)**105****Director 6 of 6**

First Name KASHIF MAHBOOB
 Surname RANA
 ID Number 518178710
 Date of Birth
 Gender
 Age
 Residential Address VILLA 217B, STREET 91 COMMUNITY 333, AL BADAA JUMEIRAH 1, DUBAI UAE, 0000
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 Status ACTIVE
 Appointment Date 13/03/2017
 Resignation Date
 Member Contribution 0%
 Member Size 0%

Auditor(s)**Auditor 1 of 1**

Auditor Name THORT CHARTERED ACCOUNTANTS
 .rofession Number 945544
 Profession Code SAICA
 Business Address AREVA BUILDING FIRST FLOOR, THE DESIGN QUARTER DISTRICT, LESLIE AVENUE EAST, FOURWAYS, 2055
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 Type AUDITOR
 Status CURRENT
 Start Date
 End Date
 Form Date (CM1 Date)
 Expiry Date
 Registration Entry Date
 Form Received Date
 Details Withdrawn From Public
 ACT_IND_MPY_NO_SP
 Fine Letter
 Reference Number

Capital Information

Type	Capital Amount	Capital Premium	Number of Shares	Perri Value
AUTHORIZED ORDINARY	0	0	1000	

Change History

History 1 of 21
 Effective Date 01/08/2017
 Change Type CO/CC ANNUAL RETURN
 Memo COMPANY / CLOSE CORPORATION AR FILING - WEB SERVICES : REF NO. : 579107202

History 2 of 21

Effective Date 23/03/2017
 Change Type REGISTERED ADDRESS CHANGE
 Memo 7TH FLOOR 90 GRAYSTON DRIVE SANDTON GAUTENG2196

History 3 of 21

Effective Dale 22/03/2017
 Change Type DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
 Memo DIRECTOR KASHIF MAHBOOB RANA WAS ADDED

History 4 of 21	
Effective Date	22/03/2017
Change Type	DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
Memo	DIRECTOR PRABASHEN GOVENDER DETAILS WAS CHANGED
History 5 of 21	
Effective Date	22/03/2017
Change Type	DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
Memo	DIRECTOR RAJIT NANDA DETAILS WAS CHANGED
History 6 of 21	
Effective Date	10/03/2017
Change Type	DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
Memo	DIRECTOR RAJIT NANDA WAS ADDED
History 7 of 21	
Effective Date	10/03/2017
Change Type	DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
Memo	DIRECTOR PRABASHEN GOVENDER DETAILS WAS CHANGED
History 8 of 21	
Effective Date	01/09/2016
Change Type	NAME CHANGE
Memo	PAVERSTAR TRADING 32
History 9 of 21	
Effective Date	18/07/2016
Change Type	CO/CC ANNUAL RETURN
Memo	COMPANY / CLOSE CORPORATION AR FILING - WEB SERVICES : REF NO. : 540553730
History 10 of 21	
Effective Date	27/07/2015
Change Type	CO/CC ANNUAL RETURN
Memo	COMPANY / CLOSE CORPORATION AR FILING - WEB SERVICES : REF NO. : 528210008
History 11 of 21	
Effective Date	12/02/2015
Change Type	AR RESTORE INTO BUSINESS (25-24)
Memo	COMPANY / CLOSE CORPORATION AR FILING - WEB SERVICES : REF NO. : 524299957
History 12 of 21	
Effective Date	23/12/2014
Change Type	DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
Memo	DIRECTOR PRABASHEN GOVENDER WAS ADDED
History 13 of 21	
Effective Date	23/12/2014
Change Type	DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
Memo	DIRECTOR BRENNON CRAIG KNOTT DETAILS WAS CHANGED

Change History (continued)**107**

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 21 Effective Date 18/10/2014
 Change Type AR IN DEREGISTRATION
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History 15 of 21

Effective Date 22/10/2013
 Change Type DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
 Memo Unlock PasswordUnlocked byHIPPO5Password successfully sent to catherine@thortsa.co.za

History 16 of 21

Effective Date 19/10/2013
 Change Type DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
 Memo AUTHORISING DIRECTOR DETAILSDIRECTOR FULL FORENAMES=KIRSTINSURNAME=FISHERID NUMBER=7408101376083CUSTOMER DETAILS DIRECTOR FULL FORENAMES=IAN SURNAME=HEWETTID NUMBER=6602175251088

History 17 of 21

Effective Date 18/10/2013
 Change Type DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
 Memo FULL FORENAMES=BRENNON CRAIGSURNAME=KNOTTAPPOINTMENTDATE=18/10/2013STATUS=A

History 18 of 21

Effective Date 26/02/2013
 Change Type DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
 Memo CHANGE RECORDSURNAME = HEWETTFIRST NAMES = IANSTATUS = RESIGNED

History 19 of 21

Effective Date 26/02/2013
 Change Type DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
 Memo ADD RECORDSURNAME = FISHERFIRST NAMES = KIRSTIN STATUS = ACTIVE

History 20 of 21

Effective Date 21/02/2013
 Change Type DIRECTORS/MEMBER CHANGE/SECRETARY/TRUST/BOTH DIR AND OFFICE
 Memo FULL FORENAMES=KIRSTINSURNAME=FISHERAPPOINTMENTDATE=21/02/2013STATUS=C

History 21 of 21

Effective Date
 Change Type RING FENCING CONDITION
 Memo ADDED RING FENCE CONDITION

Report Information

Date of Information 24/08/2017 10:08
 Print Date 24-08-2017 10:09
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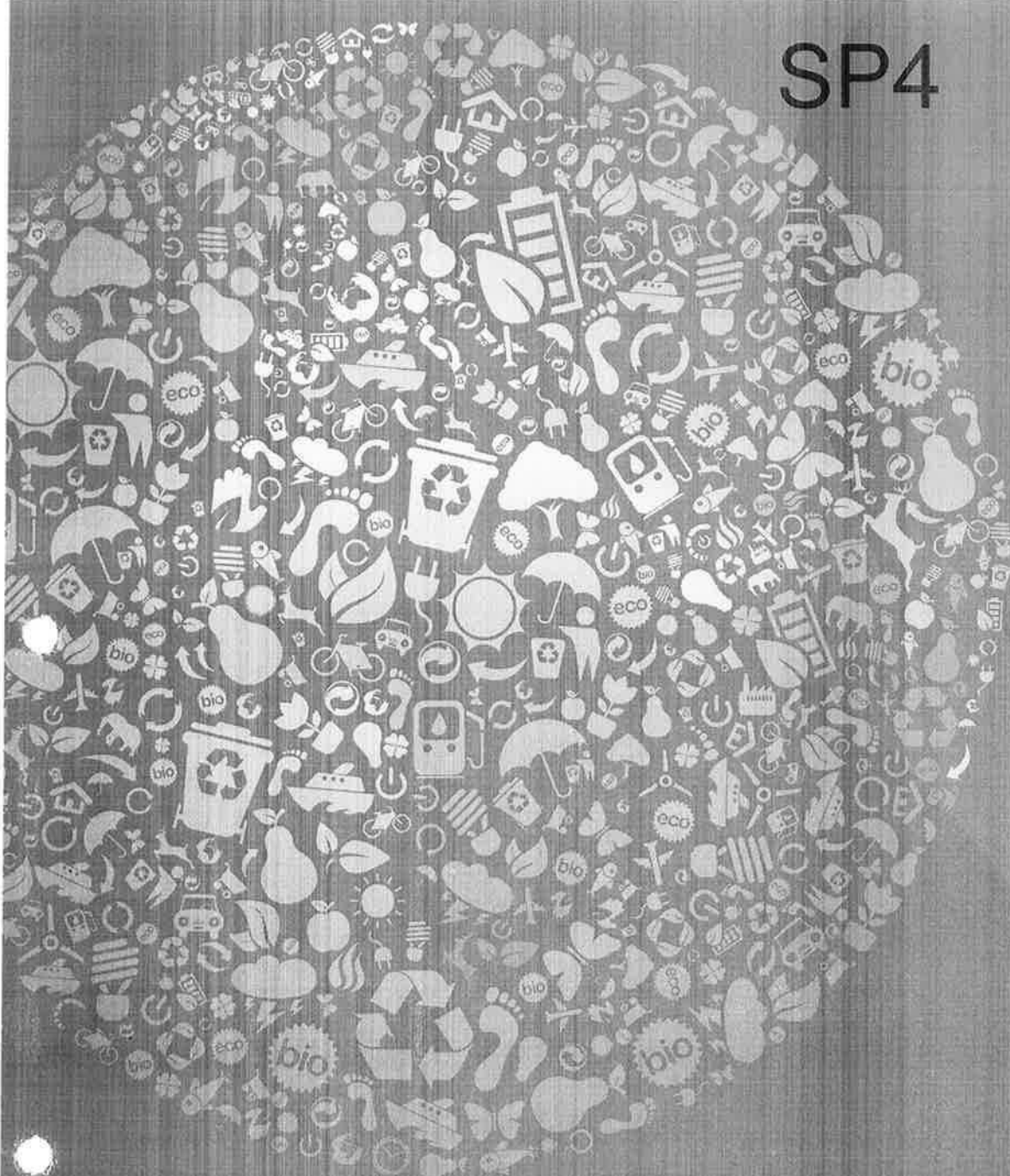
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**NATIONAL CLIMATE CHANGE RESPONSE
WHITE PAPER**



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EXECUTIVE SUMMARY

Climate change is already a measurable reality and along with other developing countries, South Africa is especially vulnerable to its impacts. This White Paper presents the South African Government's vision for an effective climate change response and the long-term, just transition to a climate-resilient and lower-carbon economy and society. South Africa's response to climate change has two objectives:

Effectively manage inevitable climate change impacts through interventions that build and sustain South Africa's social, economic and environmental resilience and emergency response capacity.

- Make a fair contribution to the global effort to stabilise greenhouse gas (GHG) concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a timeframe that enables economic, social and environmental development to proceed in a sustainable manner.

This response is guided by principles set out in the Constitution, the Bill of Rights, the National Environmental Management Act, the Millennium Declaration and the United Nations Framework Convention on Climate Change. These principles are detailed in section 3.

The overall strategic approach for South Africa's climate change response is needs driven and customised; developmental; transformational, empowering and participatory; dynamic and evidence-based; balanced and cost effective; and integrated and aligned.

In terms of strategic priorities, the White Paper sets out South Africa's climate change response strategy to achieve the National Climate Change Response Objective in a manner consistent with the outlined principles and approach and which is structured around the following strategic priorities: risk reduction and management; mitigation actions with significant outcomes; sectoral responses; policy and regulatory alignment; informed decision making and planning; integrated planning; technology research, development and innovation; facilitated behaviour change; behaviour change through choice; and resource mobilisation.

See section 4 for details of the elements of the response policy.

In terms of adaptation, the National Climate Change Response includes a risk-based process to identify and prioritise short- and medium-term adaptation interventions

to be addressed in sector plans. The process will also identify the adaptation responses that require coordination between sectors and departments and it will be reviewed every five years. For the immediate future, sectors that need particular attention are water, agriculture and forestry, health, biodiversity and human settlements. Resilience to climate variability and climate change-related extreme weather events will be the basis for South Africa's future approach to disaster management and we will use region-wide approaches where appropriate.

Section 5 expands on the adaptation part of the response policy.

South Africa's approach to mitigation, which is addressed by section 6 of the response policy, balances the country's contribution as a responsible global citizen to the international effort to curb global emissions with the economic and social opportunities presented by the transition to a lower-carbon economy as well as with the requirement that the country successfully tackles the development challenges facing it.

The key elements in the overall approach to mitigation will be:

Using a National GHG Emissions Trajectory Range, against which the collective outcome of all mitigation actions will be measured;

Defining desired emission reduction outcomes for each significant sector and sub-sector of the economy based on an in-depth assessment of the mitigation potential, best available mitigation options, science, evidence and a full assessment of the costs and benefits;

Adopting a carbon budget approach to provide for flexibility and least-cost mechanisms for companies in relevant sectors and/or sub-sectors and, where appropriate, translating carbon budgets into company level desired emission reduction outcomes.

Requiring companies and economic sectors or sub-sectors for which desired emission reduction outcomes have been established to prepare and submit mitigation plans that set out how they intend to achieve the desired emission reduction outcomes.

- Developing and implementing a wide range and mix of different types of mitigation approaches, policies, measures and actions that optimise the

I. INTRODUCTIONS

The phenomenon known as "climate change", the focus of this policy, refers to an ongoing trend of changes in the earth's general weather conditions as a result of an average rise in the temperature of the earth's surface often referred to as global warming. This rise in the average global temperature is due, primarily, to the increased concentration of gases known as greenhouse gases (GHGs) in the atmosphere that are emitted by human activities. These gases intensify a natural phenomenon called the "greenhouse effect" by forming an insulating layer in the atmosphere that reduces the amount of the sun's heat that radiates back into space and therefore has the effect of making the earth warmer.

While weather changes on a daily basis, climate represents the statistical distribution of weather patterns over time, and on a global scale has changed only very slowly in the past — usually over periods of tens of thousands of years or even millions of years which allows time for the earth's bio-physical systems to adapt naturally to the changing climatic conditions. Currently, the global climate is changing much more rapidly as a result of global warming, leading to, among others, the melting of polar and glacier ice, sea-level rise, ocean acidification, changes in rainfall and snowfall patterns, more frequent floods and droughts and increased frequency and intensity of extreme weather events, such as tornadoes, hurricanes and cyclones. The rapid rate of this climate change does not allow the earth's bio-physical systems to adapt to these changes naturally.

Evidence of rapid climate change, including more frequent and intense weather systems and greater climate variability, has already been observed and includes:

- increases in the average global temperature; with the past decade being the hottest on record;
 - rises in the average global sea level;
 - changes in average rainfall patterns, with some regions experiencing higher rainfall (e.g. Northern Europe) and other areas experiencing drying (e.g. the Sahel and southern Africa);
- increased frequency of heavy rainfall and extreme weather events over most land areas; and
- more intense and longer droughts, particularly in the tropics and subtropics.

GHGs are emitted from, and are reabsorbed by, a variety of natural sources, but the rate at which human economies and societies are emitting these gases far exceeds the capacity of natural ecosystems to reabsorb them. Increased industrial

activity since the mid- 18th century has led to a rapid increase in the atmospheric concentration of GHGs such as carbon dioxide, methane and nitrous oxide, in large part due to the burning of fossil fuels derived from oil, coal and natural gas. We also know that land-based human activities, such as forest clearing and unsustainable agricultural practices, are not only increasing GHG emissions from these sources, but are also reducing the earth's natural ability to absorb GHGs. The evidence that current global warming is due to human activities associated with industrialisation and modern agriculture is overwhelming.

The rate of change to the earth's climate exceeds the ability of all types of ecosystems (marine, coastal, freshwater, and terrestrial) to adapt as well as compromising their ability to function effectively. Ecosystems provide important services to society, such as the formation of soil; the provision of food, fresh water, wood, fibre and fuel; the regulation of climate, floods and the spread of disease; protection from storm surges and floods; and a range of cultural, spiritual, educational and recreational services. The protection of biodiversity, habitats and ecosystems is essential to the maintenance of these services, which is a key pillar for sustainable development.

It is acknowledged that Africa, as a whole, has contributed least to GHG concentrations in the atmosphere, but also faces some of the worst consequences and generally has the least capacity to cope with climate change impacts. However, it is also recognised that South Africa is a relatively significant contributor to global climate change with significant GHG emission levels from its energy-intensive, fossil-fuel powered economy. On the other hand, 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.

The science is clear that action to address the causes and impacts of climate change by a single country or small group of countries will not be successful. This is a global



problem requiring a global solution through the concerted and cooperative efforts of all countries. Should multi-lateral international action not effectively limit the average global temperature increase to below 2°C above pre-industrial levels, the potential impacts on South Africa in the medium-to long-term are significant and potentially catastrophic. Even under emission scenarios that are more conservative than current international emission trends, it has been predicted that by mid-century the South African coast will warm by around 1 to 2°C and the interior by around 2 to 3°C. By 2100, warming is projected to reach around 3 to 4°C along the coast, and 6 to 7°C in the interior. With such temperature increases, life as we know it will change completely: parts of the country will be much drier and increased evaporation will ensure an overall decrease in water availability. This will significantly affect human health, agriculture, other water-intensive economic sectors such as the mining and electricity-generation sectors as well as the environment in general. Increased occurrence and severity of veld and forest fires; extreme weather events; and floods and droughts will also have significant impacts. Sea-level rise will negatively impact the coast and coastal infrastructure, Mass extinctions of endemic plant and animal species will greatly reduce South Africa's biodiversity with consequent impacts on eco-system services.

Against this national context, the South African Government:

- Accepts the conclusions of the Intergovernmental Panel on Climate Change (IPCC) in its Fourth Assessment Report, that warming of the climate system is unequivocal and that the increase in GHG concentrations as a result of human activity is primarily responsible for this warming trend.

Regards climate change as one of the greatest threats to sustainable development and believes that climate change, if unmitigated, has the potential to undo or undermine many of the positive advances made in meeting South Africa's own development goals and the Millennium Development Goals (MDGs).

Having ratified both the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol, will continue to meaningfully engage in the current multilateral negotiations to further strengthen and enhance the international response to the climate change crisis. The Government specifically aims to continue its efforts to strengthen and ensure the full implementation of the UNFCCC and its

Kyoto Protocol through additional multi-lateral rules-based and legally-binding international agreements that will come into force after 2012. These should effectively limit the average global temperature increase to below a maximum of 2°C above pre-industrial levels. In so doing, South Africa will strive to ensure that such agreements are inclusive, fair and effective; reflect a balance between adaptation and mitigation responses; and recognise that solving the climate problem will only be possible if developing countries' priorities of eradicating poverty and promoting sustainable development are taken into consideration.

Notwithstanding these ongoing international negotiations, reaffirms that, in terms of the provisions of Articles 4, 5, 6 and 12 of the UNFCCC as well as Article 10 of the Kyoto Protocol, South Africa already has existing international legally binding obligations to:

Formulate, implement, publish and regularly update policies, measures and programmes to mitigate its emission of GHGs and adapt to the adverse effects of inevitable climate change;

Monitor and periodically report to the international community the country's GHG inventory; steps taken and envisaged to implement the UNFCCC; and any other information relevant to the achievement of the objective of the UNFCCC, including information relevant for the calculation of global emission trends;

Sustainably manage, conserve and enhance GHG sinks and reservoirs, including terrestrial, coastal and marine ecosystems, biomass, forests and oceans;

Develop climate change response plans to address integrated coastal zone, water resources, agriculture, and land protection and rehabilitation;

Mainstream climate change considerations into social, economic and environmental policy;

Promote and cooperate in the development, application, diffusion and transfer of GHG emission mitigation technologies, practices and processes;

- Further develop and support research and systematic observation organisations, networks and programmes as well as efforts to strengthen systematic observation, research and technical

In addition to a refinement of top-down approaches, developing more detailed bottom-up approaches informed by the responses of local communities and local government will deliver results with a higher degree of confidence than is currently possible.

5.2 Water

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.

Although Government has provided basic water services to an estimated additional nine million people since 1994, they are mostly in urban areas. In many rural areas, lack of reticulated water and sanitation means that people rely on generally poorly managed local resources such as ground water, springs and rivers that are vulnerable to pollution and drought. Poor communities who are dependent on natural water resources cannot control the quality of their water or store the water supply in bulk.

While there is a degree of uncertainty as to the net effects of climate change on water availability, rainfall is expected to become more variable, with an increase of extreme events such as flooding and droughts resulting in a much more variable runoff regime. Downscaled climate modelling suggests that the western and interior parts of the country are likely to become drier, and the eastern parts of the country wetter. Increased rainfall intensity will exacerbate scouring in rivers and sedimentation in dams, potentially impacting on water supply and treatment infrastructure.

Higher temperatures, combined with higher carbon dioxide levels, will contribute to increased growth of algae as well as faster evaporation rates negatively impacting water resources.

Water availability is a key climate change-related vulnerability and negative impacts on the availability of water will be felt by people, ecosystems and the economy. As a result, climate change poses significant additional risks for water security, which in turn has knock-on effects on those sectors highly reliant on water such as agriculture, electricity generation as well as some mining and industrial activities. Thus, this set of vulnerabilities must be considered and integrated into both short- and medium-term water sector planning approaches.

In the short term, the development of a climate change response for the water sector through the National Water Resource Strategy plays a key role in government's Integrated Water Resource Planning process and will inform the ongoing maintenance of the water balance reconciliation strategies for water management areas that have recently been developed for water supply systems for up to 75% of the country's population, and the areas which together generate well over 80% of the national GDP.

In the medium to long term, the Water for Growth and Development Framework, which has a 2030 planning horizon, aims to balance the critical role of water in terms of both poverty alleviation (ensuring the constitutional right to a reliable and safe water supply) and economic development (be it for domestic, industry, mining, agricultural or forestry use). Water vulnerability and response must also be adequately factored into this framework document.

A two-pronged approach will be followed in which, firstly, in the short-term, climate change is used as the catalyst for addressing urgent short comings in the water sector and implementing effective, efficient and sustainable water resources and services management measures. Secondly, a long-term strategic focus on planning, adaptation and the smart implementation of new concepts and proactive approaches to managing water resources. To this end, the key elements of the National Climate Change Response Policy for the water sector include:

5.2.1 Integrating climate change considerations in the short-, medium- and long-term water planning processes across relevant sectors such as agriculture, industry, economic development, health, science and technology.

6.1.6 *Using the market* — Deploying a range of economic instruments to support the system of desired emissions reduction outcomes, including the appropriate pricing of carbon and economic incentives, as well as the possible use of emissions offset or emission reduction trading mechanisms for those relevant sectors, sub-sectors, companies or entities where a carbon budget approach has been selected.

6.1.7 *Monitoring and evaluation* — Establishing a national system of data collection to provide detailed, complete, accurate and up-to-date emissions data in the form of a Greenhouse Gas Inventory and a Monitoring and Evaluation System to support the analysis of the impact of mitigation measures. Section 6.7 contains more information about emissions data collection and section 12 expands on the proposed Climate Change Response Monitoring and Evaluation System.

6.2 South Africa's emissions

South Africa has relatively high emissions for a developing country, measured either per capita or by GHG intensity (emissions per unit of GDP). By any measure, South Africa is a significant emitter of GHGs.

The energy intensity of the South African economy, largely due to the significance of mining and minerals processing in the economy and our coal-intensive energy system, has resulted in an emissions profile that differs substantially from that of other developing countries at a similar stage of development as measured by the Human Development Index. Since coal is the most emissions-intensive energy carrier, South Africa's economy is very emissions-intensive. Furthermore, emissions from land-use change (primarily deforestation) contribute a significantly smaller share to our emission profile than for many other developing countries. In 2000, average energy use emissions for developing countries constituted 49% of total emissions, whereas South Africa's energy use emissions constituted just under 80% of total emissions. Even in some fast-developing countries with a similar reliance on coal for energy, energy use emissions are lower than South Africa.

In terms of South Africa's latest Greenhouse Gas Inventory (base year 2000), the majority of South Africa's energy emissions arose from electricity generation, which

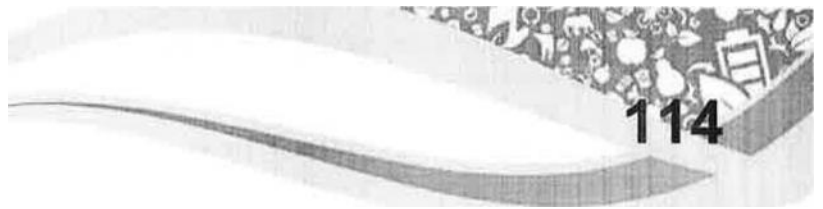
constituted around half of South Africa's energy emissions and just under 40% of total emissions in 2000. Transportation and energy used in industry contributed just under 10% each of total emissions and industrial process emissions constituted around 14% of total emissions. Emissions from agriculture and land-use change in South Africa constitute only around 5% of emissions, compared to an average of 44% in developing countries as a whole,

6.3 Mitigation potential

Currently available analyses indicate that, unchecked by climate mitigation action, South Africa's emissions could grow rapidly by as much as fourfold by 2050. The majority of South Africa's emissions arise from energy supply (electricity and liquid fuels) and use (mining, industry and transport), and mitigation actions with the largest emission reduction potential focus on these areas. The cost of mitigation actions varies significantly, and published analyses of these costs is likely to require further refinement, especially at sectoral, sub-sectoral and individual organisation levels.

Unlike in other developing countries, South Africa has limited opportunities to cut emissions by tackling deforestation, a sector in which near-term emission reductions are more easily achieved through regulatory policies and enforcement type measures and are therefore relatively inexpensive. While opportunities for mitigation of emissions from non-energy sources do exist, large mitigation contributions will have to come from reduced emissions from energy generation and use. The main opportunities for mitigation consist of energy efficiency, demand management and moving to a less emissions-intensive energy mix, with consequent economic benefits of improved efficiency and competitiveness as well as incentivising economic growth in sectors with lower energy intensities.

Policy decisions on new infrastructure investments must consider climate change impacts to avoid the lock-in of emissions-intensive technologies into the future. However, in the short-term, due to the stock and stage in the economic lifecycle of existing infrastructure and plant, the most promising mitigation options are primarily energy efficiency and demand side management, coupled with increasing investment in a renewable energy programme in the electricity sector. In addition, in the short term, the emergence of bio-fuels and a suite of non-energy mitigation options, such as afforestation, are also important.



6. Mitigation

A mix of economic instruments, including market-based instruments such as carbon taxes and emissions trading schemes, and incentives, complemented by appropriate regulatory policy measures are essential to driving and facilitating mitigation efforts and creating incentives for mitigation actions across a wide range of key economic sectors. Section 10.7 provides further details on the application of market-based policy instruments.

In the medium-term, the mitigation options with the biggest mitigation potential are:

- shifting to lower-carbon electricity generation options;
- significant upscaling of energy efficiency applications, especially industrial energy efficiency and energy efficiency in public, commercial and residential buildings and in transport; and
- promoting transport-related interventions including transport modal shifts (road to rail, private to public transport) and switches to alternative vehicles (e.g. electric and hybrid vehicles) and lower-carbon fuels.
- In the short and medium term, several other options are available with a smaller mitigation potential, including:
- carbon capture and storage in the synthetic fuels industry;
- options for mitigating non-energy emissions in agriculture and land-use; and
- transitioning the society and economy to more sustainable consumption and production patterns.

In our long-term planning, information (nationally and internationally) about the outcome of mitigation options, technology development, and other new information, may suggest additional mitigation actions.

This policy identifies or sets up processes to identify the optimal combination of actions sufficient to meet the National Climate Change Response Objective. Factors to be considered include not only the mitigation potential, the incremental and direct cost of measures, but also the broader impact on socio-economic development indicators (such as employment and income distribution), our international competitiveness, the cost to poor households and any negative consequences for key economic sectors.

Mark Nadowd

GHG Emissions Trajectory Range

In 2008, in the context of South Africa's moral and legal obligation to make a fair contribution to the global mitigation effort under the UNFCCC and its Kyoto Protocol, Cabinet fully considered the Long-Term Mitigation Scenario study of the country's mitigation potential. This led to the announcement that South Africa's emissions should peak in the period from 2020 to 2025, remain stable for around a decade, and decline thereafter in absolute terms. The President confirmed this strategic policy direction at the 2009 National Climate Summit and further detailed this as a South African undertaking in the context of all legal obligations under the UNFCCC and its Kyoto Protocol prior to the international UNFCCC Climate Change Conference in 2009 (see 6.1 above). This strategic policy direction and international undertaking has informed a National GHG Emissions Trajectory Range, projected to 2050, to be used as the benchmark against which the efficacy of mitigation action will be measured.

The benchmark National GHG Emissions Trajectory Range:

6.4.1 Reflects South Africa's fair contribution to the global effort to limit anthropogenic climate change to well below a maximum of 2°C above pre-industrial levels.

6.4.2 Details the "peak, plateau and decline trajectory" used as the initial benchmark against which the efficacy of mitigation actions will be measured (see the document published by the Department of Environmental Affairs (DEA) in 2011 entitled "Defining South Africa's Peak, Plateau and Decline Greenhouse Gas Emission Trajectory"). In summary:

South Africa's GHG emissions peak in the period 2020 to 2025 in a range with a lower limit of 398 Megatonnes (109 kg) (Mt) CO₂-eq and upper limits of 583 Mt CO₂-eq and 614 Mt CO₂-eq for 2020 and 2025 respectively.

South Africa's GHG emissions will plateau for up to ten years after the peak within the range with a lower limit of 398 Mt CO₂-eq and upper limit of 614 Mt CO₂-eq.

From 2036 onwards, emissions will decline in absolute terms to a range with lower limit of 212 Mt CO₂-eq and upper limit of 428 Mt CO₂-eq by 2050.

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First Biennial Report to Cabinet on

The State of Climate Change Science and Technology in South Africa



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Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA



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Over the next 35 years, between approximately 2016 and mid-century, the following important changes are expected to occur in the South African climate system, and in the technology environment that affects or is affected by climate.

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There is high scientific confidence that South Africa will continue to warm, at a rate somewhat higher than the 0.15 °C per decade observed over the 20th century (Engelbrecht *et al.*, 2015). In the period up to the middle of this century, this warming will occur regardless of the success or failure of international agreements to curb climate change, such as those reached in Paris in December 2015, although those agreements have important benefits to the climate in the second half of the century. The warming will be especially strong in the already hot north-west interior of southern Africa, and by 2050 will result in a doubling of the number of days of dangerously hot weather over about half of the country, and increasing difficulty in sustaining livestock-based or human outdoor activity-based economies in the most-affected areas.

There is less scientific confidence in projections of rainfall trends (James and Washington, 2013). Most models project less rainfall on average, especially in the west of the country. Coupled with the higher water demand due to warmer temperatures, this provides high confidence that soils will be drier in the future over much of the country, and water supply for agriculture, domestic use and industry will be under increasing pressure.

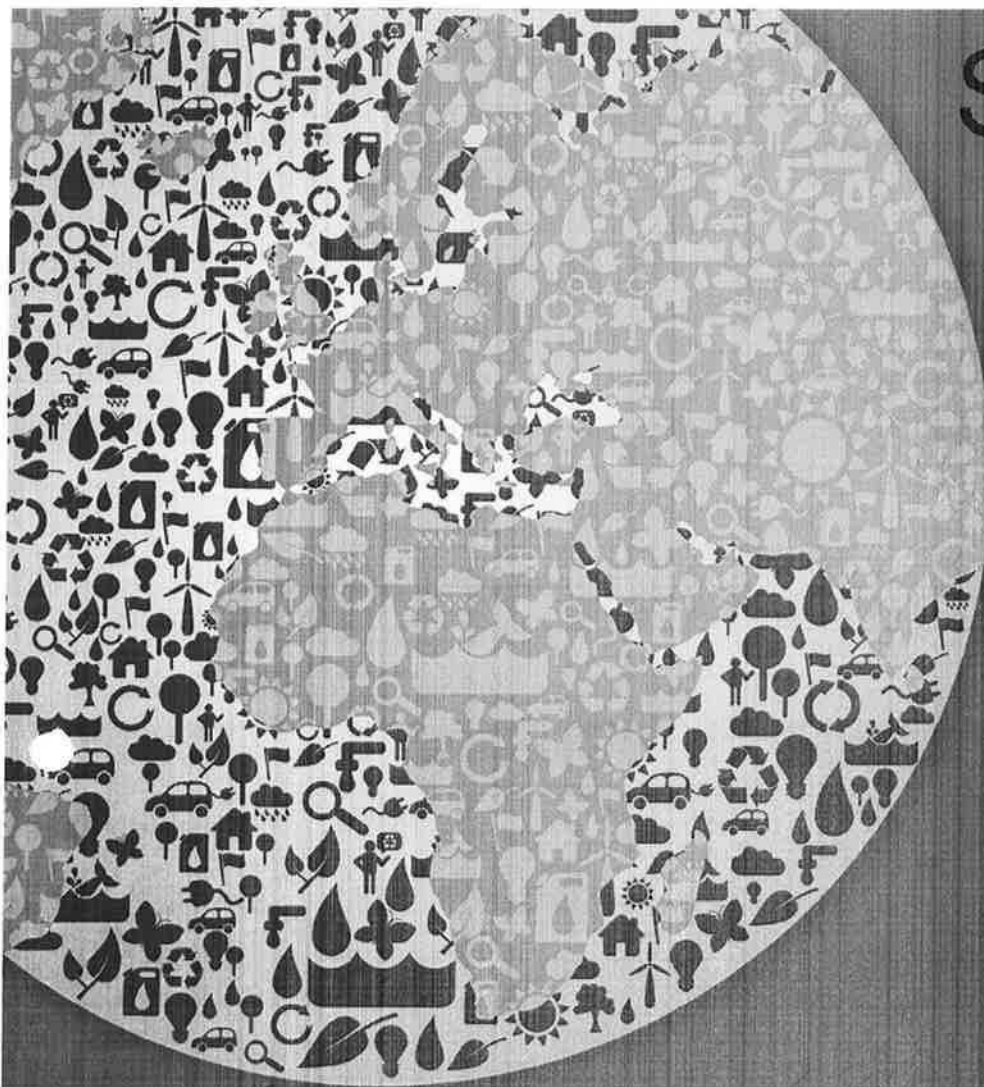
The strongest impacts of climate change in South Africa in the first half of the 21st century will be on the security of freshwater supplies to industry, towns and agriculture; on crop and livestock agriculture, due to less favourable growing conditions; on human health, due to heat stress and disease spread, particularly in urban areas; and on biodiversity, due to shifting habitat suitability.

More extreme weather and floods

The future climate is very likely to include an increase in the frequency and severity of damage-causing storms, a pattern likely already revealing itself (IPCC, 2014). When coupled with an unavoidable sea-level rise of around 300 mm by 2050 (IPCC, 2014), the likelihood of flooding, especially on the coast, will increase risks to human settlements. Prolonged heat waves and multi-year dry spells will also be more likely than in the past.

Reduced use of fossil fuels

As a result of the conditional and unconditional contributions by South Africa to reducing GHG emissions in terms of the Paris Accord agreed at the 21st Conference of Parties (COP21) of the United Nations Framework Convention on Climate Change (UNFCCC), there will need to be strenuous efforts to shift the energy mix in South Africa away from its current high dependence on fossil fuels, especially coal. Even without these commitments, there will likely be trade pressures for our economy to become less carbon intensive than at present in order to remain competitive. The coal sector, a big part of our energy mix and export earnings, is already struggling to attract finance because of the



GHG INVENTORY FOR SOUTH AFRICA

2000 - 2010



environmental affairs

Environmental Affairs
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November 2014



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Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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3.2 GHG Emissions from the Energy' *seccor*

The energy sector in South Africa is highly dependent on coal as the main primary energy provider. The largest source of Energy sector emissions in South Africa is the combustion of fossil fuels. Emission products of the combustion process include CO₂, CH₄, and H₂O,

The Energy sector includes;

- Exploration and exploitation of primary energy sources;
- Conversion of primary energy sources into more useable energy forms in refineries and power plants;
- Transmission and distribution of fuels; and
- Final use of fuels in stationary and mobile applications.

12.1 Overview of shares and trends in emissions

Total GHG emissions for the energy sector increased by 27% between 2000 and 2010, and produced a total accumulated GHG estimate of 4 204 640 Gg CO₂eq over the 10 year period. An analysis of key categories was completed in order to determine the most significant emission sources in the energy sector. The majority of emissions were from energy industries (63.6%) (Figure 3.2). followed by 10.8% from transport and 9.8% from manufacturing industries and construction,

The main source of emissions in this sector is CO₂ from fossil fuel combustion. The largest source of emissions for the period 2000 - 2010 was the main activity electricity producer which accounted for 55.1% (2 316 071 Gg CO₂eq) of the total accumulated emissions. The second largest

emitting subcategory was the transport sector which accounted for 453 924 Gg CO₂eq over the period 2000 - 2010. The manufacturing industry and construction and the fugitive emissions from energy production accounted for 410 205 Gg CO₂eq and 297 606 Gg CO₂eq (7.1% of the total emissions). respectively, between 2000 and 2010. The manufacture of solid fuels and other energy industries accounted for an accumulated 326 706 Gg CO₂eq of the total GHG emissions in the energy sector for the period 2000 to 2010. The residential and commercial sectors are both heavily reliant on electricity for meeting *energy* needs, with electricity consumption for operating appliances heating, air conditioning and lighting, contributing a total of 170 964 Gg CO₂eq and 157 662 Gg CO₂eq of emissions respectively.

The total GHG emissions in the energy sector increased from 337 382 GgCO₂eq in 2000 to 428 368 Gg CO₂eq in 2010 (Figure 3.3). The majority of emissions were from electricity production, which accounted for a total of 62.5% of the total GHG emissions from the energy sector in 2010. Total GHG emissions increased between 2001 and 2004 and that was mainly because of the economic growth and development, which led to increased demands for electricity and fossil fuels. The expansion of industrial production during that period increased the demand for electricity and fossil fuels. Economic growth has also increased the rate of travelling, leading to higher rates of consumption of petroleum fuels. There was a decrease in emissions in 2005, after which emissions continued to increase until 2008 when there was a slight decrease (Figure 3.4). In 2009 emissions started to increase again although the increase was minimal (2.0%). Table 3.1 shows the contribution of the source categories in the energy sector to the total national GHG inventory.

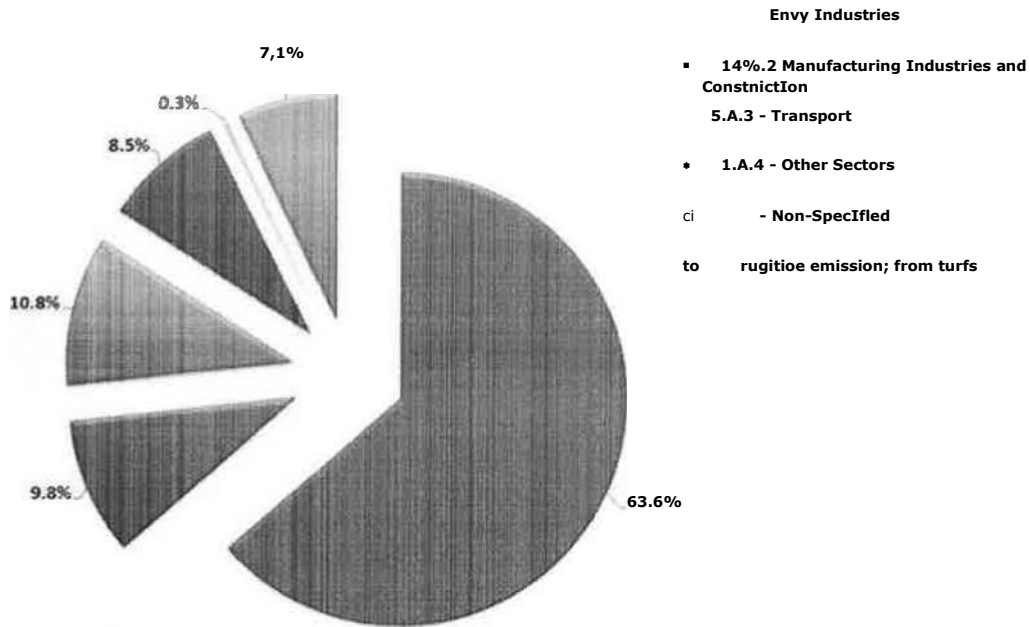


Figure 3.2: Sector ! EnergyAverage contribution of source gories to the total energy sector GHG emissions between 2000 and 2010.

In 1990 and 1994 the Energy sector was estimated to produce 260 886 Gg CO₂eq and 297 564 Gg CO₂eq, respectively. Between 1990 and 2000 there was an increase of 29.32% in total GHG emissions from the energy sector, and between 2000 and 2010 there was a further 27.0% increase (Figure 3.5). It should, however, be noted that improvements in activity data, emission factors and emission calculations were made between 1990 and this 2000 inventory, therefore some of the increase experienced over this period may be attributed to methodological changes.

**ENVIRONMENTAL & SOCIAL IMPACT
ASSESSMENT REPORT:
KHANYISA COAL FIRED POWER
STATION,
eMALAHLENI, MPUMALANGA**

**VOLUME 1 of 4
(Copy _ of 5)**

PROJECT NAME Khanyisa Coal Fired power Station
PROJECT NUMBER 106468
REPORT TITLE Final Environmental Impact Assessment
Report
DEPT. REPORT NO.: 12/12/20/2067
AURECON REPORT NO.: 5920
CLIENT DOC. NO.: 5200059605
DATE March 2012

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NON-TECHNICAL SUMMARY

II. INTRODUCTION

1.1.1. The proposer! development

The Project, as defined, will involve the design, construction, commissioning, ownership, operation and maintenance of an individual base load power plant providing 450MW (net) of electricity capacity to Anglo American. The proposed power station will be located within the South African Coal Estates (SACE) complex, east of eMalahleni (Witbank) in Mpumalanga Province. The SACE complex includes the Greenside, Kleinkopje and Landau collieries and associated discard coal dumps. Please refer to Figure 1 at the end of this summary for the locality map.

A unique aspect of the Khanyisa project is that not only is a waste product going to provide the power generation in the form of discard coal, but the plant will also utilise reclaimed and treated mine water from the EWRP. This is significant in that by utilising both waste coal and water the project significantly reduces its environmental impact on the regions natural resources.

Aurecon (Pty) Ltd, as the independent Environmental Assessment Practitioner (EAP), has been appointed by Anglo American Limited South Africa (AOL) to compile the Environmental and Social Impact Assessment (ESIA) in terms of the National Environmental Management Act (No. 107 of 1998), (as amended).

A Scoping Report was submitted outlining the actions to be undertaken to meet all legal, procedural, and technical requirements of the developer for an Environmental Impact Assessment (EIA)/Environmental Management Programme (EMP) process and to outline the scope of work for the specialist studies. The Final Scoping Report (FSR) was acknowledged by the Department of Environmental Affairs (DEA) in August 2011.

The purpose of the EIR is to gain an understanding of the social and biophysical environment in which the Khanyisa Power Plant will be located and to describe and assess the range of feasible alternatives identified during the Scoping process in terms of the potential environmental impacts identified.

This in turn provides a basis for informed decision making, by both the proponent, with respect to the option they wish to pursue, and the environmental authority regarding the environmental acceptability of the proponents' preferred option, by minimising the negative impacts and enhancing the positive impacts associated with the Project.

1.1.2. Purpose of this fincttmens•

This document provides a summary of the Final Environmental Impact Assessment Report for the proposed Khanyisa Coal Fired Power Station, Mpumalanga. It provides a brief background and overview of the proposed project, a description of the public participation process undertaken thus far, the list of project alternatives and potential impacts that have been assessed.

The findings have been included in this ESIA/EMP Report and will be submitted to the decision-making authority (the DEA) for an informed decision on the proposed Project. This EIA report has been compiled in accordance with the process described in the National Environmental Management Act (NEMA) in addition to the National Environmental Management Waste Act (NEMWA), the National Water Act (NWA) and the National Environmental Air Quality Management Act (NEMAQA).

% POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

The EIR has been undertaken in accordance with international standards (e.g. IFC Performance Standards and Thermal Power Guidelines etc.) and the international conventions that South Africa is a party to.

The Khanyisa application includes both the NEMA and NEM:WA listed activities which require environmental authorisation from the respective directorates. The DEA has indicated that an integrated environmental authorisation will be provided for both NEMA and NEM:WA listed activities as contemplated in Section 24L of NEMA.

The integrated environmental authorisation process as contemplated in section 24L of NEMA is currently only applicable in instances where the **Minister** is both the —

- competent authority for the environmental authorisation applied for in terms of NEMA and the EIA Regulations, 2010; and

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- the licencing authority for the waste management licence in terms of NEM:WA.

The environmental authorisation process prescribed for listed activities under Listing Notices 1, 2 and 3 published in Government Gazette Numbers R544, R545 and R546 respectively, and the waste licensing process for listed activities contained in the Schedule in Government Notice 718, 2009 published in terms of section 19 of NEM:WA are as defined in the Environmental Impact Assessment (EIA) Regulations made under section 24(5) of the National Environmental Management Act, 2008 (Act No. 107 of 1998) ("NEMA").

Furthermore, the EIA process for the proposed coal-fired power station and ancillary infrastructure has been undertaken in accordance with the requirements of all relevant South African legislation including *inter alia*, the following:

- National Water Act, Act No. 36 of 1998;
- National Heritage Resources Act, Act No. 25 of 1999.
- National Environment Management: Biodiversity Act, Act No. 10 of 2004;
- National Environmental Management: Waste Act, Act 59 of 2008;
- National Environmental Management: Air Quality Act, Act No. 36 of 2004 including
- Government Notice 220 of 26 March 2010;
- Occupational Health and Safety Act, Act No. 85 of 1993;
- Major Hazardous Installation Regulations (July 2001);
- National Road Traffic Act, Act No 93 of 1996;

Guidelines set by the International Finance Corporation (IFC), part of the World Bank Group, for projects in which it is going to be involved are provided in Annexure A Volume 2.

In terms of the IFC definitions, the Highveld would qualify as a degraded airshed (DA) and consequently the emission requirements for installations less than 600 MW and measured at 6% oxygen content in the flue gas would be:

- Particulate matter less than 30 mg/ Nm³
- SO₂ less than 400 mg/Nm³
- NO_x less than 200 mg/Nm³

This project has been assessed on the basis that the power station will meet the IFC standards for all identified impacts. From an environmental and social perspective, no fatal flaws which could hamper the construction of the proposed Khanyisa power plant have been

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identified. Although there are potential significant impacts that could arise from the proposed project, mitigation and management measures recommended in the EIR and EMP will ensure that these impacts are less significant.

1.3. PROJECT

1.3.1. Need and Benefits

Electricity generating capacity in South Africa is expected to remain constrained for a number of years. The Draft Integrated Electricity Resource Plan for South Africa (IRP 2010), recently compiled by the Department of Energy, aims to determine how long term electricity demand should be met in terms of generating capacity, type, timing and cost. The evaluation process established a "Revised Balanced Scenario", representing a balance between certain key factors, including funding availability, new technology uncertainties, water usage and security of supply.

The plan is subject to funding and other implementation constraints and is dependent on demand reduction initiatives. It acknowledges the high price of unserved energy. Eskom, currently the sole supplier of electricity, has been and will be increasing its tariffs at relatively high rates, with annual increases of -25% for each year of the MYPD2 period (April 2010 to March 2013). It is expected that further significant increases will be granted well beyond this period.

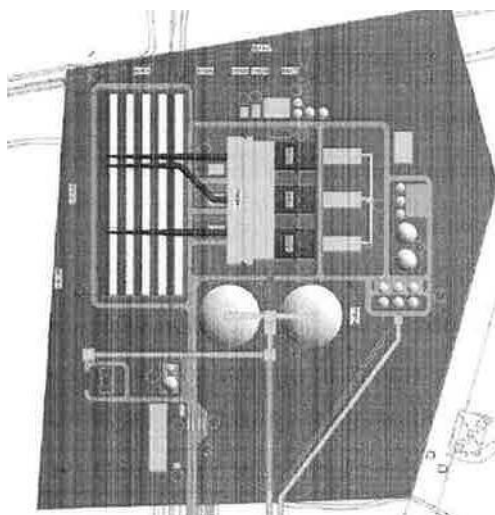
Anglo American has commenced this ESIA process to procure its own dedicated supply for a portion of its requirements via the Khanyisa IPP project. Such supply is aimed at increasing Anglo American's security of supply, as well as limiting the impact of electricity price increases.

1.3.2. Description of the project

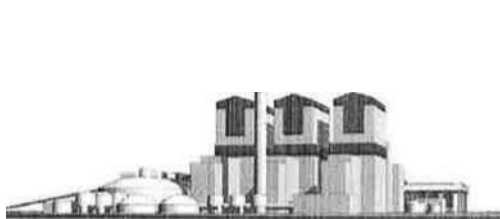
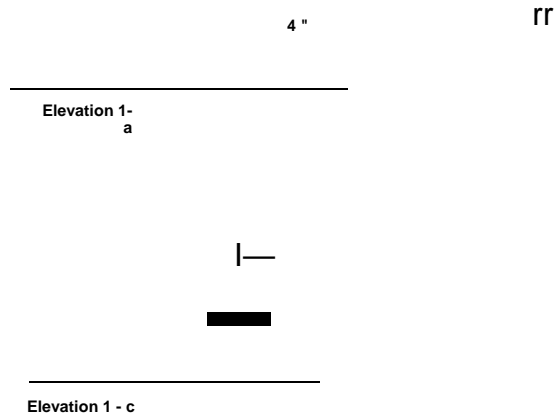
The project essentially comprises the construction and operation of a coal-fired power station and associated infrastructure. The power station itself would comprise three 150MW generating units fuelled by discard coal with a total nominal electricity generation capacity of approximately 450MW. Apart from the power station buildings (including admin buildings, maintenance services, etc.), there would be various ancillary infrastructures including:

- Coal silo and sorbent stock yards;
- Coal, ash, sorbent and gypsum conveyors;
- A High Voltage (HV) yard within the power station precinct;
- Water and wastewater treatment facilities;

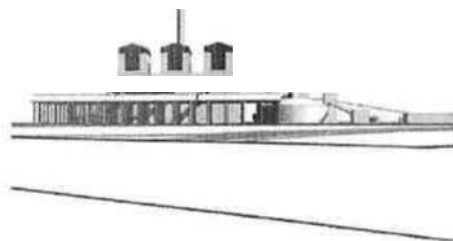
- Ash and spent sorbent disposal systems and dump site;
- Gypsum (sorbent) storage facility;
- Access roads (temporary and permanent, and external and internal roads);
- Maintenance, medical, administration, services, control buildings;
- Water supply pipeline for construction and operation phase;
- Raw water pipeline and reservoirs;
- Dams for storage of "clean" and "dirty" water;
- Power supply for the construction phase;
- Communication mast/telecommunication facilities;
- General and hazardous waste storage and handling facilities (temporary and permanent);
- Batching plant (including concrete and asphalt); and
- Construction accommodation.



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Road adjacent to temp laydown

(Visual representation for illustration purposes only)

The power plant and associated infrastructure will require an area of approximately 197ha, however, due to extensive undermine workings within the project area it has not proved

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possible to identify the required 197ha within a single parcel of land. Therefore, the proposed power island can be accommodated on a 21ha non-undermined site (6C) and the ash dump can be accommodated on a 150ha rehabilitated open cast mine (Ash site 3).

It is proposed that the power station utilize Circulating Fluidised Bed (CFB) technology because it has the advantage of being able to burn coals with a wide range of properties and hence can cope with high ash and high sulphur discard coal reserves, which are proposed as the fuel source for the project. The removal of sulphur from the coal during the combustion process will be achieved in CFB boilers by the addition of limestone which acts as a sorbent.

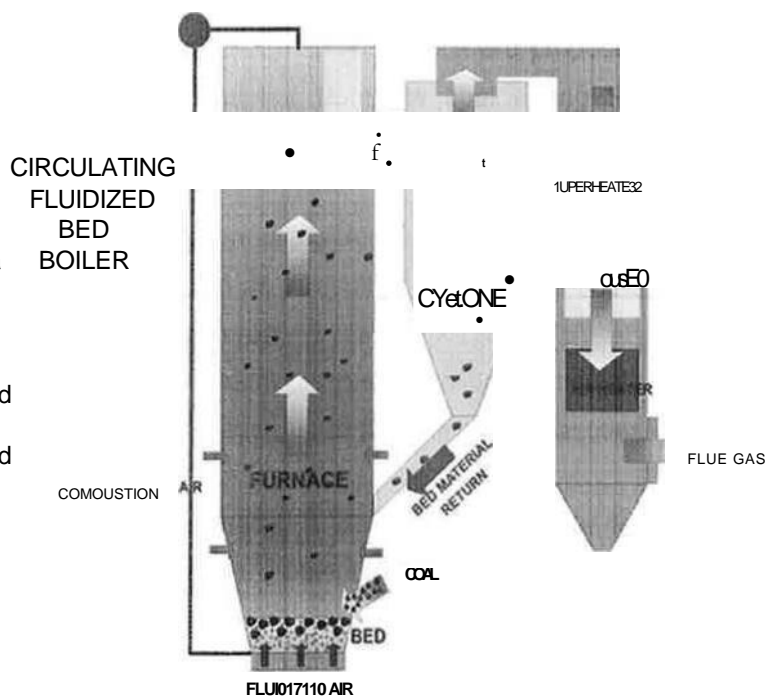
The proposed power station will be a dry-cooled station using Air Cooled Condensers (ACCs). The use of dry-cooled technology is necessitated as a result of South Africa being a water scarce country and limited water availability in the area.

The power station will be designed to be a zero liquid effluent discharge station; particulate emissions will be within IFC guidelines for degraded airsheds due to the sufficient quantities of lime proposed for the CFB units.

The plant will be Flue Gas Desulphurization (FGD) ready, a decision and timing for retrofitting the power station with FGD will be based on ambient air quality monitoring results, South African regulations including proposed emission limits and water availability.

At the bottom of the boiler there is a bed of inert material where the coal or fuel spreads. Air is supplied from under the bed at high pressure lifting the bed material and the coal particles and keeping it in suspension. The coal combustion takes place in this suspended condition allowing a more effective combustion and heat transfer. This is the Fluidized bed.

Fine particles of partly burned coal, ash and bed material are carried along with the flue gases to the upper areas of the furnace and then into a cyclone. In the cyclone the heavier particles separate from the gas and falls to the hopper of the cyclone. This returns to the furnace for recirculation. Hence the name Circulating Fluidized Bed combustion. The hot gases from the cyclone pass to the heat transfer surfaces and go out of the boiler.



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The power station will commence by sourcing discard coal from the Klippan and Blauwkrans dumps which will be delivered to the power station via conveyor belts. Secondary discard from the Klippan and Blauwkrans beneficiation plants will be retained on the Klippan and Blauwkrans dumps respectively in separate stockpiles. A small short term new discard dump area will be required at both locations during initial reclaim.

A T E R N A T I V E S

It is a requirement of the EIA process that due consideration is given to reasonable alternatives, although not all alternatives need to be investigated at the same level of detail. The Final Scoping Report identified and screened the activity, location, process and layout alternatives with respect to the construction and operation of the proposed coal fired power station. The following sections summarise the outcome of the Scoping Phase and hence describe the proposed project alternatives.

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Activity

Strategic-level alternatives, i.e. those alternatives related to the method of electricity generation for the proposed power station, fall outside of the scope of this project-level ESIA process, as they were determined in a strategic process undertaken by Anglo Operations Limited (AOL) and other prior to initiating this ESIA process.

The purpose of the proposed project is to provide base load power to Anglo American operations to ensure availability of electricity for its operations. The project is crucial to future investment in the mining industry in South Africa and the concomitant creation of jobs. It is therefore critical to bear the need for the project in mind, when considering reasonable and feasible activity alternatives.

Location

Once the need for the new coal-fired power stations was established, AOL undertook a process to identify suitable areas within their current mining operations. The initial selection process identified 6 candidate sites based on size

Process

and proximity to the discard coal dumps. After evaluating the 6 sites the technical advisors (MM) concluded that all the sites considered (Sites 1 to 6) are to varying degrees compromised by undermining, and that treatment options will prove too complex or expensive to make them a practical option for an IPP. Only Site 6C is sufficiently large enough to accommodate the power station without undermining and is therefore proposed as the only site option (preferred option). During the Scoping phase, three combustion technology alternatives were discussed; namely fluidised bed combustion, pulverised fuel combustion and coal gasification technologies. Pulverised fuel combustion requires higher financial costs in sourcing the requisite quality coal for fuel and also produces a larger carbon foot print, therefore, this technology was not considered for further investigation. Coal gasification technology has been investigated at a pilot plant scale only and is not technologically proven for plant of the desired magnitude (i.e. 450 MW units).

Fluidised bed combustion boilers have the advantage of being able to burn coals with a wide range of properties and can cope with high ash and high sulphur coals as proposed for this power project. The removal of sulphur from the coal during the combustion process is achieved in CFB boilers by the addition of limestone which acts as a sorbent; the sulphur becomes bound to the limestone enabling its removal and disposal. Additionally, the lower combustion temperatures of the CFB boiler result in lower emissions of nitrogen oxide (NO_x) by reducing the production of thermal NO_x within the furnace. Consequently, fluidised bed combustion was selected as the combustion alternative for further investigation.

Cooling

Three cooling technology alternatives were considered during the Scoping Phase, including wet cooling, indirect dry cooling and direct dry cooling. Given its greater consumption of water than the other technologies, wet cooling was not

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Ash disposal site

assessed in the EIA, while indirect and direct dry cooling alternatives were investigated further. Direct dry cooling occurs within a closed water circuit, by means of forced draught fans and there is no need for cooling towers but fans. Indirect dry cooling is achieved via a secondary circuit, resulting in the need for cooling towers for the release of steam.

Three site alternatives were identified for the ash waste disposal site, as Ash 1, 2 and 3 respectively.

With regards to the proposed waste sites, none are near to significant surface water bodies, sensitive ecological and/or historical areas, steep slopes, highly permeable soils, land uses which are incompatible with waste disposal or in areas important for water resources such as dams, overlying or adjacent to important or potentially important aquifers, or overlying or adjacent to major fault zones.

The presence of mine workings below Ash Site 1 introduces the potential risk of subsidence occurring in the future. Ash site 2 is an operating open cast mine with an unknown life of mine and site 2 abuts a farming community that is very opposed to this site being proposed as a potential ash disposal site. Ash site 3 is a former opencast site which has since been rehabilitated and backfilled with opencast material from the excavation, with a maximum depth of approximately 25m to 35m. This site fulfils all the technical and environmental criteria and is therefore the preferred alternative.

Ash

Four ash disposal alternatives were discussed during the Scoping Phase, namely above-ground ashing, in-pit ashing, wet disposal in a lagoon and pumping into underground mine workings.

The in-pit ashing is not economically viable due to the fact that no proximal pits are available, rendering this option not

feasible. The use of wet disposal is deemed to be impractical due to the volumes of water which would be lost to evaporation. The option of using non-standard disposal options such as pumping the ash into worked-out underground mining would create a liability with regards to ash disposal management and control and therefore the economic implications of mixing the ash with cement disqualifies this option as a feasible alternative. Although this option may present a practical option, the environmental implications will require significantly more detailed studies.

Above ground ash disposal is the primary method of ash disposal considered in this EIA process. It is the only feasible alternative given the available information and is therefore the preferred alternative. Consequently, in-pit, wet disposal in a lagoon and pumping into underground mine workings will be considered in this EIA process at a conceptual level, and to compare these against above-ground ashing.

Site Layout

As already mentioned above, only one site (site 6C) is not undermined and large enough to accommodate the power station and temporary areas associated with the construction phase. Alternative site layouts have not been investigated because the final configuration of the power station components within site 6C will not create any significant impacts. The site contains no environmental sensitivities and the constrained nature of the site implies that the entire 17ha which is not undermined will be developed and/or transformed.

Ash Transport

Three methods of ash transportation were investigated; wet slurry by pipeline, dry on a conveyor and dry in trucks. Some systems for pneumatic transport of fly ash exist but these systems can be prone to unreliability and are usually used for very short distances.

The preferred ash disposal site is not capable of supporting a lagoon for dewatering ash transported by slurry and the

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environmental impact of road transport of ash to the disposal site, either through the mine or via a new entrance from the Tweefontein road, will be significant and therefore these options were discounted as the primary disposal route, although the trucking option may present a practical back up option. Consequently, transporting ash by using a pipe conveyor was investigated in more detail as this would most effectively manage the dust impacts. Due to the reduced impacts associated with closed conveyor this is the preferred alternative.

Access road

The Tweefontein Road is a public highway which directly crosses Site 6C and therefore needs to be relocated in order for the site to be used. Three alignment options were investigated with the priority being attached to road safety and prescribed geometric design criteria.

Powerline route

Power will be evacuated from the plant through a high voltage interconnection to the existing Eskom transmission and distribution system. The scoping phase identified two feasible alignment options which were presented to Eskom for their inputs. These alignment options were investigated as part of the EIA and the specialist studies indicated that there is little difference in the sensitivity index of the two proposed transmission line routes, since both routes occur in the same quarter-degree grid and cross similar habitat.

1.5. DESCRIPTION OF PROJECT ENVIRONMENT

Water Resources

The study area falls within the Upper Olifants catchment (Quaternary Catchment: B11G) The Olifants River originates near Bethal in the Highveld region of Mpumalanga. The river initially flows northwards before curving in an easterly direction through the Kruger National Park

and into Mozambique, where it joins the Limpopo River before discharging into the Indian Ocean.

The Olifants catchment can be subdivided into the following four catchments dominated by varying economic activities:

Primary economic activities

Upper Olifants	Heavy industry and mining
Middle Olifants	Agriculture
Steel poort	Agriculture and mining
Lower Olifants	Tourism and mining

The proposed project will be located in the Upper Olifants sub-catchment, which is

characterised by coal mining activities. Based on this GIS information, there are no natural surface water resources (streams, wetlands, or water bodies) located on and/or close to the site. The site consists of "bare rock and soil" and "cultivated land" (National Landcover 2000).

The only water body close to the site is a stormwater dam (called the Kleinkopje-Klippan Dam) which is located ± 800 m south of the site. This stormwater dam is part of the mine's dirty water management system.

From a hydrogeological viewpoint, the mined areas are situated in fractured Karoo Bedrock with a very low hydraulic conductivity. Borehole yields in this formation are less than 1 f/s (litre/second), and statistically the majority of boreholes were expected to be dry.

Three distinct superimposed groundwater systems are present within the occurring geology. They can be classified as the upper weathered Eccca aquifer, the fractured aquifers within the unweathered Eccca sediments and the aquifer below the Eccca sediments.

Eccca Weathered Aquifer

The Eccca sediments are weathered to depths between 5 — 12 meters below surface and often form a perched aquifer. This aquifer is recharged by rainfall and estimated to be between 1-3 % of the annual rainfall. This aquifer is generally low-yielding (100 — 2000 f./h) because of its insignificant thickness.

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Fractured Ecca Aquifer

The pores within the Ecca sediments are too well cemented to allow any significant permeation of water. Groundwater movement is therefore along secondary structures, such as fractures, cracks and joints in the sediments. In terms of water quality, the fractured Ecca aquifer always contains higher salt loads than the upper weathered aquifer. Although the sulphate, magnesium and calcium concentrations in the Ecca fractured aquifer are higher than that in the weathered zone, they are well within expected limits.

Pre-Karoo Aquifer

Drilling in only a few instances has intersected the basement of the Karoo Supergroup which can be regarded as an insignificant aquifer

V o t e r

A hydrocensus of existing boreholes (data received from Kleinkopje Colliery) was performed within the project area. A number of boreholes on the database are either destroyed/dry or have collapsed. Furthermore the location of most of the existing boreholes is however located at such a distance from the investigated sites and consequently falls outside the zone of impact and model boundaries, making the data irrelevant to our investigation. Useful information (water levels & water samples for chemical analysis) was gathered from six boreholes. From the hydrocensus data it can be concluded that groundwater is not used as source of potable water due to poor quality water. Existing boreholes are mainly used for monitoring purposes.

Ecofociy and Woqiiiv'sti'll

The study area is indicated in Mucina & Rutherford' (2006) as being situated within **Eastern Highveld Grassland**. Eastern Highveld Grassland is mostly confined to Mpumalanga and western Swaziland, occurring marginally as well into Gauteng. The conservation status of this vegetation type is **Endangered**, and whilst the conservation target is 24%, only a small fraction (<1%) is currently protected and 44% is considered to be transformed, mostly by cultivation, forestry, mines, dams and urbanisation. However, due to the high levels of habitat transformation and fragmentation, most of the project area has been classified as least concern or no natural habitat remaining by the Mpumalanga Biodiversity Conservation Plan (MBCP).

¹ Based on Mucina & Rutherford, 2006

Vegetation types that occur in the study area include:

Transformed Grassland

This community covers the proposed new Ash Pit site and covers an area of approximately 144 ha and represents a rehabilitated waste rock dump. Vegetation structure has been classified as Low Closed Grassland. Only 18 plant species were recorded in this entire vegetation community, of which five (28%) are invasive alien species. Species richness in sample quadrats ranged from 6-11 species per 100m² (n=3), considerably lower than typical untransformed Highveld grassland.

Seriphium Imperata Secondary Grassland

This community represents the dominant vegetation type at the power plant site, covering an area of approximately 44 ha and appears to represent secondary grassland on old cultivated lands. Vegetation structure is Low Closed Grassland to Low Closed Shrubland. Only 24 species were recorded in this vegetation community, of which 4 (17%) are invasive alien species. Species richness in sample quadrats varied from 8-11 species per 100m² (n=2), which is much lower than typical untransformed Highveld grassland.

Themeda - Tristachya Untransformed Grassland

This vegetation community is confined to the southern half of the power plant site and covers approximately 21 ha and does not appear to have been transformed historically. Vegetation structure is also Low Closed Grassland. Forty species were recorded in this vegetation community, of which one (2.5%) is an invasive alien species. Species richness in the single sample quadrat was 28 species per 100m², which is more typical of untransformed Highveld grassland.

Fuirena-Helichrysum Wetland

This vegetation community is confined to the south-western corner of the power plant site and covers approximately 6.4 ha and does not appear to have been historically transformed. Again, the vegetation structure is Low Closed Grassland. Only 19 species were recorded in this vegetation community, of which one (*Rumex crispus*) is an alien species, although not invasive. Species richness in the single sample quadrat was 13 species per 100m², which is fairly typical of sedge wetlands in Highveld grassland.

No invertebrate species currently considered of conservation importance were observed in the study area, and very few such species are predicted as likely to occur in the region. In addition, both the proposed ash disposal and power station sites have been previously disturbed, resulting in reduced biodiversity value of both sites. However, given the very high transformation levels and the endangered status of the vegetation type in the region, any areas that could contribute to sustaining overall invertebrate biodiversity levels in the area may be considered of conservation importance and effective rehabilitation of areas disturbed by the project, as well as unused portions of the sites, should be of high priority.

The site of the proposed power station is located approximately 10 km south of the town of eMalahleni, in the Emalahleni Local Municipality, which forms part of the Nkangala District Municipality in Mpumalanga. Emalahleni Local Municipality (ELM) is one of the six local municipalities forming part of the Nkangala District Municipality and borders the Gauteng Province.

The Emalahleni LM (Local Municipality) is situated strategically within provincial context and in relation to the national transport network. It is situated relatively close to the City of Johannesburg Metropolitan, City of Tshwane Metropolitan Municipality and the Ekurhuleni Metropolitan Municipality. It is connected to these areas by the N4 and N12 freeways as well as a railway network. The Maputo Corridor runs through the municipality. There are rich coal reserves in the area as well as a number of power stations such as Kendal, Matla, Duvha and Ga-Nala. The main urban centre is the town of Emalahleni with the other towns / activity nodes being Ogies, Phola, Ga-Nala, Thubelihle, Rietspruit, Van Dyksdrift and Wilge.

Land

The existing land uses in the area are:

- The southern residential suburbs of Emalahleni (Tasbet Park) lie in the north-eastern sector of the study area.
- The Village of Clewer.
- There are several mine residences in the area.
- Agricultural holdings on the banks of the Witbank Dam.

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- Vlaklaagte Agricultural Holdings.
- There are several farmhouses and farm labourer houses scattered throughout the study area.

- There are several schools in the urban areas of Emalahleni/Witbank.
- There are several farm schools in the rural areas to the south of the town.

There are six hospitals in the mining areas to the south of Emalahleni/Witbank.

There are several collieries to the south of Emalahleni/Witbank. Some are active and some are now dormant. Three Anglo Coal Collieries, namely the Landau, Greenside and Kleinkopje Collieries, lie in the immediate vicinity of the planned power plant site.

There are a number of farms in the area that are being actively farmed

The data data used for the socio-economic description was sourced from the Community Survey (CS) conducted by Statistics South Africa in 2007. The Community Survey is a large-scale household survey conducted by Statistics South Africa to bridge the gap between censuses. The total population of Emalahleni Local Municipality is in the order of 435,217 people. The majority of residents in the Emalahleni LM belong to the Black population. The proportion of people belonging to the Black population group in the Emalahleni LM is lower than on district and provincial level, with a higher proportion of people belonging to the White population group. As such the Emalahleni LM can be expected to be culturally different from the district. The household density for the country is estimated on approximately 3.87 people per household, indicating an average household size of 3-4 people (leaning towards 4) for most households which are slightly down from the 2001 average household size of 4 people per household.

According to the Community Survey 2007, the growth rate in Mpumalanga was very similar to the national average, but Nkangala DM and Emalahleni LM experienced growth rates well

above the national average with the population in Emalahleni LM more than doubled since 2001.

Emalahleni LM has the largest household sizes of the areas under investigation and has also shown an increase in household sizes since 2001.

Half of the people in the Emalahleni LM who are of economically active age (aged between 15 and 65 years) have indicated that they are employed, compared to 42.1% in Nkangala and 40.1% in Mpumalanga, indicating the greater concentration of economic activities in the area.

Unemployment rates

The unemployment rate in Emalahleni Local Municipality is in the order of 21.3%. This is very similar to the proportions on district and provincial level. The Emalahleni LM has the smallest proportion of people who have described themselves as not economically active.

Sectoral employment

The main industry of employment in Mpumalanga is Manufacturing; Community, social and personal services and Wholesale and retail trade. The Community; social and personal services sector includes public administration and defence activities, education and health and social work. In the Emalahleni LM, the dominant industry of employment is Mining and quarrying, followed by Manufacturing.

income

On local, district and provincial level, 50% or more of the population between the ages of 15 and 65 years-have indicated that they did not have any income in 2007, while only 25% of Emalahleni earn more than R3200 per month. The Emalahleni area is financially slightly better off than the district and the province, but the levels of poverty are still high.

Housing

The Emalahleni LM has the lowest proportion of who own their dwellings and have paid them off in full, compared to 58.5% on district level and 62.7% on provincial level. Almost a quarter of the households in Emalahleni LM have indicated that they occupy their dwellings rent-free, which is much higher than on district or provincial level.

Access to electricity

In the Emalahleni LM only about 60% of the households in the study area use electricity as source for lighting, followed by candles and paraffin. This is much lower than on district or provincial level where more than 80% of households use electricity for lighting purposes.

Water and sanitation

On a provincial level, almost 70% of the households in Mpumalanga had access to piped water inside the dwelling or yard in 2007, compared to about 75.9% on district level and 78% on local level. Only about a third to just less than half of households have access to piped water inside their dwellings.

The absence of a flush toilet or a pit toilet with ventilation is one of the indicators of Living Environment deprivation (Noble et al, 2006). From this perspective, the Emalahleni LM is the least deprived area in terms of sanitation services with almost 60% of households having access to flush toilets or pit toilets with ventilation.

1.6. IDENTIFIED IMPACTS

1.6.1. Impact Methodolog\

The methodology applied during this EIA is broadly consistent with that described in DEA's Guideline Document on the EIA Regulations (1998). The methodology was outlined in the Plan of Study for EIA. Using a tabulated rating system, each impact is described according to its extent (spatial scale), magnitude (size or degree scale) and duration (time scale). These criteria are used to ascertain the significance of the impact, firstly in the case of no mitigation and then with the most effective mitigation measures in place. Once the significance of an impact has been determined, the probability of this impact occurring as well as the confidence in the assessment of the impact is determined. Lastly, the reversibility of the impact is estimated.

Challenges faced during the application of the methodology as described relate to the subjectivity in assigning significance to an impact, the consideration of cumulative impacts and the need for integration with other development proposals that impinge on the proposed power station.

1.6.2. Construction Phase Impacts,

None of the construction phase impacts were deemed to have a highly significant impact on the environment, given their relatively short duration and localised extent. The following potential impacts have been identified as relevant to the construction of this project:

- Disturbance of flora and fauna;
- Soil (and land use capability) impact
- Storage of hazardous substances on site;
- Impact of waste generation;
- Increase in traffic volumes;
- Increased risk of fire;
- Socio-economic impacts (negative);
- Noise impact;
- Visual impact;
- Air quality impact; and
- Employment (positive and negative)

However, many of the construction phase impacts are of medium significance and require a suite of mitigation interventions in order to avoid and minimise impacts on the biophysical and especially the human environment. A detailed construction and operational EMP has been developed to guide the construction and operational phases of the proposed project. The EMP will be updated and further developed based on the Conditions of Approval in the ROD, should the project be approved. The implementation of the EMP would minimise possible negative impacts on construction and operation and assigns responsibility for environmental controls.

With reference to Table 1, the most significant operational phase impacts of the proposed power station and its associated infrastructure on the biophysical and social environment, without mitigation, include the following:

- Impact on air quality
- **Impact of powerlines on avifauna**
- **Impact** of artificial lighting on invertebrate fauna
- Impact on groundwater resources;

- Impact on visual receptors
- Impact on heritage resources ;

The proposed terms of reference for the specialist studies are detailed in the Scoping Report and associated Plan of Study for EIA.

A comprehensive emissions inventory has recently been completed for the region as part of the Highveld Priority Area (HPA) baseline study. The results of the inventory were then used to carry out a comprehensive dispersion modelling study over the area using the CALPUFF model (DEA 2011). Results of this dispersion study as well as monitoring carried out at Witbank and Phola indicate that the eMalahleni area is already marginal with respect to conformance to both PM10 and SO₂ SA ambient air quality standards.

The proposed power station would be associated with emissions of various common pollutants such as sulphur oxides (SO_x), nitrogen oxides (NO_x), particulate matter and trace emissions of various heavy metals. However, the proposed power station is located within the Highveld Priority Airshed (HPA), an area characterised by poor air quality and exceedances of pollutant limits set in South African legislation. If uncontrolled, the proposed power station could impact significantly on air quality in the eMalahleni (Witbank) region and potentially further afield.

Resulting calculated ambient concentrations of the various pollutants were compared with local and international standards and guidelines, focusing on the proposed SANS 1929 standards recently published for comment by the Department of Environmental Affairs and Tourism. These standards are based on WHO guidelines and represent good international practice for ambient air quality standards.

Particulate Matter (PM10)

Contribution of the project to the PM10 concentration in adjacent residential areas is small, but cumulative values may continue to exceed South African standards because of the elevated background values being experienced in the area.

Predicted ground level PM10 concentrations indicate that there will be small localised areas, mainly in the coal and ash handling facilities, where highest daily and annual average values will exceed the SA community exposure limit values; occupational exposure values will however be used as limit values at this location.. These impacts do however not extend to the sensitive community receptors. Both the highest daily and annual average impacts of the

particulate matter from the boiler stack is a small fraction of the respective limit values at these locations.

Dust Fallout (TSP)

Contribution of the project to dust fallout in adjacent residential areas is small and does not exceed SANS 1929 action limit for residential areas.

Predicted contributions of material handling to dust deposition rates indicate that these will not exceed the SANS 1929 proposed value of 600 mg/m²-day anywhere and that the impact will be minimal at the sensitive receptors.

Carbon Monoxide (CO)

Contribution of the project to the carbon monoxide concentration in adjacent residential areas is a negligible fraction of the South African standard. Cumulative concentrations are also expected to be below the SA ambient limit values at all receptors.

The predicted impact of CO emissions on ambient concentrations is minimal at all receptors

Sulphur Dioxide (SO₂)

Contribution of the project to the sulphur dioxide concentration in adjacent residential areas is a negligible fraction of the South African limit values, but cumulative values may continue to exceed South African standards because of the elevated background values being experienced in the area.

Predicted worst case short-term impacts are much less than 50% of the hourly limit value and less than 20% of the daily limit value at the point of maximum impact. Predicted annual average concentration contributions are a small fraction of the annual limit value. At the Witbank sensitive receptors, the contribution is minimal.

Nitrogen Dioxide (NO₂)

Contribution of the project to the nitrogen dioxide concentration in adjacent residential areas is a small fraction of the South African standard. Exceedences of the SA ambient values may continue to occur because of the elevated background values.

Predicted worst case short-term impacts are much less than 50% of the hourly limit value at the point of maximum impact. Predicted annual average concentration contributions are a

small fraction of the annual limit value. At the Witbank sensitive receptors, the contribution is minimal.

Mercury Emissions

Although mercury capture in CFBs is much higher than in equivalent pulverised fuel (PF) boilers, the discard coal proposed for use probably has a much higher mercury content. There is however considerable uncertainty on the emission of mercury from ash disposal sites and from the uncontrolled combustion of discard waste dumps, which could occur if discard were not used in a controlled fashion. Given the size of the proposed installation compared to the existing power stations and the low modelled and measured ambient concentrations, it is considered unlikely that the mercury emissions from the project will contribute significantly to ambient mercury concentrations in the area.

Grt iNW Ar

The geohydrological investigations indicated that groundwater within the proposed sites is not used as source of potable water due to poor quality water. This poor quality water is as a result of historical mining within the region pertaining to open cast and underground mining and its related activities. Thus, the existing boreholes in the area are mainly used for monitoring purposes. A hydrocensus of existing boreholes (data received from Kleinkopje Colliery) was performed within the project area and found that a number of boreholes on the database are either destroyed /dry or have collapsed.

Based on the field work, interpretation of available and newly acquired data and results of the numerical model it can be concluded that the proposed power station and associated ash dam will have a "low to very low" impact on the investigated geohydrological environment, given that sound environmental infrastructure and management procedures are put in place as discussed in EIR. The proposed mitigations include liners, leachate containment, leachate treatment, monitoring programme and surface water controls.

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The general procedure used to determine the noise impact was guided by the requirements of the Code of Practice SANS 10328 *Methods for Environmental Noise Impact Assessments*.

The impact of the power plant itself will, to a large extent, be reduced by the fact that the noise climate has already been degraded by the operations at the Landau, Greenside and Kleinkopje Collieries, and traffic noise. The cumulative effects between the existing sources of noise and the noise generated by the power station operations will be minor, except in the near field around the power plant.

Construction phase

Working on a worst case scenario basis, it is estimated that the ambient noise level from general construction activities could negatively affect noise sensitive sites within a distance of 1400 metres of the construction site. Virtually none the noise sensitive receptors outside the power station property will be impacted by and ambient noise climate greater than 45dBA during construction.

Operational phase

Overall, taking the residual noise climate into consideration, the noise generated by the power station and ancillary works will have a relatively minor impact on the noise sensitive receptors in the study area.

The landscape character of the area is degraded due to the existing electrical power lines, mine dumps and run down industrial and alien infested type landscapes that characterize the location. The proposed power station is located within a highly modified coal mining landscape with the Duvha Power Station located approximately 10 km from the site and 15 km from eMalahleni/ Witbank. The landscape is characterised by high levels of contrast which is suitable for large / high contrast generating landscape modifications such as the proposed power station.

The overall visual exposure of the proposed landscape modification would be Moderate as the more sensitive residential receptors from the town of Witbank are mainly outside of the 6 km buffer zone. The distance from the site combined with the existing air pollution of the area, would limit the visual exposure. The landscape modifications would however be recognizable to the viewer. Receptor sensitivity would be Low due to the existing degraded industrial and mining landscapes that dominate the surrounding landscapes and significantly detract from the scenic quality of the area.

However, recommendations were made to reduce the visual intrusion of the power station from the highly exposed road receptors by retaining as many of the existing trees in the area, planting new trees in specific locations as well as to change the colour scheme of the plant.

Four vegetation communities were identified during fieldwork, however, two of these represent transformed or degraded forms of grassland that have low conservation value (Transformed Grassland on the proposed Ash Pit site, and Secondary Grassland on old cultivated lands on the Power Plant site).

The anticipated impacts of the coal-fired power plants and associated infrastructure on the ecosystem services would be negligible to very low. The Mpumalanga Biodiversity Conservation Plan has classified much of the general vicinity of the study area as least concern or no natural habitat remaining, primarily due to the high levels of habitat transformation and fragmentation related to mining activities. The areas of natural grassland, which have been classified as Important and Necessary, such as the untransformed grasslands south east and west of the power station footprint, will remain undeveloped and therefore the ecosystem's processes should continue to operate as they currently do.

General recommendations related to the fauna and flora have been developed including removing, relocation, preservation of some species, prevention of accidental fires, control of invasive plants, etc.

- remove, relocate, protect and utilize as many of the other protected tree species on site as possible, preserving existing integrity of surrounding natural vegetation;
- contain all construction and operational activities within the boundaries of the specified areas;
- utilise trees that normally grow to extensive heights for screening effects;
- an alien species control and monitoring program must be developed starting during the construction phase and to be carried over into the operational phase.

Based on what was found and its evaluation, it is recommended that the proposed development can continue, on condition that the identified grave yard be securely fenced out and access to visitors be accommodated. Furthermore, if any archaeological sites are

exposed during construction work these must be immediately reported to a museum for investigation and evaluation.

In general, the land capability (soils, climate, ground roughness etc.) ranges from very low intensity (poor quality) grazing lands with little to no significant economic potential, to at best moderate arable land.

The development of the proposed power station will involve permanent loss of the soil resource and therefore, it is recommended that the topsoil (approximately 700-750mm) be stripped and stored prior to construction.

Effective removal and storage of the utilizable materials will result in the permanent protection of the growth medium thereby making provision for retention of utilizable material for the decommissioning and/or during rehabilitation. This will not only result in significant cost savings at closure, but will ensure that additional impacts to the environment do not occur.

Erosion of the side slopes are of concern but this risk has been adequately mitigated by the ash liner design. If the ash liner design is adopted as a minimum specification then erodibility is not a concern, however, appropriate mitigation measures will be implemented to ensure that erosion does not occur.

The primary findings of the traffic assessment identified two intersections which need to be upgraded in order to accommodate the existing (in the case of the Watermeyer Street intersection) traffic volumes and the anticipated (Road D2257 and Road D 2769) future traffic volumes:

Watermeyer Street / Road D 2257 intersection;

- this intersection be investigated for the possibility of signalisation (the intersection is located at a gradient which may or may not be too steep for signalisation);
- The double lane in the westbound direction terminates to a single lane at a distance of approximately 280m from the intersection only to become double lanes once again approximately 420m from this point. It is consequently advised that the existing dual carriageway road to the west of Watermeyer / Road D 2257 intersection be extended up to the latter intersection in both the east and westbound directions;

- The desirability to relocate the existing Watermeyer / Road D 2257 intersection approximately 1km towards the west (better gradients for signalisation and dual carriage way road) be further investigated and considered by the authorities from a capacity as well as safety point of view. ROAD D 2257 / ROAD D 2769 (IPP Access intersection).

Road D 2257 / Road D 2769 (IPP Access intersection).

The IPP Access intersection was analysed as a normal two way stop controlled intersection. Although the latter type of intersection control is expected to operate initially at acceptable levels of service, the level of service is expecting normal background traffic growth on Road D 2257. It is consequently advised that the access intersection be a four way stop controlled intersection for a period of approximately after the signalisation or upgrading.

The proposed project will be associated with a number of positive and negative social impacts.

The positive impacts include;

- Economic activities

Creation of employment opportunities:

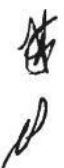
It was determined that the proposed power station would lead to local employment and associated income stability; training and employment; local procurement and associated local economic

Impacts on the local municipality:

The investigation determined that the power station would bring about an increase in the demand for housing and infrastructure in the surrounding area. This increase would have a positive impact on the local municipality.

Because the power station will receive operational water requirements from the EMalahleni Waste Water Treatment Works (treated mine water) the project will not increase the burden on municipal water. Electricity will be self-generated (after construction phase) and a private service provider will manage all solid waste removal.

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The negative impacts include;

- Social change 1: In-migration

The most significant impact relating to In-migration will occur during the construction phase of the proposed project due to the high demand for labour during this period. The construction period will last for approximately two to four years, depending on the contractors. It is estimated that at peak construction time (a period of six to eight months) approximately 1200 people will be employed, with approximately 900 people for the remaining construction period.

The construction and operation of the power station are likely to result in an increase in traffic volumes. This could lead to damage of local roads and increased speeding through town, thereby impacting on the safety and daily movement patterns of residents in surrounding communities.

- Social change 2: Resettlement

The proposed project will require the relocation of two households. The members of these households are non-landowning tenants; the household heads were formerly employed on the farm before the land was purchased by Anglo American Limited. They have been living there for more than 20 years. The households currently house a total of sixteen people, of which three are employed.

Specialist consultants have been appointed to undertake the resettlement process to relocate these households to a suitable alternative location. The resettlement process is currently in the planning stages, which involves the compilation of a Resettlement Action Plan (RAP).

The process will be undertaken in accordance with international best-practice principles, such as the World Bank Operation Policy 4.12 and the International Finance Corporation (IFC) Performance Standard 5 on Involuntary resettlement, as well as with Anglo American Limited policies incorporated into the company's Socio-Economic Assessment Toolbox (SEAT).

As such, it will involve:

- o Involvement of the affected households in all decision-making that will affect them, including the choice of resettlement site;

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- Compensation for all assets that will be lost or displaced by relocation, where such compensation will preferably be by means of the replacement of assets rather than monetary remuneration;
- Replacement of affected assets — in particular, replacement housing at the resettlement site — will be to a similar or better quality than those lost;
- Post-resettlement support will be provided in the form of a livelihood restoration programme to ensure that the households are not worse off after resettlement than they were before;
- A monitoring and evaluation programme will be implemented to ensure that the resettlement process does not lead to a deterioration in the households' standard of living; and
- Resettlement will be completed before construction commences.

These measures are intended to avoid or mitigate any negative impacts that may arise from resettlement, as well as to maximise its benefits for the affected households.

- **Social Change 3: Change in land use**

It was determined that the power station could impact on surrounding communities' way of life and on the area's sense of place. This, in turn, could have a negative effect on property values.

- **Social change 4: Deviant social behaviour**

Deviant social behaviour can be described as the types of social behaviour that might be deviant or anti-social, such as excessive alcohol consumption, illegal drug use, various types of risk-taking behaviour and vandalism. The project area is currently experiencing high levels of unemployment and poverty rates are high, therefore, opportunistic criminals may take advantage of this situation.

Based on the outcome of the EIA Phase of the proposed project, it is believed that the final EIR provides a relatively comprehensive investigation and assessment of the environmental issues raised during the Scoping Phase by I&APs, National, Provincial and Local authorities, Anglo American and the EIA project team.

The EIA indicated that, many of the negative impacts are anticipated to respond favourably to mitigation measures, whereas some of the positive impacts (e.g. maximisation of employment opportunities for members of local communities) can be

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optimised. The final mitigation measures implemented during the project are to be informed by the recommendations made in the environmental impact report, formalised in the Framework EMP and Social Management Plan and subjected to mitigation and monitoring process throughout the construction and operational phases.

.UBLIC PARTICIPATION

Engagement with Interested and Affected Parties (I&APs) forms an integral component of the EIA process. I&APs will have an opportunity at various stages throughout the EIA process to gain more knowledge about the proposed project and to provide input into the process. The proposed project was advertised in national, regional and local newspapers and erecting site notices on and around the proposed sites in order to make as many people as possible aware of the project and associated EIA process. This was done to elicit comment from and register I&APs from as broad a spectrum of public as possible. Thereafter, the Public Participation Process (PPP) focused only on registered I&APs and the local communities.

The I&APs had various opportunities throughout the EIA process to provide input in the consideration of the decision. Public participation during the Scoping Phase was comprehensive and comprised of advertisements, holding key stakeholder meetings, distributing both the draft and final Scoping Reports and the draft EIR for comments and inputs. All responses received were captured in an Issues and Responses Report.

The next stage of the public participation process involves lodging the final EIR in the public library, various AOL collieries in the area and on the internet.. Below is a chronology of key public engagement events:

	Action
15 November 2010	Distribute Background Information Document
15 November 2010 — 24 January 2011	Public registration period
29 November 2010 & 8 December 2010	Initial public meeting
16 May 2011	Distribute Draft Scoping Report for public comment
16 May 2011 — 25 June 2011	Public comment period

31 May 2011	Host public meetings
28 July 2011	Distribute Final Scoping Report for public comment
29 July 2011 —10 August 2011	Public comment period
2 August 2011	Final Scoping report issued to DEA
9 September 2011	DEA acceptance of Final Scoping Report
31 October 2011	Distribute Draft Environmental Impact Report
31 October 2011 —18 January 2012	Public comment period
21 November 2011	Host public meeting
17 February 2012	Distribute Final Environmental Impact Report
17 February 2012 — <u>9 March</u> 2012	Public comment period
12 March 2012	Final Environmental Impact Report issued to DEA

In general the public is supportive of the project with expectation of benefits from additional employment during the construction and operational phases. During the public participation process, several of the inhabitants of the surrounding farms raised concerns that the proposed power station may result in an increase in air, noise **and** ground water pollution, and that this may impact on their health.

1 8. Environmental Management Programme (EMP)

The main purpose of an EMP is to ensure the sustainable management of the environment, whilst avoiding and/or minimising any environmental damage, during the entire lifespan of the project, which includes the construction phase, operational phase and decommissioning of the plant.

The EMP, including the Constructional Environmental Management Programme and Operational Environmental Management Programme, must be viewed as a legal binding document to which all employees and outside contractors involved in the construction and operation of the plant must be compliant to.

The EMP supersedes any contracts and must be adhered to during the entire lifespan of the power plant. No environmental fatal flaws were identified through the EIA process to be associated with the operation and maintenance of the Khanyisa Power Station. However, a **number of potential impacts require management and mitigations were identified in the EIR and EMP.**

The organisational structure identifies and defines the responsibilities and authority of the various role-players (individuals and organisations) involved in the project.

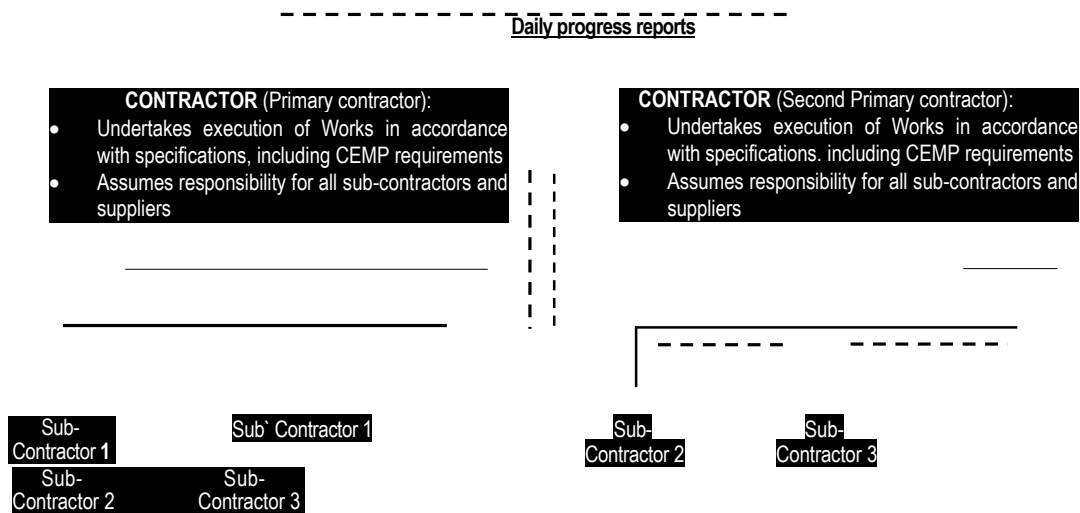
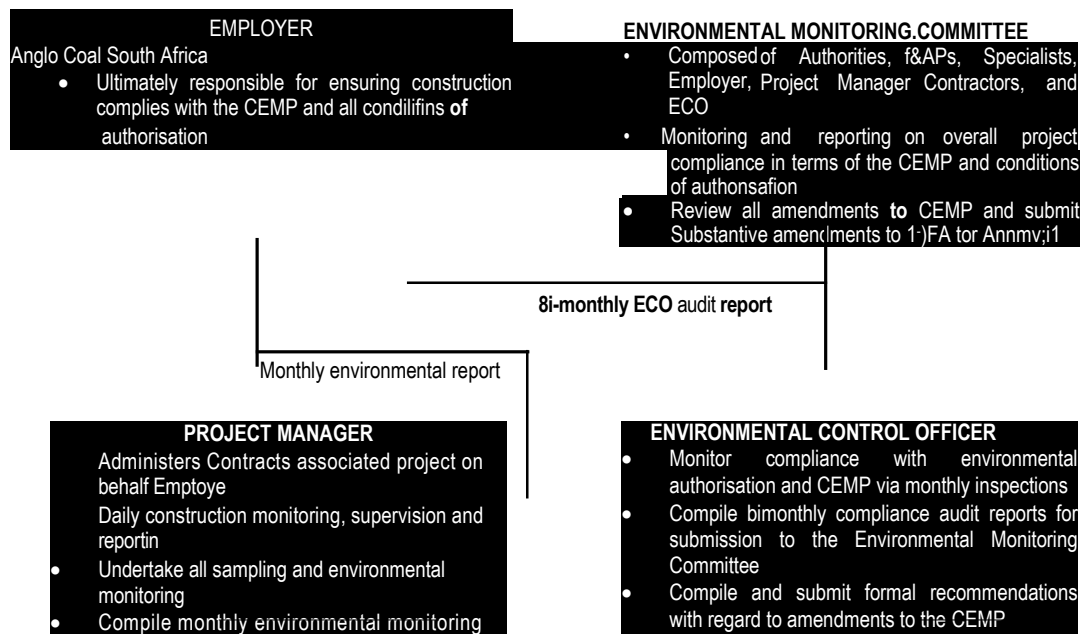
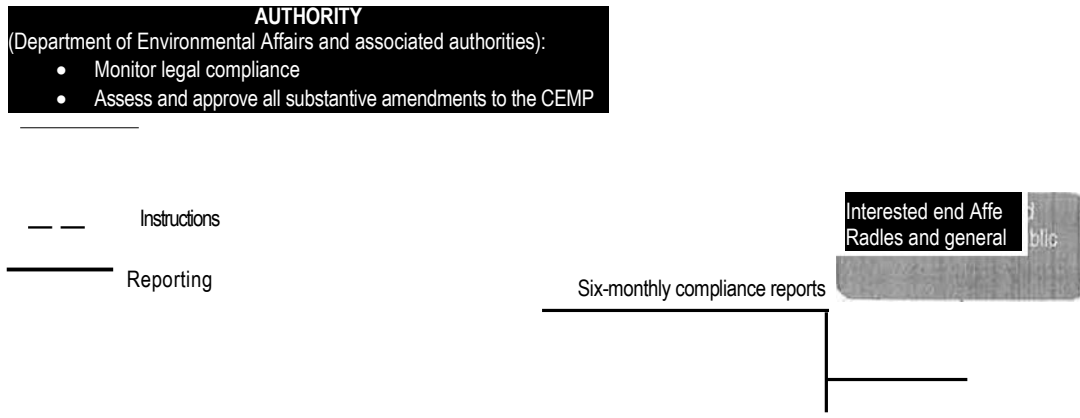
All instructions and official communications regarding environmental matters shall follow the organisational structure shown in the figure below.

The organisational structure has been developed to ensure that:

- There are clear channels of communication;
- There is an explicit organisational hierarchy for the project; and
- Potential conflicting or contradictory instructions are avoided.

In terms of the defined organisational structure, all instructions that relate to environmental matters will be communicated to the Contractor via the Project Manager's Representative. The only exception to this rule would be in an emergency (defined as a situation requiring immediate action and where failure to intervene timeously would, in the reasonable opinion of the Environmental Control Officer, result in unacceptable environmental degradation), where instructions may be given directly to the Contractor². The key-role-players for the project are Department of Environmental Affairs, the Environmental Monitoring Committee, the Employer, and the Contractor. The detailed roles and responsibilities of the various role-players identified in the organisational structure are described in the EMP.

² It should be noted that there is likely to be a considerable amount of informal communication between the ECO and the Contractors environmental representatives. However, where such communication (1) represents an instruction, (2) could lead to liability on the part of the Employer or Engineer or (3) could have financial implications, this must be address through the formal channels of communication defined in the organisational structure.



1.9. Conclusions and Recommendations

1.9.1. Conclusions

The findings of the specialist studies undertaken within this EIA provide an assessment of both the benefits and potential negative impacts anticipated as a result of the proposed project. The findings conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding, provided that the recommended mitigation and management measures are implemented.

An important function of the report's conclusion is to identify the project elements that justify the proposed project. In this regard, the following project elements are noteworthy:

- The Khanyisa power station will relieve the electricity strain currently being experienced in South Africa by providing 450MW of electricity into the national grid;
- The project will be utilising reclaimed mine water from the EWRP for all required purposes (potable and process water requirements) and will therefore not place any burden on the regions municipal and groundwater resources;
- The project will utilise existing discard coal for the fuel source and therefore no new mining operations are required for the power station;
- The power station will meet the World Bank and IFC emission standards which are more stringent than the South African standards;
- The project will utilise Air Cooled Condensers to further reduce the projects impact on water requirements (saving of approximately 4570 Tonnes of water per hour);
- The project will provide positive economic benefits for the region by providing job opportunities for approximately 1200 skilled and semi-skilled people for the 36 month construction period and the broad based economic stimulation associated with the contractors and suppliers. and
- The proposed sites falls within transformed land which is situated within existing mining operations and will not present any material impacts on biophysical sensitivities.

1,9.2. Recommendations

With reference to the operational impacts described above, it can be noted that their significance levels could generally be reduced by implementing the identified mitigatory measures as highlighted in the EIR. Assuming that the identified suite of mitigatory measures is implemented, the following describes the various project alternatives in terms of their biophysical and socio-economic impact:

With reference to the alternative sites, the initial site selection process evaluated each site against a range of project dependent criteria such as size of the site, potential boundaries, buffer zones, distance from fuel source, electricity evacuation etc. It was concluded that all 6 initial sites are comprised to varying degrees by undermining activities except for site 6C.

Since undermined sites present both a technical and financial risk in terms of the foundational cost and ground settlement during the operational life of the plant, all other site alternatives were disqualified and site 6C is the only site option that is large enough for the power station and associated infrastructure which is not undermined.

It is recommended that refinement of the site layouts be considered in the future, once further technical information is available.

In terms of cooling alternatives, indirect dry cooling, which utilises cooling towers, greatly increases the disturbance footprint and visual prominence of the power station, making it a more imposing structure. Furthermore, indirect dry cooling entails a significantly greater capital cost. However, direct dry cooling, which utilises a bank of fans for each boiler unit, is unlikely to increase the residual noise climate by more than 5dBA, except within a short range (within 2 000 metres) of the power station itself. This can be attributed to the fact that the noise climate has already been degraded by the operations at the Landau, Greenside and Kleinkopje Collieries, and traffic noise. The cumulative effects between the existing sources of noise and the noise generated by the power station operations will be minor. Furthermore, direct dry cooling uses approximately < 0.2 l of water per kWh generated.

A significant advantage of dry-cooling technology is the conservation of water, which is critical in a semi-arid country like South Africa. As South Africa is a water scarce country and wet cooling uses far greater volumes of water than dry cooling, it is recommended that the power station make use of direct dry cooling technology.

Should all possible noise mitigation measures be implemented, such as noise abatement technology, insulation, and increasing the buffer zone between the power station and adjacent noise sensitive receptors, then the impacts of direct dry cooling will be adequately mitigated to within acceptable district noise standards (SANS 10103). Furthermore, if the mitigation measures for visual impacts are implemented, the visual impacts would also be reduced for sensitive view receptors because the more sensitive residential receptors from the town of Witbank are mainly outside of the 6 km buffer zone. Consequently, Anglo American should base its choice of cooling technology on technical and cost factors.

With reference to air emission abatement, Anglo American has made a firm commitment that the design will ensure that the air pollution control equipment is installed to reduce the hourly concentrations of particulate emissions to within the IFC guideline of 30 $\mu\text{g}/\text{m}^3$. Furthermore, the project will also ensure air pollution control equipment is installed to reduce the hourly concentrations of particulate emissions to within the IFC Guideline of 30 $\mu\text{g}/\text{m}^3$.

Above ground ash disposal will result in a larger footprint being disturbed than other forms of ash disposal. However, wet in lagoon and in-pit ashing require the ash to be conveyed to the mine and may result in groundwater contamination and the preferred ash disposal site is not geotechnically suitable for a wet-lagoon design. Above-ground ashing is therefore

recommended as the environmentally most acceptable ash disposal technique at this stage.

With regard to the relocation of the Tweefontein road (D 2257), Option 1 is the preferred route alignment and is supported by the provincial roads authority. The alignment of Option 1 allows for mobility and meets minimum prescribed geometric criteria, sight distances and access spacing.

The specialist studies and environmental impact assessment indicated that there are little differences in the sensitivity of the proposed transmission line routes since both routes cross similar habitats. From a visual impact Option 2 is the preferred option as it has less exposure to receptors and is more aligned with the existing road infrastructure and therefore there would be less potential fragmentation of landscapes / agricultural areas.

In terms of combustion technology, CFB technology has the advantage of being able to burn coals with a wide range of properties and can cope with high ash and high sulphur coals as proposed for the power plant. The removal of sulphur from the coal during the combustion process is achieved in CFB boilers by the addition of limestone which acts as a sorbent.

It is proposed that CFB technology be implemented to ensure the power stations meet the air quality standards.

1.10, Way Forward

The next stage of this EIA process involves the review of the final EIR by the competent authority for consideration.

Khanyisa Coal Fired Power Station - Final EIR

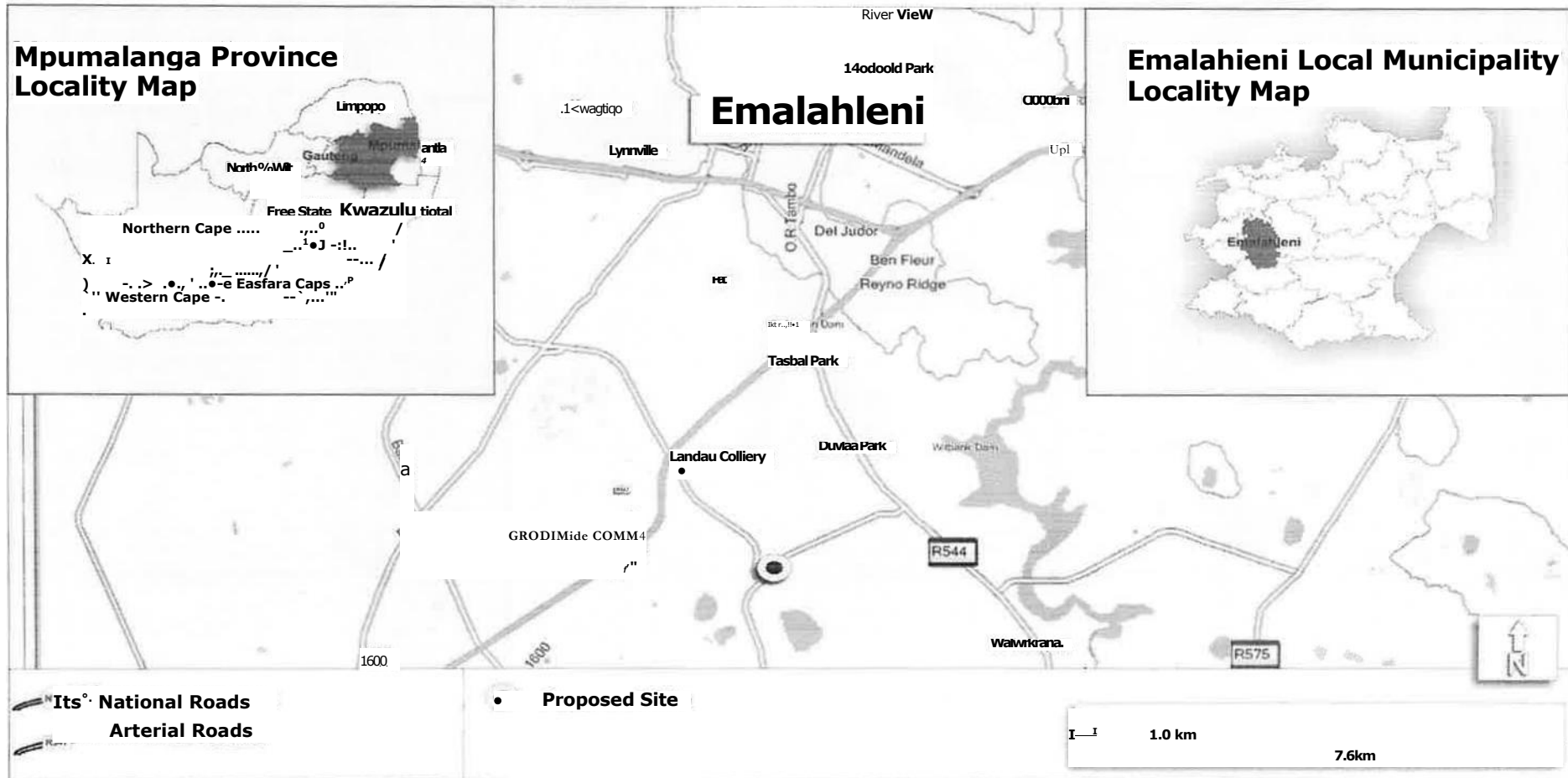


Figure 1-1: Location of the broad study area, indicating the proposed site alternative

- o review CCSR status and report on it periodically.

The requirements for CO₂ capture equipment have been identified and included in the proposal requirements for the IPP bidders to ensure their retrofit in the future. This means that should it become feasible and necessary to incorporate CO₂ capture technology on the proposed power station in the future, this would be possible.

Should CO₂ capture become necessary in the future the IPP would be required to undertake the necessary processes to obtain any relevant permits. At this point it is not possible to say which processes may be required since there is no legislation yet but it is possible that an ESIA process may be required.

International organizations have made very comprehensive progress in terms of how carbon capture and storage should be regulated, monitored, verified and reported- but these proposals need to be carefully assessed under South African legislation. For example:

- How will the CO₂ be classified under South African legislation and are there specific implications of this in terms of how it is handled?
- Who would own the rights to the pore space in the geological reservoirs deep underground (if any are identified)? How would those rights be permitted?
- Who will manage and how will long term liability of storage sites be treated?

Further development in this area is expected to take guidance from developments in the international climate change negotiations, for example, whether and when South Africa could adopt a national emissions cap, the success of various proposed international financing mechanisms and the successful demonstration of sufficient local storage capacity.

In order to understand Anglo American's electrical needs one needs insight into the current electrical status in South Africa today. In this regard the following has reference.

Electricity demand is expected to grow at an average 3,5% over the next five years alongside a recovery in global and national economic performance. There is some uncertainty regarding

Khanyisa Coal Fired Power Station — Final EIR 1

Using GateCycle, MM has estimated that the plant should be capable of a net efficiency of 35.5% at average ambient conditions. The use of an ACC creates a high auxiliary power demand which has depressed the efficiency from more typical designs.

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The availability of a plant (the number of hours the plant is available to generate electricity in a year) is determined by two components: planned maintenance and forced outages. Both these factors can be minimised by effective plant design at a cost. To ensure the plants optimal availability the bid evaluation process will reward bidders who offer a plant with a higher availability.

Typical long term availability for a plant of this type will be around 88% with 7% average annual planned maintenance combined with a forced outage rate of 5%. Assuming a despatch factor of 95%, the minimum load factor required from the IPP is 85%

4.2.9. Sulphur Reduction Technology

Sulphur can be removed from the flue gas either by a post combustion Flue Gas Desulphurisation (FGD) plant or in CFB boilers through the injection of a sorbent (limestone) with the fuel. CFB boilers require a higher Calcium/Sulphur ratio compared to wet FGD systems thus requiring larger volumes of limestone. However, a wet FGD system would require significant quantities of fresh water which are believed to be unavailable in the Witbank area and would involve significant additional capital costs and some additional land area. It would also reduce the thermal efficiency of the plant.

The volumes of limestone required will be determined by:

- operating regime of the plant,
- sulphur in the coal,
- any coal processing to remove sulphur, and
- reactivity and quality of the limestone.

7.4. IMPACT ON CLIMATE CHANGE

7.4.1. IMPACTS

The establishment of a new coal-fired power station will emit greenhouse gases to the atmosphere, adding to the greenhouse effect on a regional, national and international scale.

Gases which contribute to the greenhouse effect are known to include carbon dioxide (CO₂), methane (CH₄), water vapour, nitrous oxide, chlorofluorocarbons (CFC's), halons and peroxyacetyl nitrate (PAN). All of these gases are transparent to shortwave radiation reaching the earth's surface, but trap long-wave radiation leaving the earth's surface, acting like a greenhouse. This action leads to a warming of the earth's lower atmosphere, with changes in the global and regional climates, rising sea levels and extended desertification. This in turn is expected to have severe ecological consequences and a suite of implications for humans. Total greenhouse gas emissions reported to be emitted within South Africa and globally for a year is approximately 433 million metric tons of CO₂ and 29 319 million metric tons of CO₂ in 2007 (UN Statistical division, 2010), respectively.

Greenhouse gases released from a coal-fired power station are primarily CO₂ with minor amounts of nitrous oxide (N₂O). The proposed power station is likely to contribute about 4.3 million metric tons of CO₂ per year (assuming the operation of a 450 MW power station with an emission factor of 1100 g CO₂ per kWh sent out, operating with FGD on Kleinkopje discard for 8700 h per year). (Mott McDonald, 2011)

Table 7-32: Appropriate annual South African emissions expected in 2018²²

	Annual emissions (million metric tons of CO ₂)
South Africa 2007 (UN Statistical 433 Division, 2010)	
Medupi Power Station (under construction 4 800 MW)	29.9
Kusile Power Station 4 800MW (under construction)	29.9
TOTAL emissions	502.8

The emissions from Khanyisa power station would increase South Africa's CO₂ equivalent emissions by some 0.85 % and would increase the country's contributions to global emission of greenhouse gases by some 0.01 %. This is a limited increase in greenhouse gas emissions, given the aims of the Kyoto Protocol, which aims to reduce overall emission levels of the six major greenhouse gases to 5 % below the 1990 levels, between 2008 and 2012 in developed countries. While South Africa, as a developing country, is not obliged to make such reductions, the increase in greenhouse gas (GHG) emissions must be viewed in light of global trends to reduce these emissions significantly.

The proposed station has a slightly higher emission factor than that of the average Eskom coal-fired power station (approx. 1100 g/kWh vs 1065 g/kWh) but it should be taken into account that the proposed station includes an emission premium for FGD of approximately 50 g/kWh and will replace power generation from Eskom's marginal (not average) station. The latter may be expected to have a considerably higher GHG emission factor than the average. The proposed station will therefore have a neutral or slightly positive effect on GHG emissions.

Mitigation measures

CCS is a way of mitigating the contribution of fossil fuel emissions to global warming, based on capturing CO₂ from large point sources such as power stations and storing it away from the

²² Note that the total annual South African emissions for 2018 are likely to be under estimated. This is because growth of emissions since 2007 has not been included, other than for new coal-fired power station which are currently under construction.

atmosphere. Carbon dioxide is concentrated through various options and then stored permanently. In the case of coal-fired power station the simplest method of capturing CO₂ is post-combustion. Here, CO₂ is captured from flue gases at the power station.

The technology is well understood and is currently used in other industrial applications, although not at the same scale as might be required in a commercial scale power station. Coal is often burnt in oxygen instead of air in order to simplify the capture process.

The best researched carbon dioxide option is geological storage: This method involves injecting carbon dioxide directly into underground geological formations. Oil fields, gas fields, saline formations, unminable coal seams, and saline-filled basalt formations have been suggested as storage sites. Various physical (e.g. highly impermeable rock) and geochemical trapping mechanisms would prevent the CO₂ from escaping to the surface. The CSIR undertook a study into the potential for CO₂ storage in South Africa (2004).

The study concluded that the storage of CO₂ in depleted gas fields, coal mines or gold mines is very limited. Deep saline reservoirs offer the highest potential for the geological storage of CO₂. The Karoo Super Group sediments offer the highest potential, and within that, the Vryheid Formation in the north and the Katberg Formation near Burgersdorp/Molteno offer the biggest potential.

However, due to a lack of information about the porosity and permeability of these of reservoirs, significant work is required, before CO₂ sequestration into geological formations will be possible (CSIR, 2004). The South African CCS Atlas, identified at a theoretical level that South Africa **had about 150 Gigatons (Gt) of storage capacity. Less** than 2% of this is onshore. A significant limitation of CCS is its energy penalty. The technology is expected to use between 10 — 40 % of the energy produced by a power station to capture the CO₂ (IPCC, 2005). Wide scale adoption of CCS may erase efficiency gains of the last 50 years, and increase resource consumption by one third. However even taking the fuel penalty into account overall levels of CO₂ abatement remain high, at approximately 80 - 90% compared to a plant without CCS.

In view of the above, and in the light of the difficulties imposed by the site, it is unlikely that CO₂ capture and storage will in the short and medium term become viable for the Khanyisa project.

A number of CCS methods are under investigation and some of the more common and most relevant are considered here.

Mineral storage: This method involves reacting CO₂ with naturally occurring magnesium (Mg) and calcium (Ca) containing minerals to form carbonates. This has many unique advantages, including that carbonates have a lower energy state than CO₂, which is why mineral carbonation is thermodynamically favourable and occurs naturally (e.g. the weathering of rock over geologic time periods) and the raw materials such as Mg based minerals are abundant.

Finally, the carbonates are unarguably stable and thus re-release of CO₂ into the atmosphere is not an issue. However, conventional carbonation pathways are slow under ambient temperatures and pressures. The significant challenge to be addressed in developing mineral storage is to identify an industrially and environmentally viable carbonation route that will allow mineral sequestration to be implemented with acceptable economics (Goldberg *et al*, 2007).

A major concern with CCS is whether leakage of stored CO₂ will compromise CCS as a climate change mitigation measure. For well-selected, designed and managed geological storage sites, IPCC (2005) estimates that CO₂ could be trapped for millions of years, and although some leakage occurs upwards through the soil, well selected stores are likely to retain over 99 % of the injected CO₂ over 1 000 years. Leakage through the injection pipe is a greater risk. Although injection pipes are usually protected with non-return valves (to prevent release on a power outage), there is still a risk that the pipe itself could tear and leak due to the pressure.

In 1986 a large leakage of naturally sequestered carbon dioxide rose from Lake Nyos in Cameroon and asphyxiated 1 700 people. While the carbon had been sequestered naturally, some point to the event as evidence for the potentially catastrophic effects of sequestering carbon.

Another limitation of CCS is its energy penalty. The technology is expected to use between 10 — 40 % of the energy produced by a power station to capture the CO₂ (IPCC, 2005). Wide scale adoption of CCS may erase efficiency gains of the last 50 years, and increase resource consumption by one third. However even taking the fuel penalty into account overall levels of CO₂ abatement remain high, at approximately 80 - 90% compared to a plant without CCS.

Lastly there is the issue of cost, which is due to several reasons. The increased energy requirement of capturing and compressing CO₂ significantly raises the operating costs of CCS-equipped power plants. In addition there is added investment or capital costs. The process would increase the fuel requirement of a plant with CCS by about 25 % for a coal-fired plant

(IPCC, 2005). The cost of this extra fuel, as well as storage and other system costs are estimated to increase the costs of energy from a power plant with CCS by 30 - 60%, depending on the specific circumstances (McKinsey, 2008).

Recycling CO₂ is likely to offer the most environmentally and financially sustainable response to the global challenge of significantly reducing greenhouse gas emissions from major stationary (industrial) emitters in the near to medium term.

This is because newly developed technologies, such as Bio CCS Algal Synthesis can use captured, pre-smokestack CO₂ (such as from coal-fired power station) as a feedstock in the production of oil-rich algae, to produce oil for plastics and transport fuel (including aviation fuel) and nutritious stockfeed for livestock. The CO₂ and other captured greenhouse gases are injected into membranes containing wastewater and select strains of algae causing, together with sunlight or UV light, the oil rich biomass to double in mass every 24 hours. The Bio CCS Algal Synthesis process holds a number of key advantages over conventional CCS in that it is based on well established earth science photosynthesis, the technology is entirely retro-fittable and co-located with the emitter (e.g. alongside a power station) and the capital outlays offer a return upon investment due to the high value commodities produced (oil for plastics, fuel and feed). Another advantage of Bio CCS Algal Synthesis is that it offers consumption of the full mixture of greenhouse gases normally found in smokestack emissions, not just CO₂ as is the case with most CCS proposals (Graham-Rowe, 2008).

As can be seen from the above, while there are a number of promising measures for mitigating CO₂ emissions there are currently no feasible directly applicable measures that can be implemented at the project level at this point. However, strategic mitigation measures to reduce carbon emissions include increasing the mix of renewable energy, nuclear and to a lesser extent gas technologies within South Africa's power generation capacity.

Offset mitigation measures are also considered to be potential mitigation measures. It should be noted that the implementation of screening with trees as a mitigation measure for visual impacts is also considered an offset measure for greenhouse gases with each mature tree sequestering 1.5 tons of CO₂ over a 30 year period. This is however insignificant in comparison to the 33.6 million metric tons of CO₂ emitted per power station per year. The detailed results of the air quality impact assessment are contained in Volume 2.

Table 7-33: Impact — Climate change

Impact of proposed power station on climate change			
SITE 6C			
	No mitigation	Mitigation	
Extent	Regional	Regional	
Magnitude	Low	Neutral	Very Low
Duration	Long	Long	
SIGNIFICANCE	Medium (-)	Neutral — Very Low (-)	
Probability	Probable	Probable	
Confidence	Sure	Sure	
Reversibility	Irreversible	Reversible	

7.4.4. Comment on cumulative impacts

It should be noted that the addition of coal-fired generating capacity to South Africa's energy mix effectively commits South Africa to increased CO₂ from the energy sector for the next 50 years (i.e. the life of the plants) or until a viable carbon sequestration technology is commercialised. However, it should be noted that older coal-fired power station would be decommissioned during this period so it would still be possible to reduce South Africa's carbon emissions, due to the greater efficiency (and hence lower emissions per MW) of new coal-fired power stations.

7.5. E-iiPACT OF GROUN' %:ATER RESOURCES GEOHYDROLOGY)

7.5.1. Impact (qaement

Raw materials such as process chemicals and liquid fuels used at the proposed power station, as well as liquid and solid waste (ash) products from the operation of the proposed power station, could contaminate the groundwater resources in the area, having an effect on current and potential future groundwater users.

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ASSESSMENT OF CONSTRUCTION PHASE IMPACT, ON THE E310P-1-ICAL SOCIO-ECONOMIC ENVIRONMENT

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This chapter describes the potential construction phase impacts on the biophysical and socio-economic environments, which may occur due to the proposed activities described in Chapter 3. These impacts relate to the short-term impacts that occur during the construction phase. The proposed power station (and associated infrastructure) will be constructed over a period of nine (9) months for the first unit, with the remaining two units over a period of approximately a further eighteen (18) months. The potential impacts identified include the following:

- Disturbance of flora and fauna;
- Soil (and land use capability) impact
- Storage of hazardous substances on site;
- Impact of waste generation;
- Increase in traffic volumes;
- Increased risk of fire;
- Socio-economic impacts (negative);
- Noise impact;
- Visual impact;
- Air quality impact; and
- Employment (positive and negative)

Each of these impacts is assessed in detail, and the significance of the impact is determined in the following section. The methodology used to assess the potential impacts is detailed in Chapter 6 of this report. The terms "No Mitigation" and "Mitigation" reflected in the

assessment tables in this chapter refer to the impact with no mitigation and with potential mitigation ²⁷, respectively.

Cumulative impacts are also discussed where applicable. This refers to the synergistic impact of other potential developments such which may occur in the area.

The significance of construction phase impacts is likely to be limited by their relatively short duration, since the construction phase may last approximately 9-27 months. Many of the construction phase impacts could be mitigated through the implementation of an appropriate Framework EMP. The EMP has been compiled as part of the ESIA process, and is submitted as part of the EIR, to provide mitigation and ascribe responsibilities. A draft EMP is contained in **ANNEXURE J** of this report, which broadly outlines the type and range of mitigation measures that could be implemented during the pre-construction, construction, operational and decommissioning phases of the project.

The establishment of the power station and its associated infrastructure could result in the damaging, destruction or displacement of important indigenous fauna and flora. Key mitigation measures would involve avoidance of the Untransformed Grassland and Wetland areas.

Key potential impacts associated with the development of a power plant are as follows **(significance before mitigation is given in parentheses):**

- | | | |
|---|--|---------------------|
| <ul style="list-style-type: none"> • Loss of threatened vegetation type (Medium) • Loss of conservation-important plant species (Medium) • Increased invasion by alien plants (Medium) • Illegal harvesting of vegetation resources (Medium) | | Impacts on
Flora |
| <ul style="list-style-type: none"> • Decrease in habitat quality through dust production (<u>Medium</u>) • Loss of habitat for conservation-important species (Medium) • Loss of fauna through illegal harvesting (poaching) (Medium) • Disruption of animal movement (Low) | | Impacts
on Fauna |

²⁷ Note that this does not imply that mitigation should or would be undertaken, but merely indicates the extent to which mitigation could change the significance of the impact where it is to be implemented.

9. ASSESSMENT DECOMMISSIONING PHASE IMPACT ON THE BIOPHYSICAL AND SOCIO-ECONOMIC, ENVIRONMENTS

9.1, INTRODUCTION

This Chapter describes the potential decommissioning phase impacts on the biophysical and social environments, which may occur due to the proposed activities described in Chapter 3.

Each of these impacts is assessed in detail, and the significance of the impact is determined in the following sections. The methodology used to assess the potential impacts is detailed in Chapter 6 of this report. The terms "No Mit" and "Mit" reflected in the assessment tables in this chapter refer to the impact with no mitigation and with potential mitigation³¹, respectively.

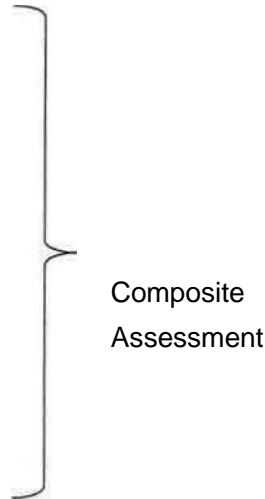
9.2. DECOMMISSIONING PHASE IMPACTS ON THE BIOPHYSICAL AND SOCIAL ENVIRONMENTS

These impacts relate to the short-term impacts that occur during the decommissioning phase of the project, which is only likely to occur once the project has operated for at least 50 years (the design life of the project). The proposed power station would be decommissioned over a period of some 3 years, with removal of machinery, dismantling of buildings, including the power station precinct, removing conveyor belts and transmission lines, and capping, closure and rehabilitation of the ash dump. Foundations and infrastructure such as roads and underground pipelines would however remain in place.

³¹ Note that this does not imply that mitigation should or would be undertaken, but merely indicates the extent to which mitigation could change the significance of the impact where it is to be implemented.

The following potential impacts have been identified as relevant to the decommissioning of this project:

- Terrestrial fauna and flora;
- Ambient air quality;
- Climate change;
- Groundwater resources;
- Visual aesthetics;
- Noise;
- Traffic;
- Soils and Land Capability;
- Societal risk
- Local economy



As noted above these potential decommissioning impacts would take place after the 50 year lifespan of the proposed power station. As such the socio-economic and biophysical environments within which they occur are likely to have undergone changes. As such the magnitudes of these impacts are not easily identified. It should be noted that the baseline against which these potential impacts are assessed against is the future baseline, not the current baseline, i.e. the existence of the proposed power station and potentially other industries in the area.

In general, the decommissioning and closure phase would include the following activities:

- The removal of all infrastructure;
- The demolishing of all concrete slabs and ripping of any hard surfaces;
- The backfilling of any open voids and deep foundations and the reconstruction of the required barrier layer (compaction) wherever feasible and possible;
- Topdressing of the disturbed and backfilled areas with the stored "utilizable" soil ready for re-vegetation;
- Fertilization and stabilization of the backfilled materials and final cover materials (soil and vegetation) and
- The landscaping of the replaced soils to be free draining.

These impacts are assessed in a composite assessment and the overall significance of the impacts is determined below. The methodology used to assess the potential impacts is detailed in Chapter 6 of this report.

The terms "No Mit" and "Mit" reflected in the assessment tables in this chapter refer to the impact with no mitigation and with potential mitigation³², respectively.

9.3. Composite Assessment

9.3.1. Terrestrial fauna and flora

The proposed power station would have resulted in a loss of habitat and fauna within the Eastern Highveld Grassland vegetation type. According to Prof. A.E van Wyk (pers.comm, 2011), it is very difficult to rehabilitate temperate grassland to its original floristic diversity since this is a product of evolution over millennia. However, the decommissioning of the power station and rehabilitation of the disturbed sites (e.g. ash dump, waste site) with indigenous plants is likely to result in a positive impact on this unique and vulnerable vegetation type as natural vegetation is encouraged to re-establish itself. From an ecological perspective, re-colonisation of the area would naturally occur over time and fauna driven away by the operation of the power station (i.e. due to the noise and presence of humans) may return to site, although some fauna, habituated to the normal power station operations may be driven away temporarily during the decommissioning phase.

9.3.2. Ambient air quality

Decommissioning of the power station could result in large quantities of dust in the short term, and associated negative impacts on air quality. Dust control measures would limit the impact of this impact. The decommissioning of the power stations would result in an improvement in air quality through the discontinuance of coal burning operations.

9.3.3. Climate change

³²Note that this does not imply that mitigation should or would be undertaken, but merely indicates the extent to which mitigation could change the significance of the impact where it is to be implemented.



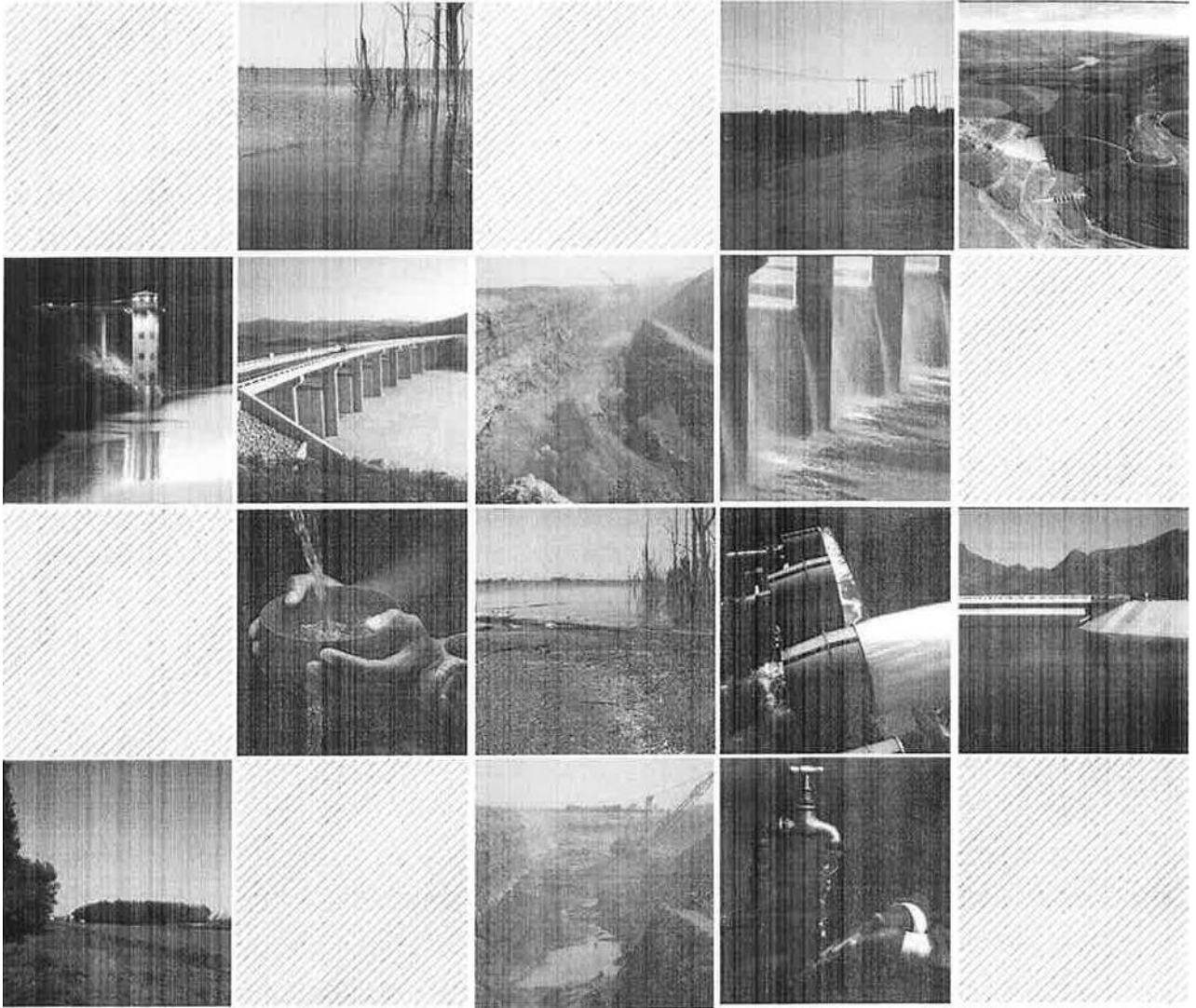
The decommissioning of the power station would discontinue the carbon and GHG emissions. As such the impact on climate change would discontinue, although the impact on climate change would be irreversible.

Decommissioning of the power station would involve the capping of the waste site and ash dump. Clean and dirty water dams would most likely be filled and rehabilitated. As such the sources of risk to groundwater would be discontinued. While some risk would remain in the short term, for instance until leachate is no longer generated within the waste site, the majority of the potential impacts on groundwater would be eliminated and the situation would revert to the pre-construction phase. During the decommissioning phase however, increased risks to groundwater exist from spillages when removing chemicals kept on site.

During decommissioning it is likely that the power station would take on a 'messy' appearance. However, screening measures implemented for the operational phase of the power station would limit the extent of the impact. Where linear infrastructure such as conveyors and transmission lines are removed natural vegetation would colonise and rehabilitate these corridors over time. The removal of the power station buildings (e.g. stack, boilers, towers, etc) would have a large positive impact on the surrounding areas (land owners and tourists) as well as to passing motorists.

During decommissioning a large amount of noise is likely to be generated by for instance dismantling of buildings. However, this would be temporary and while it may be louder than power station operations it is likely to impact on the surrounding area less as the nuisance factor of 24 hour noise would discontinue. After decommissioning, noise levels would return to pre-construction levels.

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The naLenvironment

Re on ogY

The Vryheid Formation (Ecca Group) of the Karoo Sequence, which is present throughout the Witbank Area, attains some 140 metres at the thickest point and contains a number of coal seams, of which four are considered to have economic potential. The deposition of the Vryheid Formation sediments is largely controlled by the irregular pre-Karoo platform on which they were deposited. The pre-Karoo rocks, consisting mainly of felsites of the Bushveld Igneous Complex, have been glacially sculptured to give rise to uneven basement topography. The thin veneer sediments of the Dwyka Formation, which overlies the pre-Karoo, is generally not thick enough to ameliorate the irregularities in the placated surface, which therefore affected the deposition of the younger Vryheid Formation sediments (Clean Stream, 2004).

12,2 Regional climate

The regional climate is typical of the "Highveld" region, with warm summers and cold winters (Figure 3.1). Rainfall is strongly seasonal, occurring predominantly between October and March (Figure 3.2) (Clean Stream, 2004).

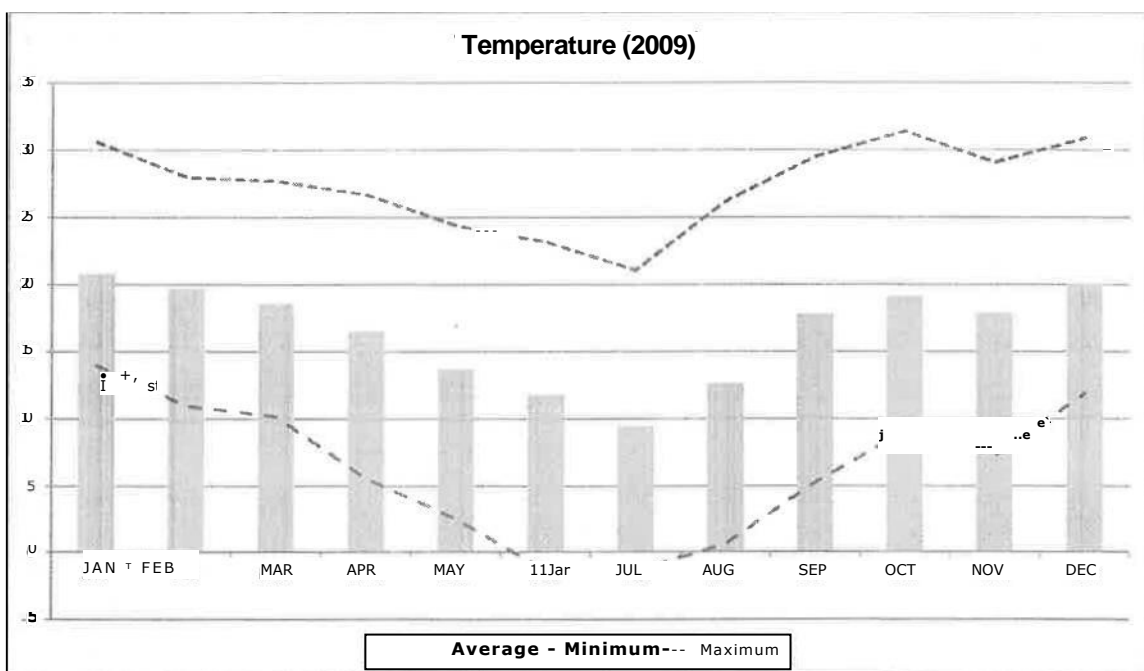


Figure 3.1: Local monthly temperatures for Witbank local meteorological station (2009 metrological data)



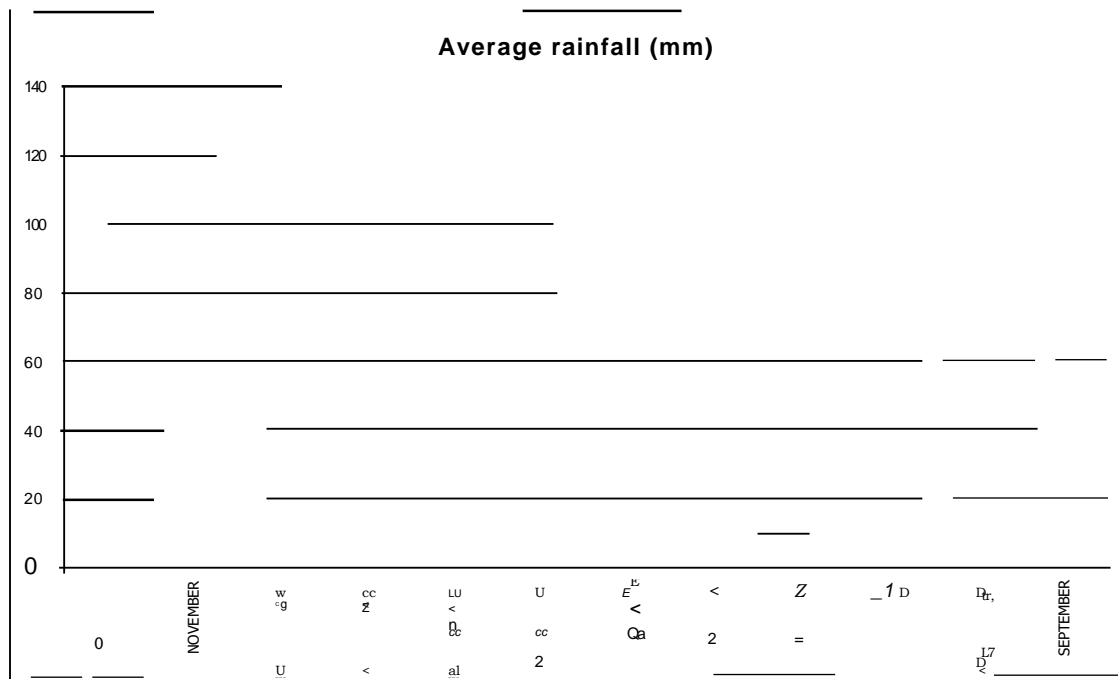


Figure 3.2: Average total monthly rainfall data collected from Kleinkopje Colliery since recording commenced

3.3 Description of Olifants Water Management Area

The Olifants River originates near Bethal in the Highveld region of Mpumalanga. The river initially flows northwards before curving in an easterly direction through the Kruger National Park and into Mozambique, where it joins the Limpopo River before discharging into the Indian Ocean (DWAf, 2004).

The Olifants catchment can be subdivided into the following four catchments dominated by varying economic activities:

Sub-catchment	Primary economic activities
Upper Olifants	Heavy industry and mining
Middle Olifants	Agriculture
Steelpoort	Agriculture and mining
Lower Olifants	Tourism and mining

The proposed project will be located in the Upper Olifants sub-catchment, which is characterised by coal mining activities. Coal mining started in the Witbank area in the 1890s and it is also in this area where the first coal fired power station was constructed. Today, there is extensive coal mining in the

whole Upper Olifants sub-catchment, particularly in the central and eastern areas. This includes the sub-catchments of the Riet, Klein Olifants, and the main stem of the Olifants River itself. Additional water has to be brought into the catchment via inter-basin transfer schemes from the Komati, Usutu, and Vaal systems to supply the large water demands for good quality water of the eight coal fired power stations located on the Mpumalanga Highveld.

The available data indicates that the extensive coal mining in the region has had, and will continue to have, very high impacts on water resources, particularly water quality in all streams and rivers. The primary cause of the degradation is the extensive acid mine drainage where water of low pH, with high concentrations of Total Dissolved Salts (TDS) and metals, enters the water resources (Environmental Assessment Technologies, 2005). It is estimated that some 50 ML/day of polluted mine water (acid mine drainage (AMD)) enters the Upper Olifants River catchment, resulting in local acidification and regional siltation of surface water resources. As a result, mining effluent account for a sulphate load in the order to 12 000 tonnes/annum in Mpumalanga. The Department of Water Affairs (DWA) estimates that the volume of mine effluents seeping from defunct coal mines in the upper catchment could be as high as 62 million m³/annum (Oelofse, et al., 2009). In order to reduce the impact of polluted discharges on receiving water bodies, a controlled discharged scheme (CDS) was introduced in the Upper Olifants River catchment in 1997. The CDS allowed mines to discharge polluted water to the rivers during periods of high rainfall, where high runoff and water levels increases the dilution capacity in the rivers (Coleman et al., 2003).

Mine water in the catchment of the Witbank Dam and Middelburg Dam is rich in calcium, magnesium and sulphate, and is acidic. This is of major concern, as dissolved metals become insoluble at pH levels below 5.5 causing the water to become toxic to plant and fish life and corrosive to pipelines and equipment. In addition to the impact of existing mining activities on the water resources, the Olifants River catchment is also exposed to:

- High levels of suspended solids from increased mining, industrial, and power generation within the catchment.
- Microbial pollution from poorly operated wastewater treatment works, runoff from informal settlements and urban areas, agricultural return flows, and runoff from mining and industrial complexes (Oelofse, et al., 2009).

It is clearly evident that water quality in the Olifants River catchment is in crisis as a result of the wide variety of activities taking place within the catchment. The primary source of pollution is the mining operations and mineral processing activities that take place all over the catchment. This is exacerbated by irrigation return flows, increase sediment caused by poor agricultural practices and overgrazing, as well as uncontrolled release of sewage effluent and urban runoff (Environmental Assessment Technologies, 2005).

A summary of the water quality data for the monitoring station at Wolvekrans, which is situated just upstream of the Witbank Dam on the Olifants River, is provided in **Figure 3.2**.

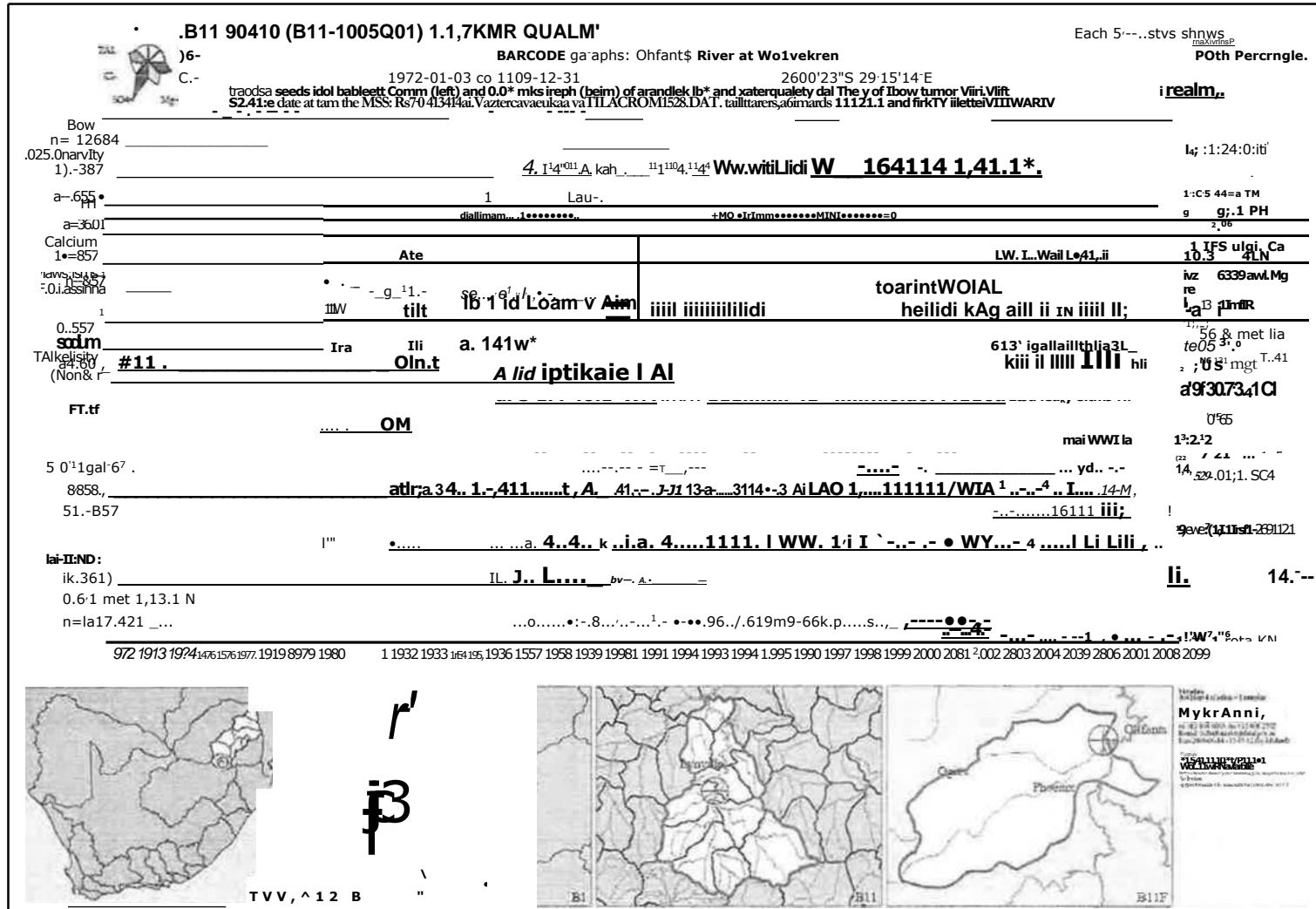


Figure 3.3: Water quality sampling results from station B11_90410 (B1H005Q01) - Olifants River at Wolwekrans

The water quality data has been evaluated in terms of the "fitness for use" range which is based on the "South African Water Quality Guidelines" (DWAF, 1996). The fitness for use range is divided into a number of categories based on the water user requirements, which are expressed as:

- Ideal: the use of water is not affected in any way; 100% fit for use
- Acceptable: slight to moderate problems encountered
- Tolerable: moderate to severe problems are encountered
- Unacceptable: water cannot be used for its intended use

The main variables of concern to this project are: Total Dissolved Solids (TDS), pH, and sulphate (SO₄).

Table 3.1 provides a summary of these variables in terms of the fitness for use categories. For ease of reference, the categories have been colour coded:

Ideal: light blue

Acceptable: light green

- Tolerable: orange

Unacceptable: red

Table 3.1: Variables of concern according to the fitness for use categories

Variable (median)	Domestic	Agricultural use: irrigation	Industrial use: Category 3 ¹
TDS*	449 mg/l	449 mg/l	449 mg/l
pH	8.34	8.34	8.34
Sulphate	529 mg/l	**	529 mg/l

- TDS criteria have been calculated from EC values using the following equation: $IDS = 6.5 \times EC$

** Sulphate is not a variable of concern for irrigation

The overall assessment of the water quality data, shows that there is a strong seasonal trend, with the maximum recorded levels for some variables far exceeding unacceptable levels (maximum SO₄ concentration: 1 549 mg/l).

Water quality data for mercury is not included in the above assessment. According to a study undertaken by Williams *et al* (2010), emissions from coal fired power stations are regarded as a major anthropogenic source of mercury. South Africa is regarded as the sixth largest coal producer in the world. In addition, South Africa relies primarily on relatively low grade quality of coal for combustion and energy sources. Since mercury occurs naturally in coal (although present in trace amounts) it can contribute significantly to the mercury load within water resources. *One of the recommendations of this study is that mercury concentrations are measured from project inception to ensure that there is sufficient baseline data and data for future trend analysis.*

Processes for which domestic water quality is the baseline minimum standard. Water of this quality may be used in the process without further treatment, or minimum treatment using low to standard technology may be necessary to reach the specifications laid down for a desired water quality. Costs of further inhouse treatment are not significant in the economy of the process

South Africa's Intended Nationally Determined Contribution (INDC)

Introduction

In accordance with decision 1/CP.19 and 1/CP.20 of the Conference of the Parties to the United Nations Framework on Climate Change, South Africa hereby submits its intended nationally determined contribution (INDC) on adaptation, mitigation as well as finance and investment requirements for both. This INDC has been developed on the understanding that the Paris Agreement will be binding, fair, effective and incorporate a "no-backsliding" and a "progressive" approach to enhance climate change mitigation and adaptation implementation and ambition. This implementation and ambition will be enabled by finance and technology and capacity building support. In this context, South Africa has transitioned its international mitigation commitment from a relative "deviation from Business-as-usual" to an absolute peak, plateau and decline greenhouse gas emissions trajectory range.

South Africa is committed to addressing climate change based on science and equity. Climate change is already a measurable reality, and is primarily as a result of the rising concentration due to human induced cumulative emissions of long-lived greenhouse gases (GHG) in the atmosphere since the industrial revolution in the mid 1800's. South Africa has observed and is projecting further trends of marked temperature increases, rainfall variation and rising sea levels as well as an increased frequency of severe weather events. South Africa's response is informed by the findings of the Intergovernmental Panel on Climate Change (IPCC) that warming of the climate system is unequivocal, and the understanding that further mitigation efforts by all are needed to avoid high to very high risk of severe, widespread, and irreversible impacts globally. However, irrespective of any adequate mitigation efforts, the IPCC also concludes that, due to the inertia and long response time lags in the global climate system, adverse impacts of climate change are inevitable. Given that poor countries and communities have the least responsibility for the challenge of global climate change but are the most vulnerable to its impacts, adaptation to the adverse effects of climate change is also a global responsibility and concern.

The nature of the climate change challenge is one characterised by the overuse of a global commons in an unequal world. Along with other developing countries, South Africa is especially vulnerable to its impacts, particularly in respect of water and food security, as well as impacts on health, human settlements, and infrastructure and ecosystem services. In this regard, South Africa is committed to cooperative efforts to adapt to the unavoidable adverse impacts of climate change. With regard to an ultimate solution to the global challenge of climate change, South Africa is firmly committed to working with others to ensure temperature increases are kept well below 2°C above pre-industrial levels, which could include a further revision of the temperature goal to below 1.5°C in light of emerging science, noting that global average temperature increase of 2°C translates to up to 4°C for South Africa by the end of the century.

This temperature goal is an essential starting point for our INDC, and we believe this goal should inform all countries' contributions - in relation to both adaptation and mitigation. More and earlier mitigation means fewer unavoidable impacts, lessening the requirement for adaptation investment. Near 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. The solution must lie in collective action.

Context: National Priorities and Circumstances

South Africa's national response considers both development needs and climate change imperatives. South Africa faces the challenge of climate change as a developing country, with overriding priorities to eliminate poverty and eradicate inequality. Eliminating poverty and eradicating inequality requires addressing major challenges in creating decent employment, which in turn requires sustainable economic development, improving basic education, health and social welfare and many other basic needs such as access to food, shelter and modern energy services. In addition, South Africa is presently facing acute energy challenges that hamper economic development. As a result of the historical development pathway of its energy sector, South Africa is currently heavily dependent on coal, with a fleet of old and inefficient coal-fired power plants that are nearing, but not yet at, the end of their design life-cycles as well as being reliant on a significant proportion of its liquid fuels being generated from coal.

Therefore, in the short-term (up to 2025), South Africa faces significant rigidity in its economy and any policy-driven transition to a low carbon and climate resilient society must take into account and emphasise its overriding priority to address poverty and inequality. South Africa's INDC should be understood in the context of these and other national circumstances.

South Africa's INDC was formulated in the context of, *inter alia*, the environmental right set out in section 24 of the Constitution, and its National Development Plan (NDP) (NPC, 2012), which provides a '2030 vision' to guide the country's sustainable development trajectory where poverty is eliminated and inequalities are reduced by 2030. The implementation of the 2030 NDP vision is further elaborated in its climate policy (the 2011 National Climate Change Response Policy (NCCRP)), climate-compatible sectoral plans and its National Sustainable Development Strategy. Good progress has been made in implementing climate-compatible sectoral plans, such as the integrated energy and electricity plans (IEP and IRP), industrial policy action plans (IPAP) and the new growth path (NGP).

The full implementation of these policies and plans will bend the curve of South Africa's GHG emissions towards a peak, plateau and decline trajectory range. South Africa is putting in place a mitigation system to realise the opportunities of a low-carbon economy while being mindful that an inclusive and just transition requires time and well planned low-carbon and climate resilient development. In order to ramp up implementation of these policies and plans over time, South Africa is investing heavily in transforming its energy sector. **At the heart of this part of the transition to a low-carbon energy sector is a complete transformation of the future energy mix, which is designed to replace an inefficient fleet of ageing coal-fired power plants with clean and high efficiency technology going forward.** To date, we have facilitated substantial investment in renewable energy and two new high-efficiency coal-fired power stations are nearing completion as part of the ageing plant replacement programme. In addition, programmes to increase efficiency and reduce emissions intensity across the economy are being rolled out.

South Africa is developing a National Climate Change Adaptation Strategy and Plan to be integrated into all relevant sector plans, and upon which its UNFCCC National Adaptation Plan (NAP) will be based. This plan is informed by an assessment **of sectoral, cross-sectoral and geographical vulnerabilities to the adverse impacts of climate change, and it will** quantify and present pathways for adaptation, towards an inclusive and just transition to a climate resilient economy and society, taking into account local and indigenous knowledge, gender considerations, as well as social, economic and environmental implications. South

Africa considers its adaptation component of its INDC to be an important contribution to the global response to climate change.

Assumptions

South Africa's INDC is premised on the adoption of a comprehensive, ambitious, fair, effective and binding multilateral rules-based agreement under the UNFCCC at the 21st Conference of the Parties (COP21) in Paris. It is assumed that this agreement will attract the full participation of all Parties to the Convention and, consistent with scientific requirements in the short, medium and long term, deliver the necessary ambitious mitigation and adaptation commitments, enabled and supported by significant climate finance and investment, accessible and affordable technology and substantial capacity building commitments. South Africa expects the Agreement will include effective arrangements for transparency of action and support. It is further assumed that all of these commitments will give effect to the principles of equity and common but differentiated responsibilities and respective capabilities.

It is assumed that this agreement will provide the multilateral rule-based infrastructure, mechanisms and tools to enhance international and regional cooperation on mitigation. Further, that this cooperative effort enables and supports Parties' capability to transition to low carbon economies and societies in a manner that addresses the social, economic and environmental dimensions of their sustainable development.

The adverse effects of climate change have been a stark reality for South Africa for many years. The evidence clearly emphasises the need for Parties to build resilience and adaptive capacity to understand and respond to climate change risk and vulnerability, through developing and optimising climate change adaptation policy, planning, technology, practice and implementation coherence of developmental programmes and actions. It is assumed that the agreement will enhance international and regional cooperation on adaptation that enables and supports Parties capability to increasingly integrate adaptation into their climate resilient sustainable development planning and implementation processes, as well as to support their climate risk management, emergency and recovery responses to unavoidable climate and weather related adverse impacts.

Adaptation component of the INDC (A-INDC)

The adaptation component of South Africa's INDC will address adaptation through six goals, underpinned by key elements of adaptation planning, costing of adaptation investment requirements, equity, and means of implementation. The table below outlines information on the adaptation component of South Africa's INDC, based on the commitments of Parties provided for in Article 4 and the provisions of Article 12 of the Convention. This information enables Parties to meet commitments under Article 4.4 and the provisions of Article 12 of the Convention in relation to adaptation

Element	Undertaking for the period 2020-2030	Assumptions / Methodologies	Adaptation investment (2020 - 2030)
Adaptation objectives and	Goal 1: Develop a National Adaptation	National Development Plan Vision 2030, sector plans and any	\$US 0.17 ¹ -bn per annum

¹ Currency exchange rate used is 10 South African Rand to 1 US dollar

Element	Undertaking for the period 2020-2030	Assumptions / Methodologies	Adaptation investment (2020 — 2030)
planning for implementation	<p>Plan, and begin operationalisation as part of implementing the NCCRP for the period from 2020 to 2025 and for the period 2025 to 2030</p> <p>Goal 2: Take into account climate considerations in national development, sub-national and sector policy frameworks for the period 2020 to 2030</p> <p>Goal 3: Build the necessary institutional capacity for climate change response planning and implementation for the period 2020 to 2030</p> <p>Goal 4: Develop an early warning, vulnerability and adaptation monitoring system for <u>key</u> climate</p>	<p>future variants thereof are the underpinning foundation for sustainable development planning in South Africa. The NCCRP provides guiding principles and will form the basis for the integrative NAP focused on vulnerable sectors and geographic vulnerabilities.</p> <p>Integrate flexible adaptation sector policies and measures into national and sub-national policy frameworks to enable implementation of climate change adaptation programmes and projects. Sector adaptation plans will be integrated into broader sector plans consistent with relevant sector planning or regulatory legislation.</p> <p>National and sub-national policy and legislation development and budget reprioritisation to enable institutional capability to plan and implement catalytic adaptation programmes and projects.</p> <p>Comprehensive adaptation related training of development planners, regulators and practitioners.</p> <p>Specific adaptation planning at sub-national level, taking into account specific or unique geographical circumstances, will be integrated into sub-national development frameworks, land use schemes and the planning authorisation system in terms of provisions of and standards set in the Spatial Land Use Management Act (SPLUMA).</p> <p>Development of national framework for early warning, vulnerability and needs assessment well before 2020.</p> <p>Develop and support a climate</p>	

Element	Undertaking for the period 2020-2030	Assumptions / Methodologies	Adaptation investment (2020 - 2030)
	vulnerable sectors and geographic areas for the period 2020 to 2030, and reporting in terms of the National Adaptation Plan with rolling five-year implementation periods	change early warning and vulnerability network with the involvement of relevant stakeholders, e.g. SA Weather Services, SA Earth Observation Network, the downscaling modelling and adaptation academic community etc.	
Adaptation needs and costs	<p>Goal 5: Development of a vulnerability assessment and adaptation needs framework by 2020 to support a continuous presentation of adaptation needs</p>	<p>Biennial study of climate related impacts and responses detect through the early warning, vulnerability and adaptation monitoring system, with a view to determine cost effectiveness of responses and recommend improved or alternative responses.</p> <p>Damage costs associated with severe climate related events (wild fires, storms, droughts and floods), including both direct and downstream costs were estimated for the present-day climate and for the near future under low and moderate-high mitigation scenarios.</p> <p>Emission scenarios considered are RCP 8.5 (low mitigation) and RCP 4.5 (moderate-high mitigation). The cost estimates provided are in terms of the 10th and 90th percentiles of annual costs occurring within the periods of interest.</p> <p>Annual costs were estimated for 2020-2030 and 2020-2050.</p> <p>Sectors covered; Water, Agriculture, Forestry, Energy, Settlements, Biodiversity, Disaster Risk Reduction (DRR)</p>	<p>Estimated annual costs range(s):</p> <p>From 1971-2000: \$US 0.4 bn to \$US 22.8 bn with a median value of \$US2.8 bn</p> <p>From 2020-2030: Low mitigation scenario: \$US 0.42 bn - \$US 30.8 bn with a median value of \$US2.9bn;</p> <p>Moderate-High mitigation scenario: \$US 3.4 bn - \$US 29.8 bn with a median value of \$2.8bn</p> <p>From 2020-2050: Low mitigation scenario: US\$ 0.2 bn - \$US 53.1 bn with a median value of \$US3bn</p> <p>High mitigation scenario: \$US 0.2 bn- \$US 50.0 bn with a median value of \$US50 bn</p>
Adaptation investments	<p>Goal 6: Communication of past investments in adaptation and awareness as well as for international recognition</p>	<p>Development & implementation of a climate change adaptation communication, education and awareness framework, with a view to drive behaviour change based on the early warning and vulnerability assessments and studies of response effectiveness. Specific indicators for tracking outcomes and scale of domestic</p>	<p>Domestic investment into capacity to facilitate climate change adaptation increased from \$US 0.29 million to \$US 1.4 million from 2011 to 2015</p>

Element	Undertaking for the period 2020-2030	Assumptions / Methodologies	Adaptation investment (2020 - 2030)
		investment and any international support will be developed and reported. Adaptation investments were gleaned from official annual reports. The years covered are 2010 - 2015.	Implementation investment in adaptation programmes increased from \$US 0.71 bn to \$US 1.88 bn from 2010 to 2015. Support from the international financial mechanisms: Adaptation fund: \$10 Million; UNEP: \$3.5 Million
Equity considerations in adaptation	South Africa views adaptation as a global responsibility in the light of Article 2 of the Convention as further codified in the UNFCCC as a temperature goal. Further understanding climate impacts as being driven by global inaction / action on mitigation, the adaptation burden is therefore a global responsibility. It is in that light that South Africa considers its investments in adaptation as a contribution to the global effort, which should be recognised as such. Further information is provided in the equity section of the INDC.		

Mitigation component of the INDC (M-INDC)

In keeping with South Africa's commitment to progress its contribution to the global effort to mitigate climate change in line with the principle of common but differentiated responsibilities and respective capabilities, South Africa's mitigation component of its INDC moves from a "deviation from business-as-usual" form of commitment and takes the form of a peak, plateau and decline GHG emissions trajectory range. South Africa's emissions by 2025 and 2030 will be in a range between 398 and 614 Mt CO₂-eq, as defined in national policy. This is the benchmark against which the efficacy of mitigation actions will be measured. The table below outlines elements in para 14 of 1/CP.20, further specifying the mitigation component of South Africa's INDC:

Reference point (including, as appropriate, a base year)	Peak, plateau and decline (PPD) is a GHG emissions trajectory range after mitigation. The starting point for PPD considered here is 2020 year-end.
Time frames and / or periods for implementation	<p>The time-frames within the PPD trajectory range that are communicated in South Africa's INDC are 2025 and 2030, in which emissions will be in a range between 398 and 614 Mt CO₂-eq.</p> <p>The INDC reflects SA's full mitigation potential as assessed in 2014.</p> <p>The policy instruments under development include a carbon tax, desired emission reduction outcomes (DEROs) for sectors, company-level carbon budgets, as well as regulatory standards and controls for specifically identified GHG pollutants and emitters.</p> <p>South Africa will use five-year periods of implementation at the national level, specifically, 2016-2020 focused on developing and demonstrating the above mix of policies and measures in order to meet South Africa's</p>

<p>Scope and coverage</p> <p>Planning assumptions methodological approaches including those for estimating and accounting anthropogenic greenhouse emissions and, appropriate, removals</p>	<p>Cancun pledge, and the periods 2021-2025 and 2026-2030 for this INDC. This level of effort will enable South Africa's greenhouse gas emissions to peak between 2020 and 2025, plateau for approximately a decade and decline in absolute terms thereafter.</p> <p>Periodic domestic reviews will ensure a dynamic system, in which the stringency of short-term carbon budgets can be adjusted in successive implementation periods to ensure that South Africa remains within the overall carbon budget, which is the area under the PPD trajectory range. Depending on the latest available science, the success of this mix of mitigation policies and measures, new accessible and affordable technology, increased capability and emerging mitigation opportunities the PPD trajectory range may also be adjusted, without compromising the overall ambition of South Africa's long-term contribution to the <u>global mitigation effort</u>.</p> <p>Economy-wide, all sectors, six greenhouse gases (GHGs), with a material focus on three GHGs: carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). Sources considered are the ones in the latest GHG inventory (see below).</p> <p>IPCC major categories: energy, IPPU, waste and AFOLU (agriculture, forestry and other land use).</p> <p>Increased disaggregation over time will be enabled through the introduction of mandatory GHG reporting domestically, no later than <u>2016, with regular reporting to the UNFCCC as multi-laterally agreed</u>.</p> <p><i>Processes, Planning processes:</i> The approach to the current INDC is based on and national climate policy (NCCRP) and the national development plan (NDP), and will be given effect through energy, industrial and other plans and legislation.</p> <p><i>Assumptions:</i> In accordance with the Convention, it is assumed that the extent to which developing country Parties will effectively implement gas their commitments will depend on the effective implementation by as developed country Parties of their commitments under the Convention relating to financial resources, development and transfer of technology, and capacity building. The INDC is put forward within the context of equitable access to sustainable development and will take fully into account that equity, economic and social development and poverty eradication are the first and overriding priorities. In this context, South Africa's INDC assumes the finalisation of an ambitious, fair, effective and binding multilateral agreement under the UNFCCC at COP 21 in Paris that further elaborates these commitments.</p> <p><i>PPD trajectory range:</i> South Africa's NCCRP "details the 'peak, plateau and decline trajectory' used as the initial benchmark against which the efficacy of mitigation actions will be measured". This is the PPD trajectory range in the INDC. Values for key years are specified in the NCCRP.</p> <p><i>Mitigation potential:</i> Initial detailed studies of mitigation potential (2007) informed the foregoing, with a base year 2003 for projections; these have been updated (2014; base year 2010), with the intention of on-going updating and improvement.</p> <p><i>Methodologies for Estimating Emissions:</i> 2006 IPCC guidelines <i>Metric applied:</i> 100-year Global Warming Potential, as in the IPCC's 4th Assessment Report (AR4). Note that the current GHG inventory, consistent with the 2006 IPCC guideline reporting requirements, used GWPs from the Third Assessment Report (TAR) and indicated that future</p>
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	<p><i>Approach to AFOLU:</i> Agriculture, forestry and other land use (AFOLU) are included as one of the major IPCC categories. The greater uncertainty in AFOLU emissions should be noted, as well as the intention to reduce uncertainty over time.</p>
<p>How the Party considers that its intended nationally determined contribution is fair and ambitious, in light of its national circumstances, and how it contributes towards achieving the objective of the Convention as set out in its Article 2</p>	<p>A relative fair share of aggregate commitments required to limit temperature increase to well below 2°C above pre-industrial levels requires understanding of what others will do, and an equitable effort-sharing paradigm, such as the proposal for the Paris agreement to elaborate an equity reference framework.</p> <p>In the absence of a multi-laterally agreed equity reference framework, South African experts, applying Convention principles of responsibility, capability and access to equitable sustainable development, determined a carbon budget that is larger than the PPD trajectory range outlined in this INDC. South Africa has used this evidence base to evaluate whether its INDC is a relative fair effort. In the context of this objective assessment of South Africa is of the view that its contribution is both fair and ambitious.</p> <p>The PPD trajectory range is an ambitious and fair effort in the context of national circumstances, and priorities to eliminate poverty and inequality, promote inclusive economic growth and reduce unemployment. It presents a trajectory that is consistent with a just transition to a low carbon and climate-resilient future.</p> <p>South Africa is committed to a response to climate change based on science and equity, which has informed this INDC and will continue to inform our climate change response.</p> <p>We consider that equity applies to mitigation, adaptation and support for both. Hence further details on equitable access to sustainable development are outlined below.</p> <p>IPCC AR5 has provided relevant scientific information on the limited remaining future global carbon budget consistent with achieving the objective of the Convention as set out in its Article 2. Within the context of the Convention principles of equity and common but differentiated responsibility South Africa's shift from a "deviation from business-as-usual" commitment to a peak, plateau and decline GHG emissions trajectory range in its INDC fully aligns with the IPCC AR5 future global carbon budget. Carbon budgets are an important form of flexibility at the national level; if emissions are below the benchmark trajectory range in a given year, they can exceed it in another year.</p>

Support component of INDC (S-INDC)

The key challenge for South Africa is to catalyse, at an economy-wide scale, financing of and investment in the transition to a low carbon and climate resilient economy and society. In this context, South Africa's S-INDC comprises indicative scales of finance and investment required for both adaptation and mitigation, based on analyses of specific sectors and initiatives. The finance and investments are required to enable and support the deployment of low carbon and adaptation technology as well as building the capacity to govern, regulate, install and operate these technologies.

South Africa has already investing about 6% of what would be the upper end of the costs of its adaptation per annum for the period 2021 to 2030. Since 2010 South Africa has invested

GOVERNMENT NOTICE

DEPARTMENT OF ENERGY**No. R. 400**

6 1May 2011

Electricity Regulation Act No.4 of 2006**Electric' Regulations on the Integrated Resource Plan 2010 - 2030**

1, Dipuo Peters, Minister of Energy, hereby under the Electricity Regulation Act, 2006 (Act No. 4 of 2006), promulgate IRP 2010 in the Schedule.

SCHEDULE

**INTEGRATED RESOURCE PLAN FOR ELECTRICITY
2010-2030**

SUMMARY

The current iteration of the integrated Resource Plan (IRP) for South Africa, initiated by the Department of Energy (DoE) after a first round of public participation in June 2010, led to the Revised Balanced Scenario (RBS) that was published in October 2010. It laid out the proposed generation new build fleet for South Africa for the period 2010 to 2030. This scenario was derived based on the cost-optimal solution for new build options (considering the direct costs of new build power plants), which was then "balanced" in accordance with qualitative measures such as local job creation. In addition to all existing and committed power plants, the RBS included a nuclear fleet of 9,6 GW; 6,3 OW of coal; 11,4 OW of renewables; and 11,0 OW of other generation sources.

A second round of public participation was conducted in November/December 2010, which led to several changes to the IRP model assumptions. The main changes were the disaggregation of renewable energy technologies to explicitly display solar photovoltaic (PV), concentrated solar power (CSP) and wind options; the inclusion of teaming rates, which mainly affected renewables; and the adjustment of investment costs for nuclear units by increase of 40% based on recent construction experience,

Additional cost-optimal scenarios were generated based on the changes. The outcomes of these scenarios, in conjunction with the following policy considerations, led to the Policy-Adjusted IRP:

- The installation of renewables (solar PV, CSP and wind) have been brought forward in order to accelerate a local industry;
- To account for the uncertainties associated with the costs of renewables and fuels, a nuclear fleet of 9,6 GW is included in the IRP;
- The emission constraint of the RBS (275 million tons of carbon dioxide per year after 2024) is maintained;
- Energy efficiency demand-side management (EEDSM) measures are maintained at the level of the RBS.

This Policy-Adjusted IRP is recommended for adoption by Cabinet and for subsequent promulgation as the final IRP. This proposal is a confirmation of the RBS in that it ensures security of supply. It is a major step towards building local industry clusters and assists in fulfilling South Africa's commitments to mitigating climate change as expressed at the Copenhagen climate change summit. The Policy-Adjusted IRP includes the same amount of coal and nuclear new builds as the RBS, while reflecting recent developments with respect to prices for renewables. In addition to all existing and committed power plants (including 10 OW committed coal), the plan includes 9,6 GW of nuclear; 6,3 GW of coal; 17,8 OW of renewables; and 8,9 OW of other generation

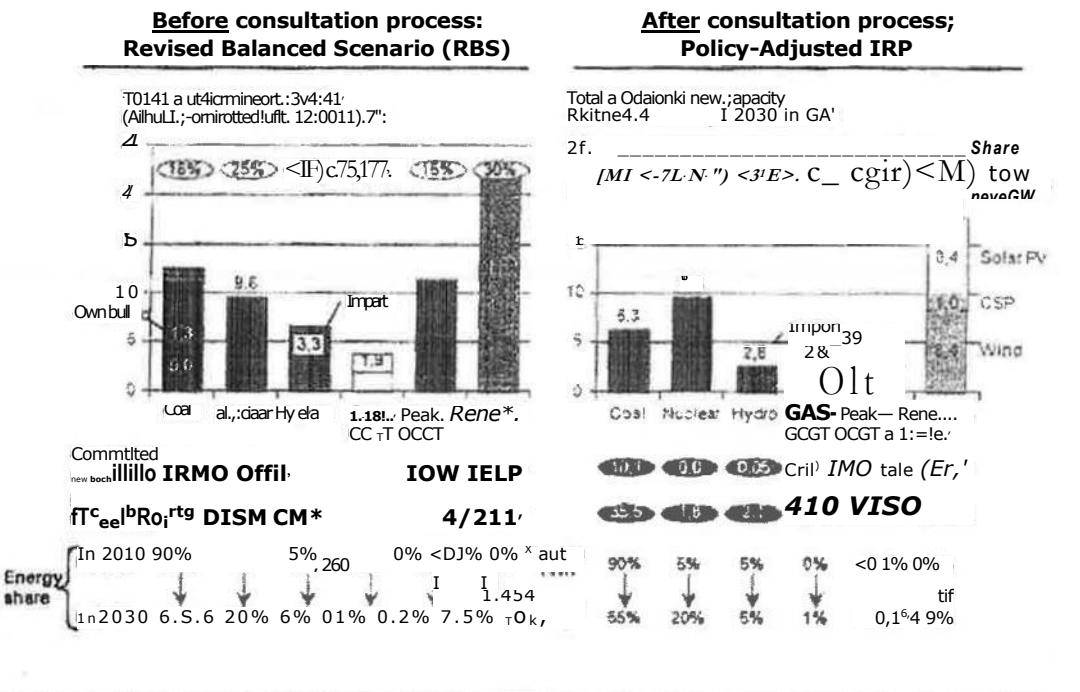


Table 5. Commitments before next IRP

El Firm commitment necessary now

Final commitment in IRP 2012

1.1301, owned & operated by IPPs 2, (1) firm commitment necessary due to required high-voltage lines/rupture, which has long lead times. PV solar required grid upgrade in long lead time and O&M makes striver Prere to power capacity names as

6.3 The dark shaded projects need to **be** decided before the next IRP iteration, with the identified capacities thereafter assumed as "committed" projects:

6.3.1 Coal fluidised bed combustion (FBC) 2614/15: These coal units will be built, owned and operated by IPPs. They need to be firmly committed to by the private investors, in a timely manner, to ensure that this expected capacity will be met. From a central planning perspective, an alternative will be required to replace this capacity by 2019 if it does not materialise.

6.3.2 Nuclear fleet: Long lead times for new nuclear power stations require immediate, firm commitment to the first 3,0 GW, but **government** policy is to pursue the full nuclear fleet.

6.3.3 Import hydro 2022 to 2024: The import hydro new build options require cross-border negotiations and a time-consuming upgrade in transmission infrastructure. To enable the connection of this capacity to the South African grid by 2022, a firm commitment is required immediately.

6.3.4 CCGT 2019 to 2021: Building gas-driven CCGT power plants requires the creation of gas infrastructure. In addition to the CCGT power plants, a LNG terminal needs to be decided on unless a suitable domestic supply is developed, and built together with the associated gas infrastructure. To trigger these decisions and investments and to ensure that the first CCGT capacity is available by 2019, a firm commitment to building the CCGT power plants is required, which will create the necessary demand to ensure appropriate utilisation of the new gas infrastructure. In the absence of domestic gas supply, it could be highly beneficial to develop an **anchor** industrial customer (for example petre-chemical) for the LNG terminal in order to facilitate the volumes required to justify the LNG terminal itself as well as provide

No. 1075

19 December 2012 BASELOAD IPP PROCUREMENT PROGRAMME 2012

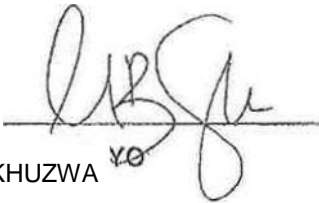
DETERMINATION UNDER SECTION 34(1) OF THE ELECTRICITY REGULATION ACT 4 OF 2006

The Minister of Energy ("the Minister"), in consultation with the National Energy Regulator of South Africa ("NERSA"), acting under section 34(1) of the Electricity Regulation Act 4 of 2006 (as amended) (the "ERA") and the Electricity Regulations on New Generation Capacity (published as GNR. 399 in *Government Gazette* No. 34262 dated 04 May 2011) ("Regulations"), has determined as follows:


1. that baseload energy generation capacity is needed to contribute towards energy security, including 2500 megawatts (MW) to be generated from Coal, which is in accordance with the capacity allocated to "Coal (PF., FBC, Imports)", under the heading "New build", for the years 2014 to 2024, in Table 3 of the Integrated Resource Plan for Electricity 2010-2030 (published as GN 400 of 06 May 2011 in *Government Gazette* No. 34263) ("IRP 20102030");
2. that baseload and/or mid-merit energy generation capacity is needed to contribute towards energy security, including 2652MW to be generated from Natural Gas (which includes Liquefied Natural Gas or Natural Gas delivered by pipeline from a Natural Gas Field), which represents the capacity allocated to 'Gas CCGT (natural gas)' and "OCGT (diesel)", under the heading "New build", for the years 2021 to 2025, in Table 3 of the IRP 2010-2030;
3. that baseload energy generation capacity is needed to contribute towards energy security, including 2609 MW to be generated from Hydro energy sources which represents the capacity allocated to "Imported Hydro" under the heading "New build", for the years 2022 to 2024, in Table 3 of the IRP 2010-2030;
4. electricity produced from the Coal, Natural Gas and Hydro energy sources described above ("the electricity"), shall be procured through one or more IPP procurement programmes as contemplated in the Regulations, which may include, where appropriate and having regard to all relevant circumstances, tendering processes, direct negotiation with one or more project developers, or other procurement procedures ("procurement programmes");
5. one or more of the procurement programmes may require or permit cross border projects, provided that no power purchase agreement in respect of electricity from a cross border project shall be entered into unless the Minister is satisfied that adequate agreements, memoranda of understanding or arrangements are in place or will be in place between the Government and the relevant foreign government or international organisation, as are necessary to enable such cross border project;

6. the procurement programmes shall target connection to the Grid for the new generation capacity as soon as reasonably possible, taking into account all relevant factors including the time required for procurement, according to a schedule that may differ from the timetable set out in Table 3 of the IRP 2010-2030
7. the electricity may only be sold to the entity designated as the buyer in paragraph 10 below, and only in accordance with the power purchase agreements and other project agreements to be concluded in the course of the procurement programmes;
8. the procurer in respect of the procurement programmes will be the Department of Energy;
9. the role of the procurer will be to conceptualise and conduct the procurement programmes, including undertaking feasibility studies, preparing any requests for information, requests for qualification, requests for proposals and/or all related and associated documentation, negotiating the power purchase agreements, facilitating the conclusion of the other project agreements, and facilitating the satisfaction of any conditions precedent to financial close which are within its control;
10. the electricity must be purchased by Eskom Holdings SOC Limited or by any successor entity to be designated by the Minister of Energy, as buyer (off-taker); and
11. the electricity must be purchased from independent power producers.

Concurrence to this Determination given by the National Energy Regulator of South Africa on the below mentioned date:

SIGNATURE: 
 MS CECILIA KHUZWA
 CHAIRPERSON: NERSA
 DATE: \

Determination made by the Minister of Energy on the below mentioned date:

SIGNATURE: 
 MS DIPUO PETE S, MP
 MINISTER: ENERGY
 DATE: \a.

SP11 193

First Issued: 16 December 2014

First Bid Submission Date: 8 June 2015

TENDER NO: DOE/01012014115

The Republic of South Africa

Department of Energy

**REQUEST FOR QUALIFICATION AND PROPOSALS FOR NEW GENERATION
CAPACITY UNDER THE COAL BASELOAD IPP PROCUREMENT PROGRAMME**

VOLUME 2 PART 1: LEGAL QUALIFICATION CRITERIA



energy

Department:
Energy

REPUBLIC OF SOUTH AFRICA

LIST OF DOCUMENTS COMPRISING THE RFP**PART A: General Requirements, Rules and Provisions**

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1.2	Schedule 2	Determination
1.3	Schedule 3	NERSA's Concurrence Letter
1.4	Schedule 4	Exemption from the Preferential Procurement Policy Framework Act

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2.2.3	Appendix C	Letter of intent
2.2.4	Appendix D	Confidentiality Undertaking
2.2.5	Appendix E	Form of Bid Guarantee
2.2.6	Appendix F	Resolution of Lead Member
2.2.7	Appendix G	Resolution of each Member
2.2.8	Appendix H	Tax Clearance Requirements

2.2.9	Appendix I	Declaration of Interest, Litigation and Past Practices (including National Treasury Standard Bidding Documents)
Supply Chain		
2.2.10	Appendix J	Declaration in respect of Success Payments
2.2.11	Appendix K	Declaration in respect of Contractors' and Suppliers' loss of profits
2.2.12	Appendix L	Environmental Returnable
2.2.13	Appendix M	Facility connecting to the Municipal Distribution System — Form of 'Letter from Municipality
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2.3.2	Appendix 2B	Direct Agreement
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2.3.4	Appendix 2D	Ancillary Services Agreement
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4.	Volume 4	Financial Requirements
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4.2.2	Appendix 4B	Letter of Commitment Template from each Provider of Equity Finance
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5.	Volume 5	Economic Development Requirements
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PART C: Comparative and Competitive Evaluation Criteria

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VOLUME 2 PART 1 : **Legal** Qualification Criteria

Structure of Project

- 1.1 The Bidder must provide a diagram setting out the structure adopted by it in respect of its Project, detailing and identifying by name:
- 1.1.1 its Project Company (even if not yet established at the Bid Submission Date);
 - 1.1.2 all of its funders, including providers of Debt, providers of Equity Finance (including the ultimate providers of Equity Finance and each intermediary funding provider e.g. parent companies and or guarantors), and the quantum of financing provided by each funder to the Project;
 - 1.1.3 its proposed Members as equity participants, including all Black Enterprise Members and Local Community Members. Where an equity Member has "free carry" or "sweat equity" in the Project, this must also be detailed on the diagram, including details as to which entity is providing the funding to cover the "free carry" or "sweat equity" element;
 - 1.1.4 its proposed Suppliers (even if such Suppliers will not supply these directly to the Project Company);
 - 1.1.5 its proposed Contractors (even if Contractors will not supply services directly to the Project Company);
 - 1.1.6 in relation to Black Enterprise Members, the indirect shareholders in the Project Company, so as to indicate the ultimate and any intermediary shareholders in that chain of ownership and the extent to which the indirect shareholders are Black People or Black Enterprises; and
 - 1.1.7 in relation to Local Community Members, the indirect shareholders in the Project Company, so as to indicate the ultimate and any intermediary shareholders in that chain of ownership and the extent to which **the indirect shareholders are Local Communities,**

together with written confirmation from the Bidder (represented by the Lead Member where the Bidder is a consortium or authorised representative where the Bidder is a Project Company) that the diagram accurately reflects the Project ownership, funding and contracting structure, and that every person and entity identified in the diagram (even if such entity has not yet been finally appointed by the Bidder as a Member, Lender, Supplier or Construction Contractor for the purposes of its Project) is aware of and has confirmed its approval of the Project ownership, funding and contracting structure as reflected in the diagram.

- 1.2 A statement that the Bidder confirms the accuracy of the Project structure reflected in the diagram, as contemplated above, is included in Appendix B (*Declaration of Bidder*) of Volume 2 (*Legal Requirements*), Part 2 (*Form of Bid and Returnable Schedules*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP. Therefore, a separate statement is not required from the Bidder, if the Bidder submits Appendix B (*Declaration of Bidder*) in the prescribed form as part of the Bid Response.
- 1.3 In order to pass the threshold requirement for this qualification criterion:
- 1.3.1 a Bidder must provide the diagram and the Bidder confirmation of Project structure, both as described above;
- 1.3.2 the Department must be satisfied that the diagram provided accurately represents the Projects ownership, funding and contracting structure; and
- 1.3.3 the Department must be satisfied that any requirements, restrictions or prohibitions relating to the structure or membership of a Bidder, as provided for in Part A (*General Requirements, Rules and Provisions*) of the RFP, are complied with by the Bidder.

Legal Criteria and Evaluation

Seven (7) key criteria will be assessed in the legal evaluation. Each legal criterion will have a pass threshold. Bidders will be required to pass all 7 (seven) thresholds in order to pass **the legal evaluation**.

2.1 **Legal Criterion 1: Legal Status of the Project Company and nomination of Sponsors**

2.1.1 If the Project Company has been established at the Bid Submission Date, the Bidder must include the following in its Bid Response:

2.1.1.1 copies of the Project Company's memorandum of incorporation, reflecting that the Project Company has the sole purpose, object and business of undertaking the Bidder's Project; or

if, at the relevant Bid Submission Date, the Project Company's Constitutional Documents do not reflect that the Project Company has the sole purpose, object and business of undertaking the Bidder's Project, then the Bidder must provide an undertaking in the shareholders' agreement or other appropriate document stating that once it is a Preferred Bidder the Project Company will have the sole purpose, object and business of undertaking the Bidder's Project, including entering into and fulfilling the purposes of the PPA, the ASA, the Implementation Agreement, the Direct Agreement and the Connection Agreements in respect of the Project and that it is a "ring fenced" company in terms of the Companies Act, with "(RF)" in its name.

2.1.2 Where the Project Company has not been established as at the Bid Submission Date, the Bidder must provide an undertaking in the shareholders' agreement or other appropriate documentation that the Project Company will have the sole purpose, object and business of undertaking the Bidders Project, including entering into and fulfilling the purposes of the PPA, the ASA, the Implementation Agreement, the Direct Agreement and the Connection Agreements in respect of the Project, once it has been established.

2.1.3 In addition, the Bidder is required to nominate at least 3 (three) Sponsors for its proposed Project and shall do so by providing a completed Appendix 61 (*Table 9: Table for the purposes of Schedule 8 (Details of Contractors' and Suppliers' loss of profits) of the implementation Agreement*) of Volume 6 (*P.PA and IA Tables*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP in its

Bid Response. This list shall be attached as a schedule to the Implementation Agreement to be signed with the Bidder, if it is appointed as a Preferred Bidder, at Commercial Close.

2.2 Legal Criterion 2: Agreement *between* Members in respect of Equity participation

2.2.1 The Bidder must provide a fully developed draft agreement which is agreed to by all its Members as Equity participants, and that will be entered into between the Project Company and its Shareholders. This agreement will regulate those matters which arise between the Members and do not fall, by their nature, within the ambit of the memorandum of incorporation.

2.2.2 A statement in terms of which the Members confirm and agree to the terms of the shareholders' agreement is included in Appendix B (*Declaration of Bidder*) and Appendix C (*Letter of Intent*) of Volume 2 (*Legal Requirements*) Part 2 (*Form of Bid and Returnable Schedules*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP. Therefore, a separate statement of acceptance of the shareholders' agreement is not required from a Member, if such Member submits Appendix B (*Declaration of Bidder*) or Appendix C (*Letter of Intent*), in the prescribed form as part of the Bid Response.

2.3 **Legal Criterion 3: Confirmation of the PB PD Undertaking, the PPA, the ASA, the Implementation Agreement, Direct Agreement and the Connection Agreements and submission of Returnable Schedules**

2.3.1 The Bidder must:

2.3.1.1 submit a letter confirming the Bidder's acceptance of the PB PD Undertaking, the PPA, the ASA, the Implementation Agreement, the Direct Agreement and the Connection Agreements and all annexes to all of these agreements; and

2.3.1.2 submit a letter from each of its Members, Contractors, Suppliers and Lenders confirming their acceptance of the PB PD Undertaking, the PPA, the ASA, the implementation Agreement,

the Direct Agreement and the Connection Agreements and all annexes to all of these agreements.

2.3.2 A statement in terms of which the provisions of the PB PD Undertaking, the PPA, the ASA, the Implementation Agreement, the Direct Agreement and the Connection Agreements and all annexes to all of these agreements are accepted is included in Appendix B (*Declaration of Bidder*) and Appendix C (*Letter of Intent*) of Volume 2 (*Legal Requirements*) Part 2 (*Form of Bid and Returnable Schedules*) as well as Appendices 4A (*Letter of Support Template from Lenders*) of Volume 4 (*Financial Requirements*) Part 2 (*Financial Appendices*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP. Therefore, a separate statement is not required from:

2.3.2.1 the Bidder, if the Bidder (in the case of the Bidder which is a Project Company) or Lead Member, if the Bidder or Lead Member submits Appendix B (*Declaration of Bidder*);

2.3.2.2 each Member or Shareholder, if each Member or Shareholder submits Appendix C (*Letter of Intent*);

2.3.2.3 the Lenders, if the Lenders submits Appendix 4A (*Letter of Support Template from Lender*) of Volume 4 (*Financial Requirements*) Part 2 (*Financial Appendices*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP, as applicable,

each in the prescribed form as part of the Bid Response.

2.3.3 In addition, the Bidder must:

2.3.3.1 submit all documents contemplated in this RFP in the prescribed form and manner required, including the Form of Bid and all the other returnable schedules contained in Volume 2 (*Legal Requirements*) Part 2 (*Form of Bid and Returnable Schedules*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP. Bidders should note Appendix J (*Declaration of Interest, Litigation and Past Supply Chain Practices*) contained in Volume

2 (*Legal Requirements*) Part 2 (*Form of Bid and Returnable Schedules*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP, Appendix J (*Declaration of Interest, Litigation and Past Supply Chain Practices*) incorporates reference to litigation with the State, and the Bidder's past supply chain management practices and must be completed by the Bidder (if a Project Company), every Member of the Bidder, as well as all of the Bidders' Contractors and Suppliers. In addition, Bidders should note the inclusion, for completion by the Bidder (if the Bidder is a Project Company) or the Lead Member (if the Bidder is a consortium), as well as all of the Bidders' Contractors and Suppliers, of the following National Treasury Standard Bidding Documents SDB4 (*Declaration of Interest*), SBD8 (*Declaration of Bidder's Past Supply Chain Management Practices*) and SBD9 (*Certification of Independent Bid Determination*); and

2.3.3.2

submit a detailed Project Development Plan, in the form of both a gantt chart and a written document, clearly showing the Bidder's plan to reach Financial Close. The Project Development Plan must detail the monthly activities to be undertaken by the Bidder against its quarterly targets for its Project from the date of appointment as a Preferred Bidder in order to achieve Financial Close. This detailed Project Development Plan will form an integral part of the PB PD Undertaking and compliance therewith will be a fundamental obligation of the Bidder in terms of the PB PD Undertaking. The detailed Project Development Plan must cover in detail at least the following aspects (Bidders are to note that this list is not exhaustive but merely indicative in nature):

2.3.3.2.1

the selection and final appointment of the Contractors (if any of them is not already appointed by the Bid Submission Date);

2,3.3.2.2

the finalisation and execution of the agreements with the Contractors (if not finalised by the Bid Submission Date);

- 2.3.3.2.3 the selection and final appointments of the Suppliers (if any of them is not already appointed by the Bid Submission Date);
- 2.3.3.2.4 the finalisation and execution of the agreements with the Suppliers (if not finalised by the Bid Submission Date);
- 2.3.3.2.5 the selection and final appointment of the Lenders (if not already appointed by the Bid Submission Date);
- 2.3.3.2.6 the finalisation and the execution of the finance documents with the Lenders (including all security arrangements and documents);
- 2.3.3.2.7 the incorporation of the Project Company (if not already incorporated at the Bid Submission Date) and the finalisation of the Constitutional Documents in respect of the **Project Company**;
- 2.3.3.2.8 the finalisation and settlement of the legal arrangements in respect of the ownership or use of the Project Site (if not already finalised and settled at the Bid Submission Date) as well as the execution of all documents in respect thereof;
- 2.3.3.2.9 the obtaining of all Consents (such as all licences required to be issued by NERSA in respect of the Project, and all consents required in respect of the Project Site under all Laws);
- 2.3.3.2.10 the finalisation and execution of the shareholders agreement amongst the Shareholders and the finalisation and settlement of all arrangements in respect of Equity (including any finance documents in respect of the provisions of the Equity);
- 2.3.3.2.11 where a title deed is not available at the relevant Bid Submission Date, Bidders shall set out the steps remaining for the title deed to be obtained and all other Project Site-related processes and approvals to be completed;

- 2.3.3.2.12 obtaining all outstanding Environmental Consents required for the Construction and Operation of the Project;
- 2.3.3.2.13 obtaining any further approvals required as a condition of the Environmental Consents such as, layout plans, designs (if applicable) and other management plans and programmes;
- 2.3.3.2.14 the process and timeline required to finalise any appeals and or High Court review applications;
- 2.3.3.2.15 in respect of any Projects located on a mining area, the timing and process to amend the Environmental Consents and make any consequent update to the financial provision for rehabilitation;
- 2.3.3.2.16 the finalisation of the health *and* safety system which will be implemented by the Bidder to ensure compliance with the applicable health and safety legislation during the Construction and Operation of the Project;
- 2.3.3.2.17 obtaining the Eskom Budget Quote;
- 2.3.3.2.18 execution of the Distribution or Transmission Agreement;
- 2.3.3.2.19 completion of the Grid Code Compliance Studies;
- 2.3.3.2.20 completion of the due diligences required for the Lenders;
- 2.3.3.2.21 process for completion of financial model and associated sensitivities;
- 2.3.3.2.22 finalisation of hedging strategies;
- 2.3.3.2.23 credit committee approvals process;
- 2.3.3.2.24 finalisation of financial model audit; and
- 2.3.3.2.25 execution of Commercial Close (including if appropriate dummy runs).

2.3.4 If:

2.3.4.1 a Local Community will participate as a Member or as a shareholder (direct or indirect) in a Member through a trust which has not yet been formed as at the applicable Bid Submission Date; or

2.3.4.2 any other person or entity will participate as a Member, or as a shareholder in a Member, which is an entity which has not been incorporated as at the applicable Bid Submission Date,

then the Lead Member or Project Company, as the case may be, must submit written confirmation (a) that the Local Community trust or the new entity, as the case may be, will be established and registered as contemplated in the Bid Response, and (b) that the Lead Member or Project Company, as the case may be, shall ensure that the Local Community trust or new entity agrees to be bound by the Bid Response to the same extent as it would have done if it were in existence at the Bid Submission Date.

2.3.5 Where one or more equity participants will hold an ownership interest in the Project Company through an intermediary entity which will be a Shareholder, but which Shareholder is not yet incorporated at the Bid Submission Date, the equity participants which will be the direct shareholders in that Shareholder once established must each submit the returnable schedules contained in Volume 2 (*Legal Requirements*) Part 2 (*Form of Bid and Returnable Schedules*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP which are applicable to Members, on behalf of that Shareholder to be established.

2.3.6 Any mark-up or amendment to the PB PD Undertaking, the PPA, the ASA, the Implementation Agreement, the Direct Agreement or the Connection Agreements (other than for the purposes of completing the information required by the Department) will not be permitted by the Department, and a Bidder will not meet the threshold qualifications requirements for this qualification criterion if there is any such mark-up.

2.4 Legal Criterion 4: Contracts

2.4.1 The Bidder must provide a detailed and comprehensive term sheet in respect of, or a substantially developed agreement, initialled by both the Bidder and each and every one of the potential Contractors with whom it proposes to enter into further negotiations in respect of their appointment as the Contractors for the Project if the Bidder is appointed as a Preferred Bidder.

2.4.2 Each term sheet or agreement shall deal with the following issues at a minimum:

2.4.2.1 the term of the subcontract;

2.4.2.2 details of the price cap in respect of the price to be paid for the services to be rendered by the Contractors;

2.4.2.3 undertakings and or warranties to ensure compliance with any and all laws by the Contractors;

2.4.2.4 that the Contractors are in possession of and or will obtain any and all Consents that may be necessary in terms of the relevant contract for the purposes of the Bidder's Project;

2.4.2.5 complete and accurate details of the scope of work to be undertaken by each Contractor that has been, or will be appointed by the Bidder for the purposes of the Project;

2.4.2.6 details of all of the inspection requirements and obligations, as well as the testing and commissioning to be undertaken by the Contractors and or the Bidder;

2.4.2.7 details of any and all conditions on which the parties have entered into the agreement, including all suspensive conditions;

2.4.2.8 details of the termination provisions, including, but not limited to, force majeure, system event, compensation event, unforeseeable conduct and site risk;

2.4.2.9 details of any security, performance guarantees and or penalties or damages to be provided and or paid by the Contractors to the Bidder;

2.4.2.10 details of the relevant Contractors' compliance with the applicable economic development obligations and reporting requirements; and

2.4.2.11 details of the spare parts to be provided for the purposes of the Facility.

2.4.3 The Department reserves the right not to pass any Bidder who submits term sheets or agreements which are, in the Department's sole opinion, unsatisfactory.

2,5 Legal Criterion 5: Supply Agreements

2.5.1 Coal and Limestone Supply

2.5.1.1 The Bidder must provide a detailed and comprehensive **term sheet** in respect of, or a substantially developed agreement, **initialled by both the Bidder and each and every one of the potential Coal Suppliers and Limestone Suppliers** with whom it proposes to enter into further negotiations in respect of their appointment as Suppliers for the Project if the Bidder is appointed as a Preferred Bidder.

2.5.1.2 Each term sheet or agreement shall deal with the following issues at a minimum:

2.5.1.2.1 the term of the Supply Agreement, which in respect of Coal Supply should be no less than 10 (ten) years and in respect **of Limestone, if applicable to the Bidder's Project, should be** no less than 10 (ten) years;

2.5.1.2.2 details of the price to be paid for the provision of the Coal and or Limestone, if applicable;

2.5.1.2.3 undertakings and or warranties to ensure compliance with any and all laws by the Coal and Limestone Suppliers;

- 2.5.1,2.4 the inclusion of warranties in the relevant Supply Agreement, in favour of the Bidder, in respect of the following matters (to the extent applicable):
- 2.5.1.2.4.1 the Supplier's mining rights, in respect of the mining areas from which the Supplier has agreed to supply the Bidder with Coal and or Limestone for the Project, are valid, current and in effect in accordance with their terms and, *b* the extent applicable, the provisions of the MPRDA and or environmental laws;
- 2.5.1.2.4.2 the Supplier has no knowledge of any reason why its mining rights, in respect of *the* mining areas from which the Supplier has agreed to supply the Bidder with Coal and or Limestone for the Project, may be under risk of cancellation or suspension; and
- 2.5.1.2.4.3 as at the signature date of the relevant Supply Agreement, the Supplier is neither aware of having, nor has been, given notice of a breach of any of its obligations in terms of its mining rights in respect of the mining areas from which the Supplier has agreed to supply the Bidder with Coal and or Limestone for the Project, the MPRDA and or environmental laws;
- 2.5.1.2.5 that the Suppliers are in possession of and or will obtain any and all Consents that may be necessary for the purposes of the Bidder's Project;
- 2.5.1.2.6 a description of the quantity, quality and size of the Coal, and, if applicable, the Limestone to be supplied to the Bidder by the Coal Supplier and or Limestone Supplier, including provisions regarding Coal and or Limestone testing prior to delivery, rejection criteria, Coal and or Limestone specifications and the range of Coal and or Limestone expected to be supplied;

- 2.5.1.2.7 details regarding the transportation of the Coal and or Limestone supplied by the Coal Supplier and or the Limestone Supplier to the Faculty;
- confirmation of the date of commencement of the Coal and or Limestone supply in accordance with the Bidder's Project Schedule; and
- 2.5.1.2.9 details and confirmation of the Coal Supplier's and or Limestone Supplier's commitment to the regular and consistent supply of the Coal and or Limestone to the Bidder and an undertaking by the Coal Supplier and or Limestone Supplier to resolve any disruptions in the supply of the Coal and or Limestone within a reasonably acceptable time period. Bidders are required to provide a schedule of the proposed quantities and, to the extent applicable, quality and size of Coal and or Limestone to be delivered to the Facility.
- 2.5.1.3 The Department reserves the right not to pass any Bidder who submits term sheets or agreements which are, in the Departments sole opinion, unsatisfactory.
- 2.5.2 Key Equipment Supply**
- 2.5.2.1 The Bidder must provide a detailed and comprehensive term sheet in respect of, or a substantially developed agreement, initialled by both *the* Bidder and each and every one of the potential Key Equipment Suppliers with whom it proposes to enter into further negotiations in respect of their appointment as Key Equipment Suppliers for the Project if the Bidder is appointed as a Preferred Bidder.
- 2.5.2.2 Each term sheet or agreement shall deal with the following issues at a minimum:
- 2.5.2.2.1 the term of the Supply Agreement;

- 2.5.2.2.2 details of the price to be paid for the supply of the relevant Key Equipment;
- 2.5.2.2.3 undertakings and or warranties to ensure compliance with any and all laws by the Key Equipment Suppliers;
- 2.5.2.2.4 the inclusion of warranties in the relevant Supply Agreement, in favour of the Bidder, In respect of the following matters (to the extent applicable):
- 2.5.2.2.4.1 the Supplier's licensing rights, in respect of the manufacture of the Key Equipment by the Supplier, **are valid, current and in effect in accordance with their terms and, to the extent applicable, the provisions of any Laws;**
- 2.5.2.2.4.2 **the Supplier has no knowledge of any reason why its licensing rights may be under risk of cancellation or suspension; and**
- 2.5.2.2.4.3 **as at the signature date of the relevant Supply Agreement, the Supplier is neither aware of having, nor has been, given notice of a breach of any of its obligations in terms of its licensing rights in respect of the Key Equipment which the Supplier has agreed to supply to the Bidder for the Project;**
- 2.5.2.2.5 **that the Suppliers are in possession of and or will obtain any and all Consents that may be necessary for the purposes of the Bidder's Project;**
- 2.5.2.2.6 **a description of the quantity, quality and size of the Key Equipment to be supplied to the Bidder by the Key Equipment Supplier, including provisions regarding the testing of such Key Equipment prior to the delivery thereof to the Bidder,**
- 2.5.2.2.7 details regarding the transportation of the Key Equipment supplied by the Key Equipment Supplier to the Facility;

2.5.2.2.8 confirmation of the date of commencement of the Key Equipment supply in accordance with the Bidder's Project Schedule; and

2.5.2.2.9 details and confirmation of the Key Equipment Supplier's commitment to the supply of the Key Equipment to the Bidder and an undertaking by *the* Key Equipment Supplier to resolve any disruptions in the supply of the Key Equipment within a reasonably acceptable time period. Bidders are required to provide a schedule of the proposed Key Equipment to be delivered to the Facility by each of the Key Equipment Suppliers.

2.5.2.3 The Department reserves the right not to pass any Bidder who submits term sheets or agreements which are, in the Department's sole opinion, unsatisfactory.

2.5.3 Water Supply Rights

2.5.3.1 Bidders must demonstrate that they have made sufficient progress in identifying and securing administrative and or contractual rights for the water needs for the Project, for both the Construction Period and the Operating Period.

2.5.3.2 To the extent that the Bidder has secured or is to secure such rights with a Water Use Licence, the Environmental Qualification Criteria described in clauses 0.1.1.2 and 4.1.1.3 must be satisfied.

2.5.3.3 If a Bidder will not secure all of the Water Use Rights for its Project by means of a Water Use Licence, the Bidder must in addition provide a detailed and comprehensive term sheet in respect of, or a fully developed, agreement initialled by both the Bidder and each and every one of the potential Water Suppliers with whom it proposes to enter into further negotiations in respect of their appointment as the Water Supplier for the Project if the Bidder is appointed as a Preferred Bidder. The detailed and comprehensive terms sheets or fully developed agreements shall

indicate that if the Bidder is selected as a Preferred Bidder, the potential Water Suppliers, if selected by the Bidder, will enter into a Water Supply Agreement with the Bidder to provide Water to the proposed Project on the terms set out in the term sheet or agreement, which shall also be required to deal with the following issues at a minimum:

- 2.5.3.3.1 the term of the Water Supply Agreement;
- 2.5.3.3.2 details of the price to be paid for the Water to be supplied by the Water Supplier,
- 2.5.3.3.3 undertakings and or warranties to ensure compliance with any and all laws by the Water Supplier;
- 2.5.3.3.4 that the Water Supplier is in possession of and or will obtain any and all Consents that may be necessary for the purposes of the supply to the Bidder's Project;
- 2.5.3.3.5 a description of the type and quality of the water to be supplied to the Bidder by the Water Supplier;
- 2.5.3.3.6 details regarding the abstraction, transportation and or treatment of the water to be supplied by the Water Supplier in the provision thereof to the Bidder and or the Facility;
- 2.5.3.3.7 confirmation of the date of commencement of the water supply in accordance with the Bidder's project schedule;
- 2.5.3.3.8 a description of the minimum amount of water required by the Bidder to comply with its obligations in terms of the PPA and an undertaking from both parties that a reduction in the supply below the prescribed minimum amount is prohibited in terms of the Water Use Agreement;
- 2.5.3.3.9 details of the Water Supplier's commitment to the regular and consistent supply of water to the Bidder and an undertaking by the Water Supplier to resolve any disruptions in the supply of water within a reasonably

acceptable time period. Failing which, provision must be made in the Water Use Agreement for the payment of penalties and or the incurring of liabilities by the Water Supplier in this regard. Bidders are required to provide a schedule of the proposed dates for the delivery by the Water Supplier of water to the Facility; and

- 2.5.3.3.10 confirmation by the Water Supplier of certainty in respect of its ability to supply consistently the required quantity and quality of water to the Bidder for the duration of the Water Use Agreement and the **PPA**. In this regard, Bidders are required to provide a schedule of the proposed quantities of water to be delivered to the Facility, in accordance with the delivery schedule mentioned in clause 2.5.3.3.9 above.

2.6 Legal Criterion 6 : Debt Term Sheets

The Bidder must provide detailed and comprehensive Debt Term Sheets initialled by both the Bidder and each and every one of the potential Lenders with whom it proposes to enter into further negotiations in respect of their appointment as the Lenders for the Project if it is appointed as a Preferred Bidder. The detailed and comprehensive Debt Terms Sheets shall indicate that if the Bidder is selected as a Preferred Bidder, the potential Lenders will, if selected by the Bidder, enter into the Financing Agreements with the Bidder to provide Debt to the proposed Project on the terms set out in the Debt Term Sheets.

- 2.6.1 The **Debt Term Sheets provided by Bidders** in their Bid Responses should **provide sufficient details in respect of the Debt, including, but not limited to, the following:**
- 2.6.1.1 **a detailed breakdown of the Debt, including a breakdown into different currency denominations where applicable, the base interest rates and the margins to be applied;**
- 2.6.1.2 **a description of the type and purpose of the facility;**
- 2.6.1.3 the availability period of the facility;

- 2.6.1.4 whether the Lenders' support of the Bidder's Project is conditional and or subject to the fulfilment of any onerous conditions by the Bidder;
 - 2.6.1.5 details of any draft budgets, financial models and repayment schedules;
 - 2.6.1.6 descriptions of the security interests to be granted in favour of the Lenders and associated security documents; and
 - 2.6.1.7 all representations, warranties and undertakings by the Bidder, specifically that any performance by the Bidder under the Financing Agreements will not conflict with and or prohibit the Bidder's performance under any other agreement entered into between the Bidder and the Department or the Bidder and the Buyer, as the case may be.
- 2.6.2 The Debt Term Sheets provided by the Bidder in this regard:
- 2.6.2.1 are not required to be final, but should be in near final form;
 - 2.6.2.2 will give an indication of the readiness of the Bidder to undertake the procurement of the Lenders for the Project, if the Bidder is appointed a Preferred Bidder;
 - 2.6.2.3 will regulate the relationships between the Bidder and the Lenders; and
 - 2.6.2.4 will also regulate the terms upon which the Bidder commits to the Department that it will undertake the proposed Project.
- 2.6.3 The Debt Term Sheets submitted by a Bidder in its Bid Response will be indicative of the terms upon which the Bidder will source financing for the proposed Project. The Department, therefore, encourages all Bidders to seek competitive offers from various financial institutions for the financing of the proposed Projects which may assist the Bidder to be in better a position to offer the best possible Charge Rates in their Bid Responses.

2.7 Legal Criterion 7: Provision for the Decommissioning Reserve

The Bidder must provide a detailed and comprehensive proposal in respect of the Decommissioning Reserve which must contain the following:

- 2.7.1 whether it will make use of a S37A Trust or Decommissioning Cost Bank Guarantee for this purpose, or a combination thereof;
- 2.7.2 if the Bidder proposes using a combination of these 2 (two) Decommissioning Reserve mechanisms, the Bidder is required to provide a detailed and comprehensive breakdown indicating how the funds for the Decommissioning Costs will be split between the 537A Trust and the Decommissioning Cost Bank Guarantee, respectively;
- 2.7.3 if the Bidder proposes making use of a Decommissioning Cost Bank Guarantee, the Bidder shall provide the Department with an undertaking that, upon its appointment as a Preferred Bidder, it shall procure the issue of the Decommissioning Cost Bank Guarantee prior to Commercial Close, which guarantee shall be in substantially the same form as the form prescribed in Appendix 2K (*Form of Decommissioning Cost Bank Guarantee*) in Volume 2 (*Legal Requirements*) Part 6 (*Decommissioning Documents*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP. A statement in terms of which such undertaking is given by the Bidder and all of its Members, is included in Appendix B (*Declaration of Bidder*) and Appendix C (*Letter of intent*) of Volume 2 (*Legal Requirements*) Part 2 (*Form of Bid and Returnable Schedules*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP;
- 2.7.4 if the Bidder proposes making use of a S37A Trust, the Bidder must provide an initialled copy of the S37A Trust Deed that will be entered into for this purpose, in its Bid Response, together with:
 - 2.7.4.1 the names of the professional fiduciary services company or the natural persons it proposes be authorised by the Master of the High Court to act as the trustee or trustees of the S37A Trust; and

2.7.42 curricula vitae of each natural person or the detailed deal list and track record of professional fiduciary services company, so nominated, together with a sworn affidavit of each person so nominated or the natural persons who will be appointed to represent the professional fiduciary services company as trustee, and evidence supporting the statements in such affidavit, establishing that such natural persons or professional fiduciary services company fulfil all the requirements contained in Deed prescribed in Appendix 2L (*Form of S37A Trust Deed*) in Volume 2 (*Legal Requirements*) Part 6 (*Decommissioning Documents*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP ("Appendix 2L"), in respect of the trustees of a S37A Trust. The Department shall be entitled to reject such persons if it is of the opinion that they do not fulfil the requirements of Appendix 2L. The S37A Trust Deed must be in substantially the same form of Deed prescribed in Appendix 2L (*Form of S37A Trust Deed*) in Volume 2 (*Legal Requirements*) Part 6 (*Decommissioning Documents*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP.

3. Land Acquisition and Land Use Criteria and Evaluation

3.1 The Bidder must provide:

3.1.1 copies of the title deeds evidencing the Project Company's ownership of the Project Site; or

3.1.2 a copy of one or more notarial leases together with evidence that it has been registered or is capable of registration by the Effective Date of the Implementation Agreement in favour of the Project Company against the title deed for the whole of the Project Site for the term of the PPA; together with a copy of all relevant title deeds in respect of the Project Site; or

3.1.3 an option, lease or sale of land agreement exercisable at the Project Company's instance and unconditional in all significant respects, to acquire such secure real rights provided for in clauses 3.1.1 and 3.1.2 of this Volume 2 (*Legal Requirements*) Part 1 (*Legal Qualification*

Criteria) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP, together with a copy of all relevant title deeds in respect of the Project Site; and

- 3.1.4 proof that all necessary applications for the Land Use Consents, including but not limited to land use change, subdivision, removal of restrictive conditions, zoning applications and any consents in terms of the MRPDA have been made by the Project Company to secure the right to lawfully use the Project Site for the intended purpose of Constructing, Operating and Maintaining the Facility or proof that the Project Company will be able to conform to any existing conditions.
- 3.2 In respect of any Projects utilising municipal land for the Project Site, the Bidders must provide documentation to satisfy the Department of the legal validity of its land use arrangements and the security of its tenure for the Term of the PPA. Depending on the nature of its land use arrangements, a Bidder must provide the following, as applicable:
- 3.2.1 where its land use arrangements constitute a municipal public private partnership, a certified copy of the public private partnership agreement entered into with the relevant municipality in accordance with section 120 of the Local Government: Municipal Finance Management Act No. 56 of 2003 ("**MFMA**") in respect of each Project Site to be utilised in the Project; or
- 3.2.2 where its land use arrangements involve the grant by a municipality or a municipal entity of rights to use, control or manage capital assets in circumstances contemplated in section 33(1) of the Municipal Asset Transfer Regulations published in terms of the MFMA (GNR. 878 of 22 August 2008, *Government Gazette* No. 31346) ("**Municipal Asset Transfer Regulations**") (i.e. where sections 14 and 90 of the MFMA and Chapters 2 and 3 of the Municipal Asset Transfer Regulations do not apply), a certified copy of the agreement entered into in accordance with Chapter 4 of the Municipal Asset Transfer Regulations, as contemplated in section 45 of such Regulations (which could be a lease agreement); or

- 3.2.3 where its land use arrangements involve the grant by a municipality or a municipal entity of rights to use, control or manage capital assets in circumstances contemplated in section 33(3) of the Municipal Asset Transfer Regulations, a certified copy of the agreement entered into in accordance with Chapter 2 of the Municipal Asset Transfer Regulations, as contemplated in section 17 of such Regulations; or
- 3.2.4 where its land use arrangements do not constitute a municipal public private partnership and were entered into prior to the date of commencement of the Municipal Asset Transfer Regulations (namely 1 September 2008), a certified copy of the lease agreement or other land use agreement entered into with the relevant municipality or municipal entity, in accordance with the legislation applicable at the date that such arrangements were entered into; and
- 3.2.5 where its land use arrangements are as described in clauses 3.2.2; 3.2.3 or 3.2.4 above:
- 3.2.5.1 all relevant title deeds for the Project Site;
- 3.2.5.2 where applicable, evidence that the agreement is capable of being and will be registered against the title deed or deeds, as the case may be, of the Project Site for the term of the PPA; and
- 3.2.5.3 proof that all necessary applications in respect of the Land Use Consents have been made to secure the right to lawful use of the Project Site for the intended purpose of constructing and Operating the Facility; and
- 3.2.5.4 an original letter authored by the accounting officer of the relevant municipality or municipal entity (and addressed to the Department), confirming the lease or other land use arrangements entered into between the relevant municipality or municipal entity and the Bidder and confirming that the municipality or municipal entity has complied with all applicable legislative requirements in entering into the agreement or agreements giving effect to such arrangements; and

- 3.2.5.5 a legal opinion issued by the Bidder's Legal advisor, addressed to the Department, confirming:
- 3.2.5.5.1 the nature of the land use arrangements entered into by the Bidder for purposes of the Project;
- 3.2.5.5.2 the legislation (and applicable section numbers) in terms of which such land use arrangements and contracts were concluded;
- 3.2.5.5.3 that all relevant legislative requirements were fulfilled, Land Use Consents obtained, and procedures followed, in the conclusion of the land use arrangements; and
- 3.2.5.5.4 that the contracts entered into in respect of such land use arrangements are legal, valid, binding and enforceable on and against all parties to those contracts.
- 3.2.6 In respect of any Projects utilising municipal land, as contemplated in this clause 3.2, the provisions of clause 3.1.1 to 3.1.4 will not apply unless specifically stated in clause 3.2.
- 3.3 Where a title deed is not available for a Project Site due to it being situated on un-alienated State land in respect of which no certificate of registered State title has been executed, the Bidder must submit, as part of its Bid Response, a legal opinion issued by the Legal advisor which sets out the following:
- 3.3.1 the steps taken prior to the Bid Submission Date to obtain a title deed;
- 3.3.2 the steps still required for the title deed to be obtained and the parties who are required to take these steps; and
- 3.3.3 any conditions which will be applicable to such title deed, to the extent known; and which confirms, to the satisfaction of the Department in its sole discretion, that based on the steps remaining for the title deed to be obtained and all other Project Site-related processes and approvals to be completed, the unavailability of such title deed will not delay Commercial Close.

- 3.4 Where a title deed is not available for any other reason, the Bidder must submit, as part of its Bid Response, a conveyancer's certificate confirming:
- 3.4.1 ownership details of the Project Site;
 - 3.4.2 all conditions recorded against the title deeds of the property;
 - 3.4.3 a full explanation regarding why no title deed is available at Bid Submission Date;
 - 3.4.4 to the satisfaction of the Department in its sole discretion, that based on the steps remaining for the title deed to be obtained and all other Project Site-related processes and approvals to be completed, the unavailability of such title deed will not delay Commercial Close; and
 - 3.4.5 other relevant information.
- 3.5 In order to pass the threshold requirement for these Land and Land Use Qualification Criteria, the Bidders must submit every agreement, title deed, Land Use Consent and or Supplier Land Use Consents, application or other document evidencing land acquisition in the manner provided for in this clause 3 (*Land Acquisition and Land Use Criteria and Evaluation*) of Volume 2 (*Legal Requirements*) Part 1 (*Legal Qualification Criteria and Evaluation*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP. If the relevant provisions of the RFP does not specifically provide for such evidence, it must be submitted in a detailed, complete and proper form to the satisfaction of the Department.
4. Environmental Consent Criteria and Evaluation
- 4-1 Specific Qualification Criteria
 - 4.1.1 Each Bidder must have the following in place when a Bid Response is submitted:
 - 4.1.1.1 an environmental authorisation as required by NEMA for each Project, in the name of the Project Company, for the whole of the Project;

- 4.1.1.2 written confirmation of a water allocation for all the water consumption needs of the Project from a water services provider registered as such in terms of the Water Services Act No. 108 of 1997 ("a Water Services Provider") (or a Water Supplier who undertakes to obtain such a registration, in which case the written undertaken must also be submitted with the Bid Response), or a written non-binding confirmation of water availability for the Project from the Department of Water and Sanitation ("the DWS"), or a combination of these 2 (two) confirmations that between them cover all the water consumption needs of the Project;
- 4.1.1.3 a fully developed integrated water use licence application or water use licence application, as the case may be, for all anticipated water uses in terms of the National Water Act No. 36 of 1998 ("**Integrated Water Use Licence Application**" or "**Water Use Licence Application**") which is ready for submission and processing with the relevant Provincial branch of the DWS, if 'appointed as a Preferred Bidder, or a legal opinion that an Integrated Water Use Licence or Water Use Licence is not required for the Project;
- 4.1.1.4 written confirmation, from the relevant Provincial branch of the DWS or the DWS, that the Integrated Water Use Licence Application or Water Use Licence Application, as the case may be, is fully developed, has satisfied the DWS's pre-application requirements and is ready for submission should the Bidder be appointed as a Preferred Bidder; and
- 4.1.1.5 a waste management licence as required by the National Environmental Management: Waste Act No. 59 of 2008 ("**a waste management licence**") or a legal opinion that none is required,
- (referred to as the "**key Environmental Consents**").
- 4.1.2 In addition, each Bidder must:

- 4.1.2.1 provide 2 (two) hard copies (in accordance with the hard copy requirements stipulated in clause 2.3 (*Copies of Bid Response*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP) of the submitted Basic Assessment Report or Environmental Impact Report prepared for the key Environmental Consents referred to in clauses 4.1.1.1 and 4.1.1.5 of this Volume 2 (*Legal Requirements*) Part 1 (*Legal Qualification Criteria*) of Part B (*Functional and Qualification Criteria Requirements*) of this RFP, including all specialist reports thereto (for the avoidance of doubt these documents should also be included in the soft copy referred to in clause 2.3 (*Copies of Bid Response*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP);
- 4.1.2.2 provide 2 (two) hard copies (in accordance with the hard copy requirements stipulated in clause 2.3 (*Copies of Bid Response*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP) of the fully developed Integrated Water Use Licence Application or Water Use Licence Application referred to in clauses 4.1.1.3 of this Volume 2 (*Legal Requirements*) Part 1 (*Legal Qualification Criteria*) of Part B (*Functional and Qualification Criteria Requirements*) of this RFP, including all specialist reports thereto (for the avoidance of doubt these documents should also be included in the soft copy referred to in clause 2.3 (*Copies of Bid Response*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP);
- 4.1.2.3 include substantive details of all objections to the development of the Facility received during any public participation process conducted and any appeals to the key Environmental Consents required by the Project, as listed in clause 4.1.1 above. This information should include any registers of Interested and Affected Parties, comments from the Basic Assessment or Environmental Impact Assessment process and the Bidder's responses to these and should provide details of whether or not any such appeals are pending or anticipated, and if so, the stage that has been reached, including:

4.1.2.3A when the period prescribed for making an appeal in relation to key Environmental Consents expired or will expire;

4.1.2.3.2 copies of any appeals made during the prescribed period and all responding submissions, and of any appeals made after the prescribed period and in respect of which the appellant is seeking condonation for late filing of the appeal; and

4.1.2.3.3 full details and copies all relevant papers for of any anticipated or pending High Court review proceedings related to any key Environmental Consents required by the Project.

4.1.3 In respect of those key Environmental Consents which are subject to any appeal or High Court review proceedings, or in respect of which the relevant appeal or review periods have not expired at the date of Bid Submission, the Department may, in its sole discretion, consider the Bidder's Bid Response as being insufficient to pass the threshold requirement for this Qualification Criterion. In considering this the Department will pay particular regard to whether the Bidder has demonstrated that such an appeal or review or anticipated appeal or review does not go to the heart of the relevant key Environmental Consents or does not affect the key activities required for the Project, and whether the Bidder has demonstrated that it is capable of timeous resolution.

4.2 **General Returnable Schedule Qualification Criterion**

4.2.1 As a separate Qualification Criterion, Bidders must demonstrate to the Department, in its sole discretion, that all Environmental Consents (in addition to the key Environmental Consents listed in clause 4.1.1 above) which will be required for the Construction and Operation of the Facility have been obtained or have been applied 'for or have been identified as being required but which are yet to be applied for in respect of the Facility.

- 4.2.2 To comply with this Qualification Criterion Bidders must complete and submit, as part of its Bid Response, the returnable schedule contained in Volume 2 (*Legal Requirements*) Part 2 (*Form of Bid and Returnable Schedules*), Appendix L (*Environmental Returnable*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP, including any requested supporting documentation.
- 4.2.2.1 The Environmental Consents required may extend beyond those listed in the returnable schedule contained in Volume 2 (*Legal Requirements*) Part 2 (*Form of Bid and Returnable Schedules*), Appendix L (*Environmental Returnable*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP.
- 4.2.2.2 The following guidance is provided to assist Bidders in completing the returnable schedule contained in Volume 2 (*Legal Requirements*) Part 2 (*Form of Bid and Returnable Schedules*), Appendix L (*Environmental Returnable*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP and to give an indication of the quality of the response expected by the Department.
- 4.2.2.2.1 In respect of the first column to the table of the returnable schedule:
- 4.2.2.2.1.1 a number of Environmental Consents have been described which may be required for the Facility; and
- 4.2.2.2.1.2 to the extent that additional Environmental Consents are required for the Facility, and which have not been listed in this column, the Bidder must include these additional Environmental Consents at the end of the table.
- 4.2.2.2.2 In respect of the second column to the table of the returnable schedule:

- 4.2.2.2.1 the Bidder must state whether the applicable Environmental Consent is required for the Facility; and
- 4.2.2.2.2 to the extent that an Environmental Consent is described as not being required for the Facility, a succinct legally sound reason as to why the Environmental Consent is not required, must be provided by the Bidder.
- 4.2.2.3 In respect of the third column to the table of the returnable schedule:
- 4.2.2.3.1 the Bidder must state, for those Environmental Consents which have been identified as being required for the Facility and which are yet to be granted, the expected timing of when the grant of the applicable Environmental Consent is expected. If the application for the applicable Environmental Consent has yet to be submitted, the Bidder must indicate when such application will be submitted and the expected timing to process the application;
- 4.2.2.3.2 the Bidder must also state the steps taken and the correspondence with the Responsible Authority in processing the applicable application for an Environmental Consent; and
- 4.2.2.3.3 to the extent necessary, supporting documentation is to be provided by the Bidder to satisfy the Department, in its sole discretion, that all reasonable steps have been taken to process the applicable application for an Environmental Consent.
- 4.2.2.4 In respect of the fourth column to the table of the returnable schedule:

- 4.2.2.2.4.1 to the extent that the application for the applicable Environmental Consent has been granted, this must be stated by the Bidder; and
- 4.2.2.2.4.2 the Bidder must submit a copy of the Environmental Consent in support of its response to the returnable schedule.
- 4.2.2.2.5 In respect of the fifth column to the table of the returnable schedule:
- 4.2.2.2.5.1 irrespective of whether the application for the applicable Environmental Consent has been granted, the Bidder must state that it has provided a full copy of the underlying application, including annexures thereto; and
- 4.2.2.2.5.2 the Bidder must provide, as supporting documentation to the response to the returnable schedule, the necessary copies of the underlying applications for the Environmental Consents.
- 4.2.2.3 For any supporting documentation submitted in support of the ⁷ Bidders response to the returnable schedule contained in Volume 2 (*Legal Requirements*) Part '2 (*Form of Bid and Returnable Schedules*), Appendix L (*Environmental Returnable*) of Part B (*Functional and Qualification Criteria Requirements*) the RFP, such documentation must be numbered consecutively in the table, corresponding to the numbering in the actual supporting documentation that is provided by the Bidder.
- 4.3 **Health and Safety Criteria and Evaluation**
- 4.3.1 If the Project Site or Facility will be situated on a mine or mining area as defined in the MHSA or the MPRDA and an exemption in terms of section 79 of the MHSA has been or will be obtained from the DMR for purposes of the proposed Project, documentary proof to this effect must be submitted by the Bidder in its Bid Response.

- 4.3.2 if the Project Site or Facility will be situated on a mine and an exemption in terms of section 79 of the MSHA will not be obtained from the DMR for the purposes of the proposed Project, the Bidder must, as part of its Bid Response, submit a copy of the agreement or the proposed term sheet between the Bidder and the holder of the mining right regulating the health and safety obligations between the Bidder and the holder of the mining right for the duration of the Project. Such agreement must provide, *inter alia* for, the completion of the necessary risk assessments, the implementation and adaptation of policies, procedures and safe work practices, the provision of training and personal protective equipment.

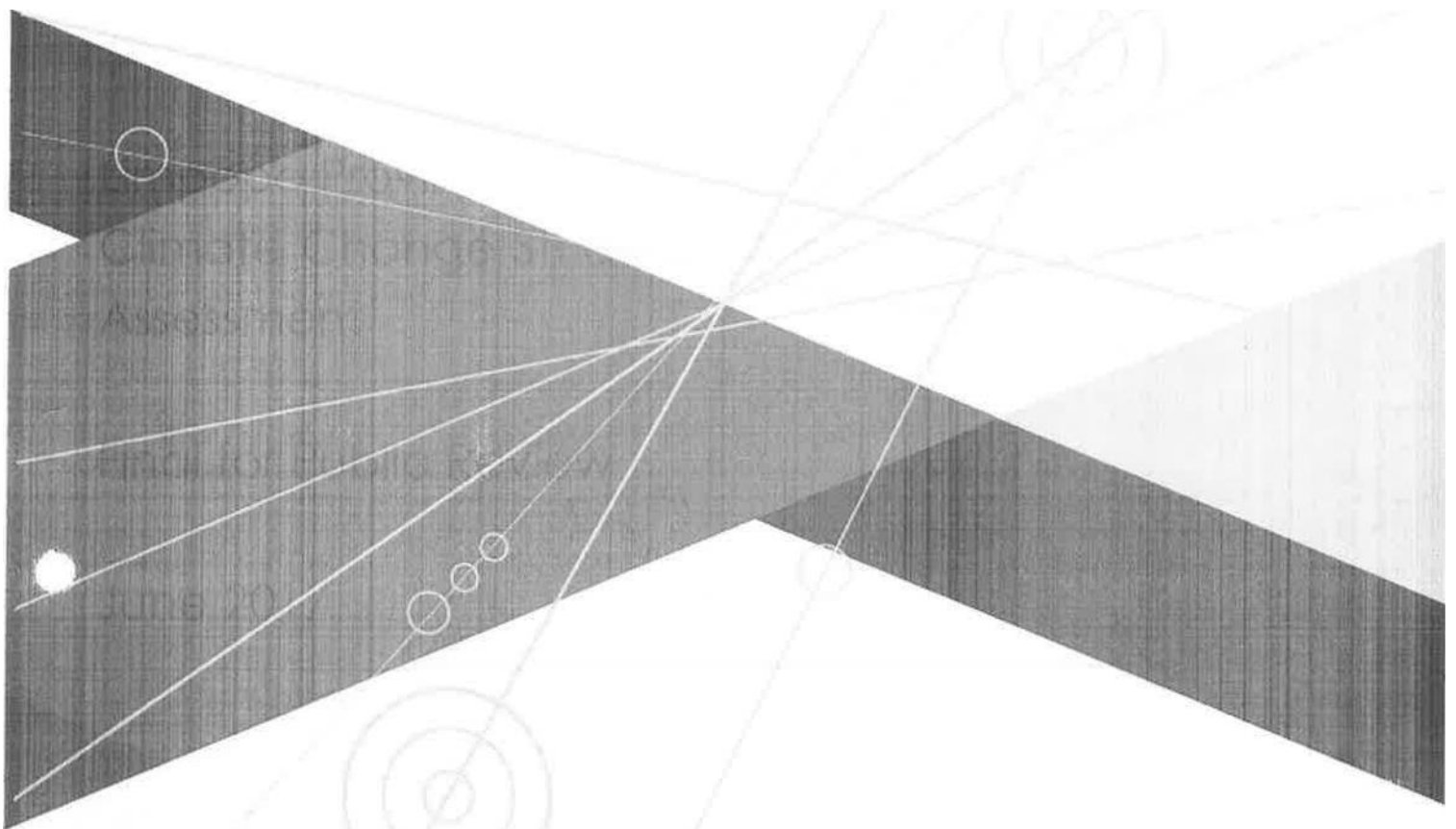
Thabametsi Power Station **SP12 231**

Limpopo Province

Climate Change Study and Palaeontological Impact
Assessment

Final for Public Review

June 2017



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PROJECT DETAILS

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1. BACKGROUND AND PURPOSE OF THIS REPORT

Thabametsi Power Company Proprietary Limited, an Independent Power Producer (IPP) is proposing the construction of a coal-fired power station (the "Project") on the farm Onbelyk 254LQ near Lephalale in the Limpopo Province (refer to Figure 1). The project is known as the Thabametsi Coal-Fired Power Station. The power station will have a maximum generating capacity of 1200MW which is intended to provide baseload electricity for integration into the national grid.

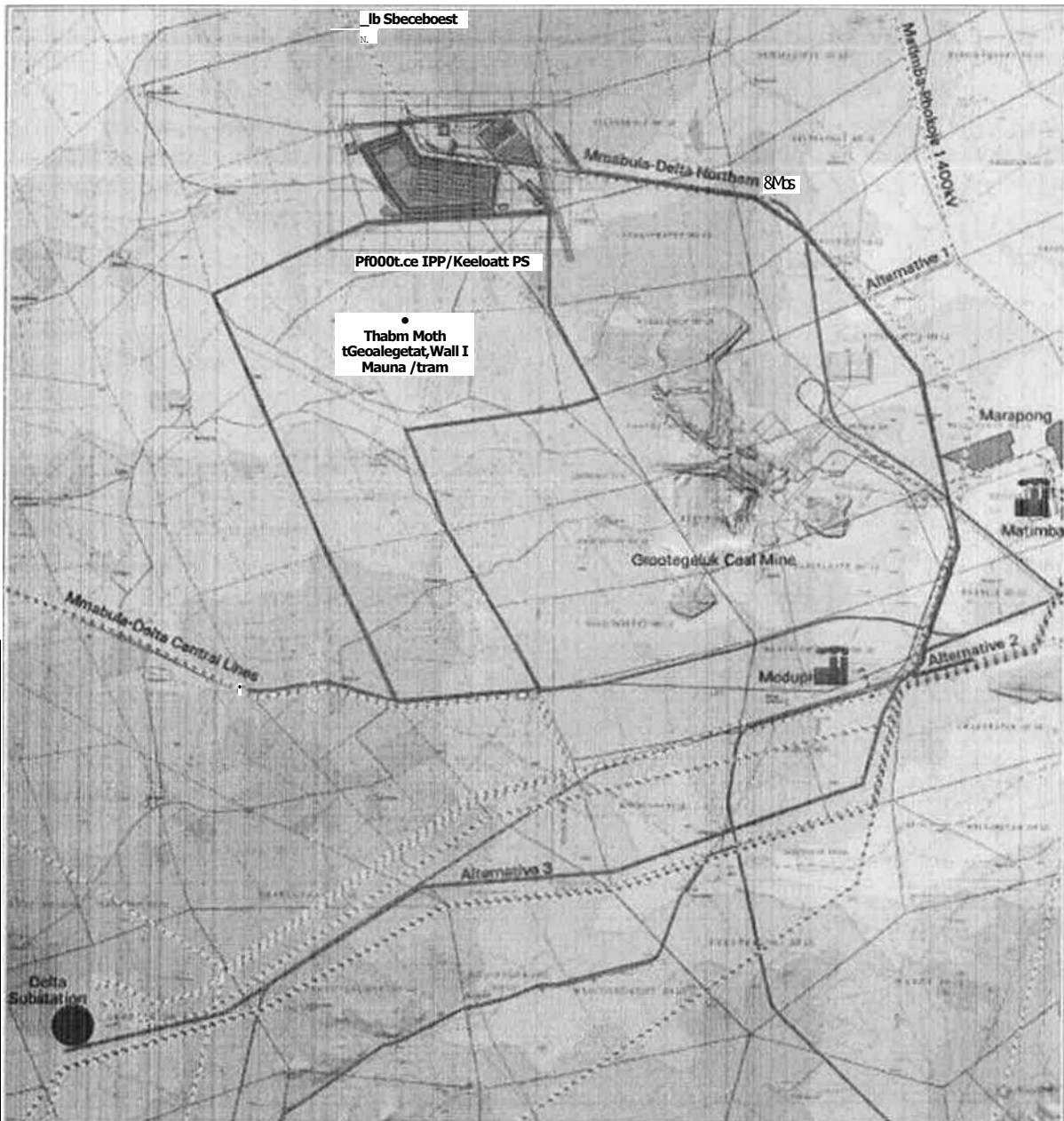
The project was authorized by the National Department of Environmental Affairs (DEA) on 25 February 2015 (in terms of the 2010 NEMA EIA Regulations). Following this, an appeal was lodged on 11 May 2015 by the Centre for Environmental Rights. On 7 March 2016 a decision on the appeal was issued by the Minister of Environmental Affairs. The grounds of the appeal were dismissed, however it was contended that climate change impacts had not been adequately addressed in the EIA. As a result, **Condition 10.5** was subsequently inserted into the Environmental Authorization.

The new **Condition 10.5** states that *"the holder of the authorization must undertake a climate change impact assessment prior to commencement of the project which is to commence no later than six months from the date of signature of the appeal decision. The climate change study must be lodged with the department for review and the recommendations contained therein must be considered by the department"*.

In the Appeal Resolution, the Minister further stated that a paleontological study is required to be conducted for the proposed project. The palaeontological study was conducted in 2014 in terms of the requirements of the South African Heritage Resources Agency (SAHRA). Although this study was submitted to the DEA for review as part of its decision-making process, it did not form part of the EIA report for the project. Notwithstanding this, **Condition 10.6** was subsequently inserted into the Environmental Authorization.

The new **Condition 10.6** states that *"A palaeontological Impact Assessment Report (PIAR) must be prepared and submitted to the Department for consideration prior to commencement of the project and within six months of the date of this decision. The PAIR must be lodged with the Department for review and it must also be lodged with the South African Heritage Resources Agency (SAHRA) for official commenting in terms of Section 38(8) of the National Heritage Resources Act, No 25 of 1999. The PAIR must be based on a field assessment, and be prepared by a suitably qualified palaeontologist."*

The scope of work for the above-mentioned studies was presented in a Scope of Work Report. The purpose of this report was to present the Scope of Work proposed for these two required studies and to provide an opportunity for the public to provide comments in this regard. This report was made available for public review from 20 April 2016 to 23 May 2016 and the final scope of work report was submitted to DEA for consideration and acceptance on 15 July 2016. This final Scope of Work document was subjected to a public review period from 10 October 2016 to 10 November 2016. The Scope of Work report was accepted by the DEA on the 16 January 2017 (refer to **Appendix B**).

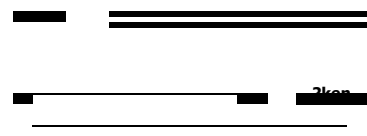


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Thabametsi Power Station near Lephalale, Limpopo Province
Climate Change Study and Palaeontological Impact Assessment

LEGEND 214A010 1181/80²

Secondary Road	Elevation above sea level	
Roadway	ME 700	S20
Power Line	Nal 760	940
Autt10/11•Cd AllmatR414 Dona	800	S430
Poor., t tam	820	980
Rome Thaha Licst MP..oej Arai	840	1000
Subsi at inn		1020
ra4way L trte	IMO	1040
Power Line	900	
Proposed I P jiascomd %war Mahan aver he..ad Pa...er Lau%		
10.º Alternative 2		
Lel Atter/wen 3		



GIS

Figure 1: Locality Map showing the proposed site for the Thabametsi Power Station

This report presents the detailed outcomes of the climate change study, paleontological assessment and resilience report in line with the accepted Scope of Work and additional requirements of the DEA as detailed in their letter dated 16 January 2017. A draft report was made available for public review from 27 January - 27 February 2017. All comments received have been considered and addressed within this Final Report and associated appendices. Changes made in this report from the draft report are underlined for ease of reference.

1.1. Public Review of Final Report

This report is available for public review for a commenting period of 30-days from 30 June 2017 to 31 July 2017.

Please submit your comments to
Gabriele Stein of Savannah Environmental
PO Box 148, Sunninghill, 2157
Tel: 011 656 3237
Fax: 086 684 0547
Email: gabriele@savannahsa.com
The due date for comments on the Environmental Impact Assessment Report is 31 July 2017.

Comments can be made as written submission via fax, post or e-mail.



2. CONTEXT FOR ADDITIONAL STUDIES

2.1. Climate Change Study

The Climate Change Impact Assessment has been undertaken by ERM Southern Africa (Pty) Ltd and is included as Appendix D. CVs of the project team are contained within Appendix A.

This final Climate Change Impact Assessment Report responds to comments made by stakeholders in relation to the draft Report, issued in January 2017. Specifically:

- It applies more accurate calculation methods based on 'Tier 3' technology-specific GHG emission factors as opposed to generic 'Tier 1' emission factors' to assess the projected GHG emissions from the proposed Thabametsi plant and to compare these against the emissions of other coal-fired power plants on the South African grid. The use of 'Tier 3' emission factors will become more widely used in South Africa following the implementation of the National Greenhouse Gas Emission Reporting Regulations, which were gazetted on 3 April 2017.
- It clarifies the contribution made by different GHGs (specifically CO₂, CH₄ and N₂O) to the overall GHG emissions of the proposed Thabametsi plant (in tonnes of CO₂e² 1
- if updates and expands the comparison of GHG emissions from the proposed Thabametsi plant against the GHG emissions of other coal-fired power plants on the South African grid, specifically those plants that are scheduled for retirement in the period before 2030, in an effort to assess the impact of the proposed plant on South African GHG emissions.

2.1.1. Context for the Climate Change study

Greenhouse gas emissions, caused mainly by the combustion of carbon-based fuels ('Fossil Fuels'), are contributing to the global climate change threat. 'Climate change' refers to long term changes in the Earth's climate system, including increased average temperatures, and the knock-on effects on climate and weather systems.

The effects of climate change will impact on ecosystems and communities across the globe. There is an increasing focus at the global, national and local levels on climate change mitigation, for example shifting to renewable energy sources and reducing land-use change in order to reduce greenhouse gas (GHG) emissions, as well as adaptation to the physical impacts of climate change. In 2011, South Africa set out its climate policy in its National Climate Change Response White Paper, which includes a national GHG emissions trajectory range, projected to 2050. South Africa is also a Party to the United Nations Framework Convention on Climate Change ('UNFCCC'), and has committed to reducing GHG emissions in line with the pathway set out in the Climate Change White Paper. In parallel, South Africa's Integrated Resource Plan (IRP) developed by the Department of Energy (DoE) sets out the expansion of power generation capacity required in order to support the country's economic development, and, whilst a large portion of the new capacity will come from renewable energy, the Independent Power Producers (IPP) program gives provision for an additional generation capacity of 2 500 MW from coal-fired power plants.

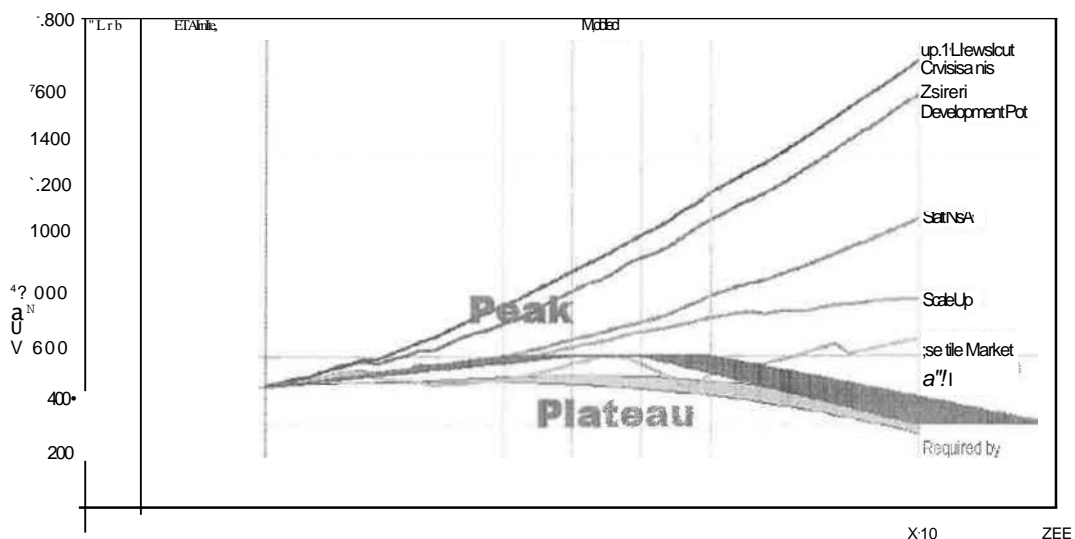
An explanation of the difference between 'Tier 3' and 'Tier 1' emission factors is provided in Section 2.2 of the Climate Change Impact Assessment Report.

² The difference between CO₂ and CO₂e is Provided in Section 2.2 of the Climate Change Impact Assessment Report.

The climate change impact study contained within Appendix D aims to assess the impacts of all project phases (construction, operation and decommissioning) of the IPP Thabametsi Project on the environment through an assessment of the GHG impacts associated with the project. The impact of these GHG emissions (and therefore the impact of the project in terms of contribution to global climate change) is assessed by way of comparing estimated annual operational GHG emissions from the project with South Africa's baseline and projected annual GHG emissions, through reference to GHG magnitude scales for projects from various lender standards, and through the benchmarking of the project's emissions and energy performance against other coal-fired power stations in South Africa and worldwide. In addition, the degree to which the planned project is consistent with South Africa's stated climate change and energy policy is also considered.

2.1.2. Baseline Description and Climate Change Landscape

A number of key national energy and climate change policies and plans are reviewed in the Report, including the Integrated Resource Plan for Electricity ('IRP') 2010-2030 and the National Climate Change Response Policy ('NCCRP'), both published in 2011 in order to assess the extent to which the Project is in line with South African energy and climate policy. The promulgated IRP 2010-2030 (2011) factors in an increase in generating capacity to meet future demand, incorporating provision for new coal-based generation but with an emphasis on low-carbon energy sources including nuclear power and renewables such that South Africa's dependence on coal-based electricity generation is reduced. In line with this, the Independent Power Producers Procurement Program (IPPPP) has the mandate to procure energy from Independent Power Producers (IPP) aligned to the capacity allocated to different electricity generation sources in the IRP, including 2 500 MW from coal. In parallel, South Africa's NCCRP outlines a 'Peak, Plateau and Decline' ('PPD') GHG emissions trajectory whereby South Africa's emissions should peak between 2020 and 2025, plateau for approximately a decade, and then decline in absolute terms thereafter, and based on this the country has pledged to reduce emissions by 34% and 42% below Business As Usual (BAU) emissions in 2020 and 2025, respectively.



550

Declinir

Figure 2.1: South Africa's 'Peak Plateau and Decline' Trajectory

³ Source; Department of Environmental Affairs (DEA)

Context for Additional Studies

The Department of Environmental Affairs (DEA) is responsible for ensuring delivery of South Africa's climate change commitments as laid out in the National Climate Change Response Policy (NCCRP), published in October 2011, and confirmed through South Africa's recent commitments to the United Nations Framework Convention on Climate Change (UNFCCC).

In 2015 the DoE issued briefing notes on the Coal Baseload IPP Programme. The DoE has allocated a maximum of 2 500 MW to be sourced through the Coal Baseload IPP Programme, with the main objective to secure South Africa's baseload energy supply.

The Coal Baseload IPP Programme comprises separate bid 'windows' and the first bid window opened on 2 November 2015. Bidders have been limited to a maximum 600 MW (net capacity) per project submitted (no minimum generation capacity was prescribed). Project bids can be submitted in relation to Single, Multiple, or Cross Border purchasers of capacity or energy generated by a project. New generation capacity under the Coal Baseload IPP Programme is required to be connected to the national grid by no later than December 2021 (IPP Coal, 2016b). The proposed Thabametsi power Project (Phase 1 - 630 MW (Gross)) is an application for development under the Coal Baseload IPP Programme.

Integrated Resource Plan for Electricity 2010-2030 (2011)

In 2011 the DoE promulgated the first iteration of the 2010-2030 Integrated Resource Plan (IRP) for Electricity ('IRP') (DoE, 2011). The IRP 2010-2030 (2011) constitutes a 20 year electricity capacity plan, formulated to guide decision making around electricity policy and the future make up of South Africa's total generation capacity between 2010 and 2030 in terms of the proportion of total electricity to be sourced from coal, nuclear, hydro/pumped storage, imported gas, wind, and solar, including Concentrated Solar Power (CSP) and Photovoltaic (PV). The IRP 2010-2030 (2011), having been promulgated by parliament in 2011 and published as a notice under the Electricity Regulation Act No. 4 of 2006, provides the adopted legal basis for Government's electricity planning. It also aims to provide clarity around the Government's plans for acquisition of least-cost energy resources. The IRP 2010-2030 (2011) factored in GHG emissions more fully than previous plans for the electricity sector, through factoring in the GHG emissions limits specified in South Africa's Long term Mitigation Scenarios (LTMS) 2007 study (see Section 3.2.1), whilst also taking into account the impacts of the 2008 economic recession on electricity demand.

In 2010, 90% of South Africa's energy consumption was generated using coal, 5% using nuclear and 5% using hydro (DoE, 2011). The IRP 2010-2030 (2011) proposed that South Africa would effectively reduce its dependence on coal based electricity generation from 90% to 65% by 2030 and transition to alternative generation options, so that electricity generated using nuclear power would comprise 20% of the total electricity share in 2030, and 14% would be generated from renewables including wind and hydropower (5% each), PV (3%), and CSP (1%). This transition was intended to be supported by a shift in new build options expected to come on stream over the period 2010-2030, with coal expected to make up 29% (including Medupi and Kusile), renewables (including imported hydropower and pumped storage) 40%, nuclear 17%, and gas 4% of the additional 56 539 capacity (net 45 637 MW, including decommissioning of 10 902 MW) planned between 2010 and 2030.

IRP 2010-2030 Update [2013]

The IRP 2010-2030 (2011) was designed to be a 'living document' with a two year review cycle. As such, in November 2013 the DoE issued a draft update of the document, hereafter IRP 2010-2030 (2013), for public comment. The original date set for Cabinet's final approval of the IRP 2010-2030 (2013) was established as

March 2014 (DoE, n.d.). Given the delay in finalising the update, both Eskom and the DEA's 2014 GHG Mitigation Potential Analysis study defer to the data contained in the promulgated IRP 2010-2030 (2011) in the analysis applied to current and future electricity planning.

The draft update of the IRP 2010-2030 (2011) in 2013 followed a prolonged period of depressed economic growth which has a direct correlation to electricity demand in the country. The 2013 update estimated an overall peak generation demand of 6 600 MW less than the first iteration of the IRP and a different contribution from electricity generation technology options.

Table 2.1: Proposed electricity generation mix for 2030 based on the IRP 2010-2030 produced in 2011 and 2013 against 2010 baseline capacity

Energy Technology Option in 2030	2010 Baseline capacity (DoE, 2011) ⁴	IRP 2010-2030 (2011) Generation mix for 2030 in MW (DoE, 2011) ⁵	IRP 2010-2030 (2013) Generation mix for 2030 in MW (DoE, 2013b) ⁶
Existing Coal*	34 435	34 821	36 230
New Coal"	N/A	6 250	2 450
CCGT (Combined Cycle Gas Turbine)	0	2 370	3 550
OCGT (Open Cycle Gas Turbine)	2 400	7 330	7 680
Hydro Imports**	0	4 109	3 000
Hydro Domestic	600	700	690
PS (Pumped Storage) (incl. Imports)	1 400	2 912	2 900
Nuclear	1 860	11 400	6 660
PV (Photo-voltaic)	0	8 400	9 770
CSP (Concentrating Solar Power)	0	1 200	3 300
Wind	0	9 200	4 360
Other	730	890	640
Non-Eskom***	3 260	N/A	N/A
Total Installed Capacity (Eskom)	40 635	N/A	N/A
Total Installed Capacity (Eskom and non-Eskom)	43 895	89 532	81 230

*Existing Coal in 2030 (columns 2 and 3) includes Medupi and Kusile (Eskom power stations currently under construction), which do not play a role in 2010 Baseline Capacity. Existing coal indicated for 2030 in columns two and three therefore takes into account the decommissioning of older power stations

**Including Coal Baseload IPP Programme

***For the 2010 Baseline capacity as per IRP 2010-2030 (2011), imports for Hydro and Pumped Storage are incorporated into non-Eskom installed capacity. Based on detail in the draft updated IRP 2010-2030 (2013), non-Eskom installed capacity as of 2010 includes imported hydro (45%), coal-fired power plants (28%), co-generation (11%), medium-term power purchase program (8%), pumped storage (5%) and diesel temporary plants (3%)

2.2. Climate Resilience Assessment

The Climate Resilience Assessment has been undertaken by ERM Southern Africa (Pty) Ltd and is included as Appendix E. This final Climate Resilience Assessment responds to comments made by stakeholders in relation to the draft Report, issued in January 2017. Specifically, a Water Resources Report has been included as an appendix to this report, and provides a review of the potential impacts of climate change on water resources in the area in respect of the project.

⁴ Table 27- Existing South African Generation Capacity Assumed for IRP

⁵ Table 4- Policy-adjusted IRP Capacity

⁶ Table 2-Technology options arising from IRP 2010 and the Update Base Case in 2030.

2.2.1. Context for the Climate Resilience Assessment

The climate resilience assessment (CRA) aims to highlight the key climate-related risks to the project, taking into account future climate change impacts in the study area. High level risk mitigation ('adaptation') measures are proposed in order to enhance the resilience of the project to current and future climate conditions. The methodology draws on widely used risk assessment methodologies, using likelihood and consequence scales to undertake a qualitative scoring of risks such that they can be prioritised, and applies guidance from different jurisdictions (including the UK and Australia) on using such methodologies in the context of a climate change risk assessment. It is consistent with established international good practice such as the International Finance Corporation's Performance Standards (IFC PS), for considering climate change within the Environmental Impact Assessment (EI/NJ process.

2.2.2. Climate baseline

The climate baseline (i.e. a description of current climate conditions) for the site was developed using climatic data records purchased from the South African Weather Service (SAWS) for Lephalale. The site is located in a semi-arid area in the summer precipitation region of South Africa. Average temperatures range from 15.7°C in winter (June to August) to 26.0°C in summer (December to February), and average daily maximum temperatures in January and February, the hottest months of the year, reach 32.7°C. Extreme high temperatures of 43.6°C have been recorded in the past.

Lephalale is a generally a water-scarce area with annual precipitation levels of 401mm (compared to South African and world averages of 456mm and 860mm per year respectively), the bulk of which falls during the summer months (October through to May), with convectional thunderstorms being common. Very little precipitation occurs between April through to September.

The area is vulnerable to extreme weather events. Flooding has impacted the town of Lephalale in the past, including the Grootegeluk mine (Thabametsi will source its coal from a mine adjacent to the Grootegeluk mine), damaging houses and buildings, infrastructure (including roads) and requiring the evacuation of numerous people. Tropical cyclones (which can bring heavy rains and strong winds) have reached the eastern parts of Limpopo in the past, although Lephalale itself has not been directly affected historically. At the same time, the area is vulnerable to drought, with numerous below-normal rainfall years historically impacting agriculture and causing widespread livestock losses. Wildfires are also common in the region, and have previously impacted communities through the destruction of game land, lodges and houses.

2.2.3. Climate change projections

Downscaled climate change projections for the area were obtained from the University of Cape Town (UCT)'s Climate Systems Analysis Group (CSAG). Climate change projections were obtained for the period 2040-2060 (also referred to as the '2050s') in order to allow overall climate change trends for the site to be identified (this is harder to do using timeframes closer to present), and to align with the timescales used by other climate change studies for South Africa and used to support this study (such studies often use two timeframes for projections: the 2050s and the 2080s). A high greenhouse gas (GHG) emissions scenario was selected, representing a conservative approach and ensuring that the full extent of potential climate change is assessed. Other national climate change studies were reviewed to support the generation of the climate change projections including the *Climate Risk and Vulnerability Handbook* published by the

Council for Scientific and Industrial Research (CSIR), and the Africa chapter of the latest (5th) Intergovernmental Panel on Climate Change (IPCC) Assessment Report.

Whilst noting the various sources of uncertainty inherent in modelling the effect of future climatic changes on the Earth's system and processes, and resulting from natural climate variability in the Earth's system, the climate projections for Lephalale suggest that temperatures are likely to increase by 2 - 3°C by the 2050s relative to a 1961-2000 baseline, that there is likely to be a significant increase in 'hot' and 'very hot' days (days where temperatures exceed 30°C and 35°C, respectively), and that there are likely to be increased heatwave events. Dry spells are projected to increase in duration between March and August (i.e. in autumn and winter), suggesting increased drought risk.

Whilst there is good agreement between different climate models on the projected temperature increases (translating to high confidence in the projected changes), there is significant model disagreement with respect to precipitation projections for the area, with some climate models projecting an increase and others a decrease in seasonal and annual precipitation levels. Projections for changes in wind speeds and the frequency of wind gusts were not available for the area (and the challenges in modelling wind speeds are widely known). Given these uncertainties, both a potential increase and decrease in precipitation levels are considered in the assessment, and potential increase in the frequency and intensity of wind gusts is also considered.

2.3. Palaeontological Impact Assessment

The Palaeontological Impact Assessment has been undertaken by Barry Milstead (refer to Appendix F). A CV of the specialist is contained within Appendix A. This final Palaeontological Impact Assessment responds to comments made by stakeholders in relation to the draft Report, issued in January 2017. Comments received from SAHRA on the draft report are included within Appendix C4.

2.3.1. Context for the Palaeontological Impact Assessment

The possible extent of the project on the palaeontological landscape is restricted to damage, destruction or accidental relocation of fossil materials caused by excavations and construction work. The field-based palaeontological heritage report falls under Sections 35 and 38 (Heritage Resources Management) of the South African Heritage Resources Act (Act No. 25 of 1999).

Both the power line foundations as well as the foundations and excavations for the power station itself could impact on local fossil resources.

2.3.2. Receiving Environment

The land surface underlying almost the entire extent of the power station and the three alternative power line routes is flat and featureless, save for the prominent hill Nelsons Kop. No significant fluvial drainage lines cross-cut the site of the proposed power station, but a small number of ephemeral channels (particularly in the extreme south of the area) cross-cut the routes of the proposed power lines.

The project area is underlain by the strata of several geological sequences that in part constitute the basin fill succession of the Ellisras Basin and the Waterberg Basin (Figure 2.2).

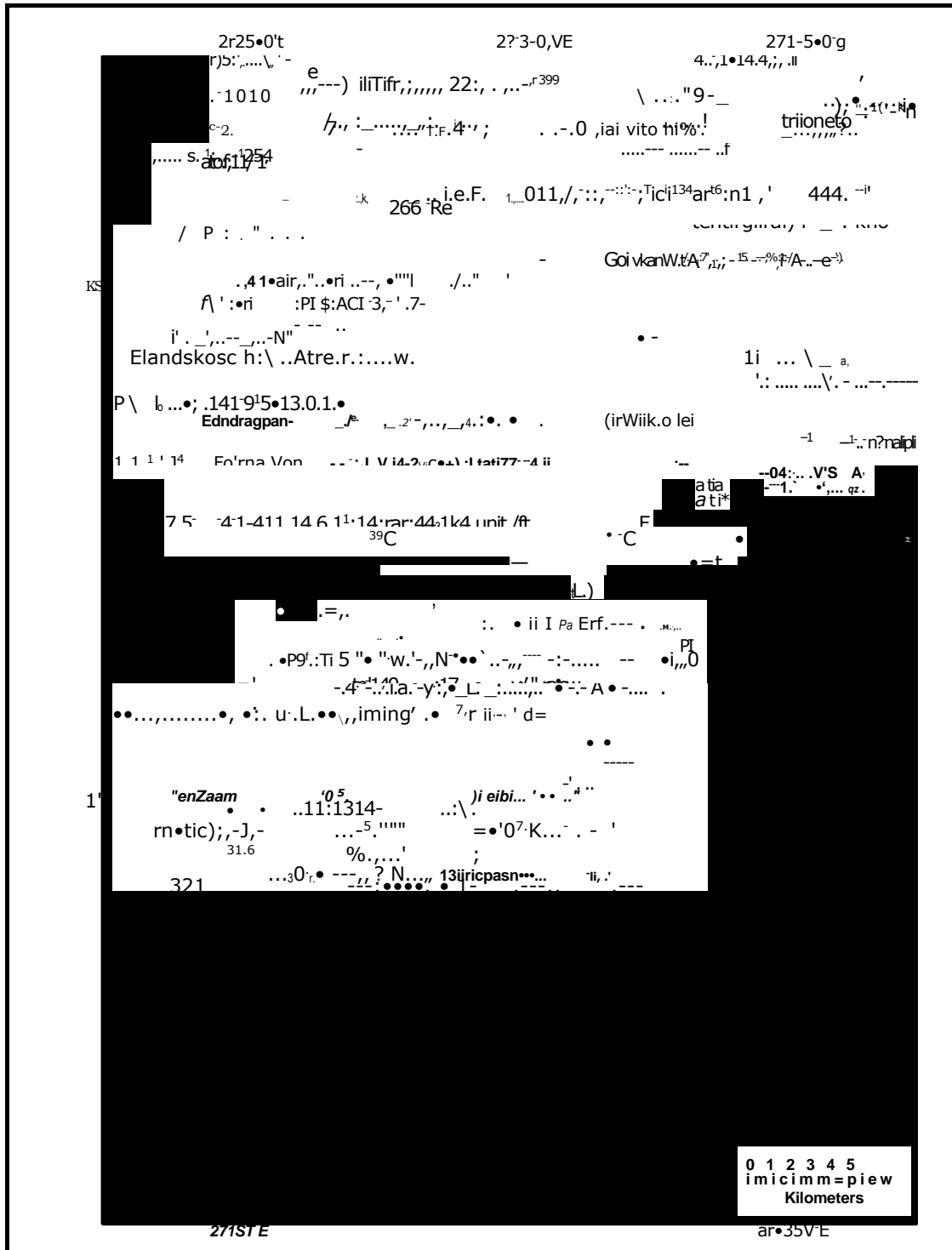


Figure 2.2: Detailed geological map showing the aerial extent of the superficial geological units that underlie the proposed project infrastructure.

The oldest of the bedrock units is found in the southern portions of the project area and consists of Achaean rocks of the Kransberg Subgroup, Waterberg Group. The younger bedrock lithological sequence is found in the northern portions of the study area and is composed of Permian to Jurassic

sedimentary rocks of the Karoo Supergroup and Jurassic lavas of the Letaba Formation. The majority of the land surface is essentially flat lying and is extensively overlain by a regolith composed of coarse-grained, unconsolidated Cenozoic sands. Outcrops of bedrock units are very rare, and the most significant by far is formed by an exposure of the Clarens Formation that forms the isolated hill known as Nelsons Kop.

3. IMPACT ASSESSMENT SUMMARY

This section of the report provides a summary of the findings of the additional specialist studies undertaken for the Thabametsi Power Station. This section must be read together with the detailed specialist reports contained within Appendix D and E.

3.1. Findings of Climate Change Study

Activity Data for the calculation of GHG emissions from the plant's construction and decommissioning was sourced from the decommissioning study prepared by WSP | Parsons Brinckerhoff (2015b), and by way of a GHG data request issued to the Project developer. Data for the calculation of operational emissions was sourced from the 630 MW (Phase 1) Project feasibility study prepared by WSP | Parsons Brinckerhoff (2015a) with the assumption that emissions associated with Phase 2 (570 MW) would be the same as estimated for Phase 1. Using the activity data, the relevant GHG emissions factors were applied in order to estimate total emissions of GHGs, expressed as 'carbon dioxide equivalents' iCO₂e, per year.

In addition to the above, emissions factors have been sourced from the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories and Global warming potentials (GWPs)⁷ are taken from the IPCC's Fourth Assessment Report (AR4, published in 2007), in alignment with South Africa's national GHG inventory for 2000-2010 (DEA, 2014b)⁸. Where specific emissions sources and factors were not available from the IPCC 2006 Guidelines and/or South Africa's 2000-2010 national GHG inventory, other sources were referred to including the UK Department for Business, Energy and Industrial Strategy (BEIS)'s GHG Conversion Factors (UK BEIS, 2016).

Table 3.1 presents a summary of the GHG emissions for the full lifecycle of the Thabametsi power plant including the construction and decommissioning phases, assuming that operating conditions remain the same over the 30 year life-time of the plant and not accounting for any decrease in thermal efficiency over time.

Table 3.1: Thabametsi's GHG emissions over its life-cycle split by activity⁹

Source of emissions	Estimated GHG emissions (tCO ₂ e)		
Construction	261 707		0.088%
Operations	296 385	671 (9 879 522 per year)	99.911%
Decommissioning	3 736		0.001%
TOTAL	296 651 114		100%

GHG emissions from each activity and phase are discussed in the sections below.

A number of different gases contribute to the greenhouse effect. The effect that they have varies according to their relative ability to track and retain radiant energy arriving at the Earth. These differences are reflected in the gases' global warming potentials (GWP) which are a measure of their greenhouse effect 'strength' relative to CO₂.

⁸ Note that the 2000-2010 GHG Inventory for South Africa uses GWPs as published in the IPCC's third assessment report, but notes that future GHG inventories for South Africa will use GWPs from AR4 in line with UNFCCC guidelines.

⁹ It is assumed that the plant will operate at the same load factor annually, despite decrease in thermal efficiency. This will result in a slight decrease in electrical output yearly.

3.1.1. GHG Emission Impacts during Construction

Emissions arising from activities during the construction phase of the project include all those of "Scope 1" and "Scope 2" emissions, and are in line with the IFC's Performance Standard 3 on Resource Efficiency and Pollution Prevention (IFC, 2012). Scope 1 Emissions are those direct GHG emissions from sources owned or under the operational control of the Project, and Scope 2 Emissions are all indirect emissions resulting from the consumption of purchased electricity.

Construction of Phase 1 (630 MW) will take place over an estimated 54 months (4.5 years), including a 6-month lag between individual 315 MW blocks. Since the exact timings for the construction of Phase 2 (570 MW) are not yet known, the final 1 200 MW plant (i.e. Phase 1 and Phase 2) emissions are scaled up by a factor of 1200/630, and in doing so, an assumption is made that the same activities will take place during the construction and decommissioning of Phase 2 as for Phase 1.

A total of **261 707 tonnes of CO₂e** is expected to be released during the construction phase. This amounts to 0.11% of the total overall lifecycle emissions anticipated for the project and is considered Medium-High in terms of the EBRD reporting thresholds. Taking into consideration the multiplex nature of the development, a contribution of <1% can be considered insignificant since 99.98% of GHG emissions for the project is generated during the operation phase.

Figure 3.1 illustrates the split of total (cumulative) Scope 1 & 2 emissions for the construction phase by activity.

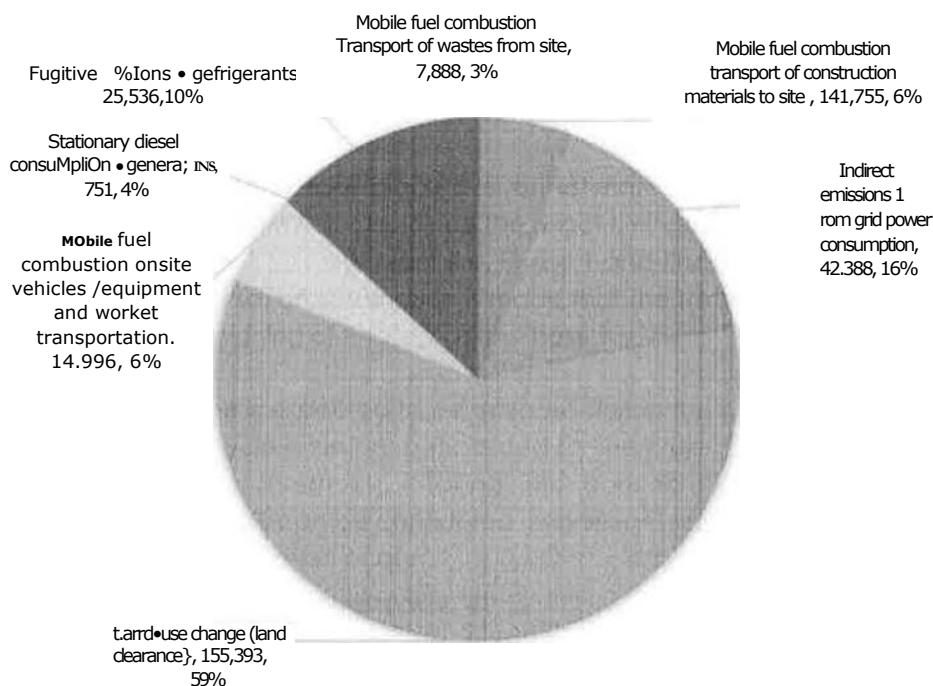


Figure 3.1: Thabametsi 1200 MW power plant construction phase emissions (tCO₂e) split by activity

As shown, land-use change emissions represent the most significant source of emissions during construction (59%), followed by Scope 2 grid electricity emissions (16%), fugitive emissions from the use of refrigerants for

cooling (10%), and mobile fuel combustion emissions associated with the use of construction vehicles and equipment and worker transportation (6%), and the transport of construction materials to the site (6%). Mobile fuel combustion emissions associated with the transport of solid and liquid wastes from the site, and stationary diesel consumption emissions, account for the smallest proportion of construction emissions (3% and 0.3%, respectively).

Scope 3 (indirect / value chain) GHG emissions associated with embedded carbon in construction materials were also calculated, though not presented as part of overall Construction emissions since this focuses on Scope 1 and 2 emissions sources.

Scope 3 emissions from embedded carbon in construction materials, including the total estimated mass of concrete, steel, and PVC pipes required for construction of the 1 200 MW plant, are estimated to be 37 745 tCO_{2e}. This is considered to be Medium-Low in terms of the EBRD GHG Emissions Reporting Categories

3.1.2. GHG Emission during Operation

The plant has an estimated emissions intensity of 1.23 t CO_{2e} / MWh generated based on total estimated annual GHG emissions and total electricity generated and sent to the grid (i.e. excluding plant auxiliary consumption and any losses from transmission and distribution). The total emissions intensity factor for Eskom's coal-fired power plants was calculated based on data published by Eskom for 2010-11 at 1.05 t CO_{2e} / MWh. By 2021-22 when the Thabametsi plant is estimated to come into operation, the emissions intensity specific to Eskom's coal fired Dower plants is projected by ERM, using IPCC Tier 3 emission factors, at approximately 1.05 t CO_{2e} / MWh, including Kusile and Medupi, and accounting for loss in thermal efficiency over time.

It is important to note that all of Eskom's five coal-fired power plants (Camden, Hendrina, Grootvlei Kriel and Komati) which are scheduled by Eskom for decommissioning prior to 2020 have relatively high GHG emission intensities compared to this average intensity factor. The GHG intensity of electricity generated by these five plants is summarised in Table 0.1 below. By 2021/22 it is projected that the proposed Thabametsi plant will have similar emissions intensity to the five power plants (Camden, Hendrina, Grootvlei, Komati, Kriel), if those Dower plants remain in operation until 2021-22. This is a result of the relatively high N2O emissions from the proposed Thabametsi plant, which otherwise has a lower CO₂ emissions intensity than all the five plants scheduled for decommissioning (refer to Table 0.2 and Figure 0.1 of the Climate Change Impact Assessment within Appendix DI.

Table 3.2 summarises the Project's estimated annual GHG emissions during Operations (Phase 1 and 2). Total estimated annual emissions for the first 630 MW Phase of the Project, based on information given in the Feasibility Study (WSP | Parsons Brinckerhoff, 2015) and applying a load factor of 85%, are 5 186 074 t CO_{2e} (5.3 Mt CO_{2e}). Assuming the same technologies, load factor and operating patterns are used for the second 570 MW Phase, annual emissions from the final 1 200 MW plant are estimated to be 9 879 659 t CO_{2e} (9.9 Mt CO_{2e})¹⁰. Assuming the same load factor and operating patterns, and not including any decrease in thermal efficiency over time, total (cumulative) estimated emissions over the 30 year lifetime of the 1 200 MW plant are in the range of 304 Mt CO_{2e}.

¹⁰ Note that there may be an opportunity to use more efficient technologies for Phase 2 which would result in an improved thermal efficiency and reduced emissions intensity. Absolute GHG emissions may decrease if future operations shift to cycling and the Plant is not running continuously, although increased start-ups could have a detrimental impact on plant thermal efficiency and emissions intensity (GHG emissions per MWh generated).

Table 3.2: Estimated emissions intensity of proposed Thabametsi plant vs. Eskom coal-fired power plants scheduled for decommissioning before 2030

Operational activity	Estimated Emissions in Phase 1 (630MW) (t CO ₂ e)	Annual Emissions In Phase 2 (1200MW) (t CO ₂ e)	Data Source, Notes and Assumptions
Coal combustion for power production (emissions)	4184 071	7 969 6,59	Annual coal consumption of 3 901 332 tonnes per .6,2Q MW unit, based on 85% load factor (7 446 hours per annum). Coal carbon content = 29.5% (WSP I Parsons Brinckerhoff, 2015) Coal oxidation factor = 0.9915 (Source: email communications from WSP I Parsons Brinckerhoff)II <u>Converted to GLOP the basis of NCV for Coal of 11.81 MJ/kg ILHV)</u>
Coal combustion (CH ₄ emissions)	1 095	2 085	Applyina plant desian data on CH ₄ emissions ¹²
Coal combustion (11'120 emissions)	885 344	1 686 370	Aoolvina plant design data on N20 emissions¹³ which results in a colculation approximately 6% higher than the calculation usina IPCC tier 3 emissions factor"
In situ desulphurisation (limestone)	109 450	208 477	Annual limestone consumption of 255 547 tonnes per 600 MW unit, based on 85% load factor. CaCO ₃ content of limestone: 93.5% by weight (WSP I Parsons Brinckerhoff, 2015) Assumes 99.15% of limestone is used in the desulphurisation process (producing CO ₂) (Source: email communications from WSP I Parsons Brinckerhoff) ¹⁵
Light diesel oil consumption for cold start-ups	5 154	9 817	12 tonnes light diesel oil per 150 MW boiler. 8 hours fora cold start-up. and 4 cold start-ups per year (1 Parsons Brinckernoff, 2015) WSP
Diesel consumption in back-up generators	6	12	Based on an expected consumption of 550 litres / hour during full load test for 1 hour in Phase 1. Assumes 4 tests per yearlo
Refrigerant consumption (cooling)	1 624	3 094	Assumes one refrigerant system refill per year. requiring 921 kg refrigerants in Phase 1 Assumes an equal split of R407c, R410a and R134a refrigerant gases are used"
Lubricant and grease consumption	4	8	Based on estimated lubricant and grease consumption of 7 030 litres / year and 405 kg per year (respectively) in Phase 1 ¹⁸
TOTAL ANNUAL EMISSIONS (t CO₂e)	5 186 749	9 879 522	Assumes the technical specifications outlined in the hal MW Feasibility Study apply to the second 52_Q NOV unit (Phase 2) <u>Not taking into account any thermal efficiency losses over that period.</u>

Figure 3.2 illustrates total operational emissions split by activity.

¹¹ Email correspondence to ERM from WSP I Parsons Brinckerhoff, 20th May 2016

¹² Email correspondence to ERM from Marubeni, 7th April 2017

¹³ Email correspondence to ERM from Marubeni, 7th April 2017

¹⁴ IPCC, 2006a

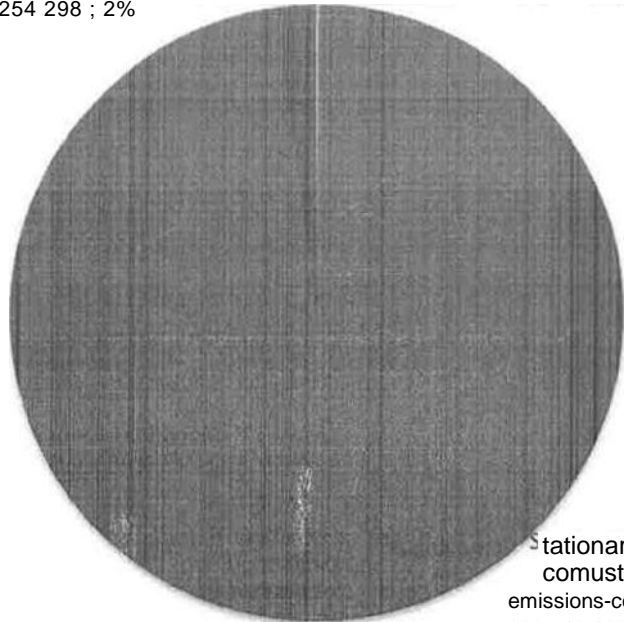
¹⁵ Email correspondence to ERM from WSP I Parsons Brinckerhoff, 25th May 2016

¹⁶ Email correspondence to ERM from Marubeni, 28C Oct 2016

¹⁷ Ibid.

¹⁸ Ibid.

Diesel emissions (generators); 358 ;0%
 Process emissions (desuiphurisation using limestone); 6 254 298 ; 2%
 Non-energy product emissions (Lubricant & grease use); 252 ; 0%
 Fugitive emissions - refrigerant consumption for cooling; 92 822 ; 0%
 Stationary combustion emissions- light diesel oil for start-ups; 294 523 ; 0%



Stationary combustion emissions-coal ; 289 743 418 ; 98%

,251

Thabametsi Power Station near Lephalale, Limpopo Province
 Climate Change Study and Palaeontological Impact Assessment

Figure 3.2: Thabametsi 1200 MW power plant operational phase emissions (tCO₂e) split by activity

Table 3.3 illustrates the thermal efficiency of the plant, and the emissions intensity of grid electricity generated (using annual estimated emissions above and annual estimated generated electricity in MWh). These metrics are used to inform the benchmarking in Section 4.2.2 (Impact Assessment chapter of the climate change study). The metrics are given for the final 1 200 MW plant on the basis of the Feasibility Study data for the first 630 MW phase; as such the metrics (thermal efficiency and emissions intensity) are assumed to be the same for the 600 MW (Phase 1) and 1 200 MW (Phase 2) plant.

Table 3.3: Thabametsi Coal Fired Power Plant GHG emissions intensity and thermal efficiency

Thabametsi 1200 MW project Source, Notes and Assumptions		Data
Total annual electricity generation (MWh)	8 037 689	Estimated total annual GHG emissions from the plant (calculations in Table 3.2). <u>Noi_includina_onv_thetmat_efficiency_losses_aver_time.</u> Plant net power (539.732 MW per 600 MW unit) * 2 units * 7 446 (annual operating hours, applying 85% load factor). Total annual emissions divided by total annual electricity output. Thermal efficiency = 36.25% (LHV); 34.07% (HHV) (Source: EPC data as communicated by Marubeni)I9 20
Electricity emissions intensity (t CO ₂ e MWh, or kg CO ₂ e f kWh)	1_23	
Thermal efficiency	36.25%	

Email correspondence to ERM from Marubeni, 9th June 2016

²⁰ Note that the thermal efficiency values stated are based on the latest available technical data for Phase 1 operations (630 MW).



Based on South Africa's current and future projected national GHG emissions, the project's GHG emissions are expected to comprise 1.7 — 2.5% of South Africa's national emissions in 2021, rising to 2.3 — 4.7% in 2050. The magnitude of the project's emissions (9.879 million t CO₂e per year) is Very Large based on a GHG magnitude scale drawing from various international lender organisation standards including standards set by the International Finance Corporation (IFC), European Bank for Reconstruction and Development (EBRD) and Equator Principles (EP).

3.1.3. GHG Emission Impacts during Decommissioning

Figure 3.3 illustrates the split of total Scope 1 and 2 emissions for the decommissioning phase by activity. As shown, the most significant emissions source is from electricity consumption (3 031 tCO₂e, 81% of decommissioning emissions), followed by mobile combustion emissions from fuel used in vehicles / mobile equipment (672 tCO₂e, 18% of decommissioning emissions). The remaining 1% of emissions is associated with the use of diesel generators for back-up power production. Although there are positive emissions impacts associated with returning the site to 'greenfield status', they have not been included due to challenges in making necessary reasonable assumptions and estimations. For the same reason, emissions associated with transporting materials for reuse or recycling elsewhere have not been included. Overall, decommissioning contributes 3 736 tCO₂e (0.002%) to overall lifecycle emissions, this is considered Negligible in terms of the IFC, EBRD and EP reporting standards.

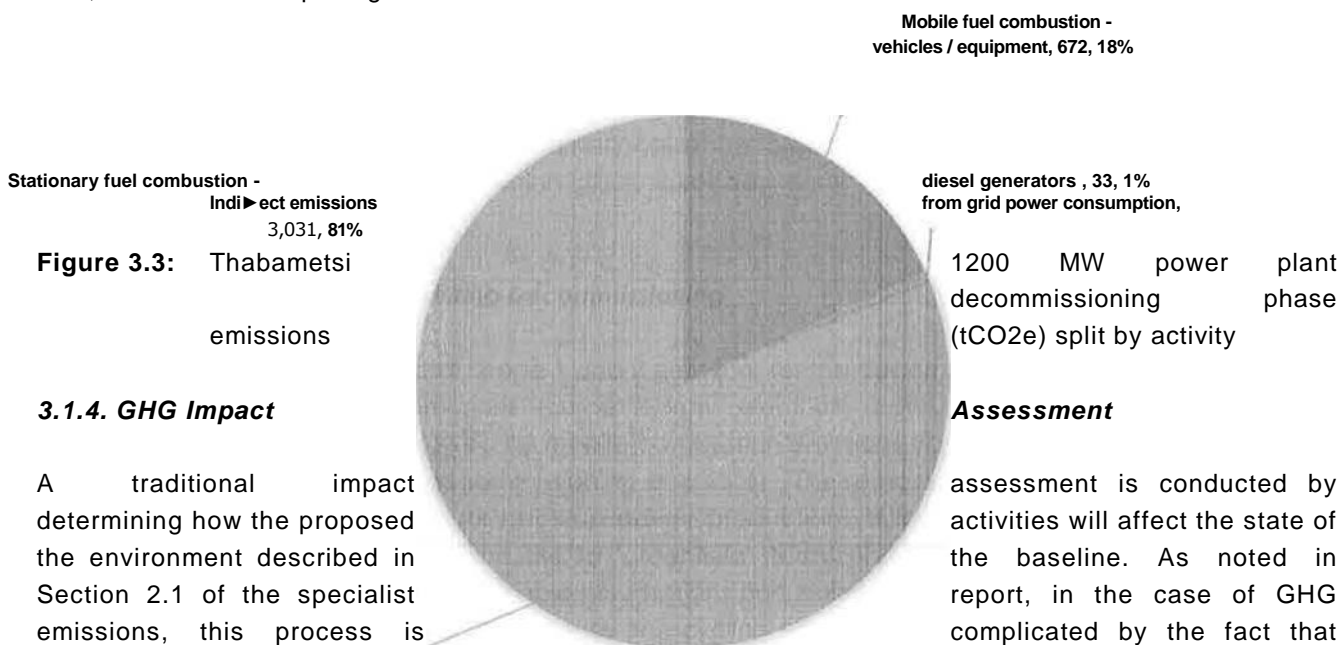


Figure 3.3: Thabametsi emissions

3.1.4. GHG Impact

A traditional impact determining how the proposed the environment described in Section 2.1 of the specialist emissions, this process is the impact of GHGs on the quantified within a defined space and time. The greenhouse effect occurs on a global basis and the point source of emissions is irrelevant when considering the future impact on the

Assessment
assessment is conducted by activities will affect the state of the baseline. As noted in report, in the case of GHG complicated by the fact that environment cannot be

climate. CO₂ has a residence time in the atmosphere of approximately 100 years by which time emissions from a single point source have merged with other anthropogenic and natural (e.g. volcanic) greenhouse gas emissions. Therefore it is not possible to link emissions from a single source - such as the Thabametsi Project - to particular impacts in the broader study area.

Considering the above, the impact assessment for the Project's GHG emissions is based on an assessment of the magnitude of estimated annual GHG emissions during operations (accounting for >99.9% of Scope 1 and 2 emissions across the construction, operations and decommissioning stages) and the Project's contribution to global climate change for the Full Project Lifecycle. As South Africa has not specifically defined thresholds to understand GHG emissions impact or magnitude within its Environmental Impact Assessment or National Environmental Management Act legislation, this assessment of magnitude (i.e. the scale of GHG emissions from the Project) is based on a GHG magnitude rating scale developed from international lender standards including IFC, EBRD, and EP. The magnitude of the Project's emissions relative to South Africa's current and future projected GHG emissions is also presented, but owing to the significant limitations associated with using national GHG emissions as a way to understand the magnitude of a project's emissions, this comparison is not used to inform significance.

The GHG impact significance rating for the plant is based on the magnitude of GHG emissions. This differs to a traditional ESIA study where significance is based on a combination of the magnitude and likelihood of an impact. This is because likelihood is irrelevant in the context of GHG emissions given that increased levels of GHG emissions will result from the project, and Given the body of scientific evidence linking GHG emissions to global climate change impacts.

The above analysis highlights the following with respect to the magnitude of the Project's GHG emissions, estimated to be 5 186 749 t CO₂e annually during operations on completion of Phase 1, and 9 879 522 t CO₂e annually on the completion of Phase 2:

Using benchmarks from international lender standards with respect to the magnitude of annual emissions from a development, and considering the highest rating ('Very Large') applies to projects emitting >1 000 000 t CO₂e per annum, the magnitude of this Project's GHG emissions is considered to be 'Very Large'.

Based on the above analysis, the magnitude of the Project's GHG emissions is considered to be Very Large. Relating this to the impact significance scale being used for the project, this translates to an overall significance rating of High (Negative). As noted previously, in the absence of abatement technologies such as CCS, most coal-based Dower plants will fall into this category by nature of their high GHG emissions, including Eskom's Kusile and Medupi plants currently under construction.

Whilst 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 coal power plants, and the key objectives of the Coal Baseload IPP Programme in terms of providing a rationale for the development of this Project as described above.

3.1.5. Emissions Management Measures

The vast majority (>99.9%) of total emissions during the construction, operation and decommissioning of the plant are attributed to emissions from the operation of the plant. The 1 200 MW Project's annual GHG emissions are estimated to be 9 879 522 t CO₂e during operations assuming a baseload supply scenario. As noted previously, the emissions are 'Very High' when benchmarking against a project-wide emissions magnitude scale based on various international lender standards, as is expected for a coal-fired power plant. The emissions intensity (t CO₂e per MWh) is also relatively high when benchmarked against other power plants. As such, measures should be implemented to monitor and manage energy consumption (thermal efficiency) and GHG emissions during operations. Specific emissions management measures are presented in this section.

There are a number of key technologies that can be employed in order to reduce GHG emissions and improve efficiencies for coal-fired power plants. The most significant improvements are influenced by the design of the plant, **and in terms of the steam conditions. These are discussed in detail in Section 5 of the Climate Change Impact Assessment contained within Appendix D, and include:**

- >> **Emissions management through optimisation of plant thermal efficiency in order to reduce the coal consumption and therefore GHG emissions per unit of electricity (i.e. kWh or MWh) generated.**
- >> **Managing changes to operating philosophy, considering any potential implications with respect to plant performance, thermal efficiency and the GHG intensity of electricity production.**
- >> Development and implementation of a GHG management plan.
- >> Abatement of N₂O emissions

It 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. The key constraints are:

Coal quality: CFB plants are better suited to low quality (low calorific value (CV)) coal, relevant to the Thabametsi plant which will be using coal with a relatively low CV of 11.81 MJ / kg (LHV). Whilst CFB technologies offer some advantages including reduced emissions of nitrous oxides (NO_x) and sulphur dioxide (SO₂), and water use reduction through the use of in-situ SO₂ mitigation (rather than 'wet' FGD units), the use of SC and USC steam conditions in CFB plants is currently limited compared to PCC plants, **and it is therefore not possible to benefit from the enhanced efficiencies offered by these technologies. The specified tariff under the IPPPP will have contributed the choice of the CFB technology which is more cost-effective, given the availability of low quality coal.**

Boiler and steam unit size: The Coal Baseload IPP Programme calls for projects with a maximum 600 MW 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 efficiency:

- (Noting the above constraints associated with the use of supercritical steam in CFB plants): 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 (WSP | Parsons Brinckerhoff, 2015); and
- 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. Single reheat configurations can be used for units of 150 MW or greater. This

plant will use single reheat steam turbine configurations in order to achieve the greatest increase efficiency possible considering size constraints.

>> **Availability of water:** Water is a scarce resource in South Africa, including in the Lephalale municipality of Limpopo Province where the plant is sited. This has the following technology selection implications:

- CFB technologies are preferable from a water perspective since 'in situ' SO_x control, achieved through the injection of limestone into the boiler, avoids the need for dedicated 'wet' (water intensive) flue gas desulphurisation units that would be required for a pulverised coal boiler; and
- Dry air cooled condensers are selected for the plant since these use 6 to 10 times less water than 'wet cooled' plants. However, air cooled condensers generally require more power than other systems in order to drive the fans which gives the plant a greater auxiliary load and has a negative impact on plant thermal efficiency.

>> **Proven Technology: The configuration and technology to be used by bidders under the Coal Baseload IPP Procurement Programme in respect of the power generation equipment must be based on thermal steam units and the boiler shall be of the pulverised Coal or fluidised bed type, both of which should conform to the proven design and technology requirements in the technical qualification criteria of the RFP²¹.**

3.1.6. Conclusions

The operation of the 1 200 MW Thabametsi Power Station under the South African DoE's Cool Baseload IPP Programme will result in significant GHG emissions, projected to be 9.879 million t CO₂e per year²². The emissions are of a similar but slightly lower magnitude per kWh generated than those from the Eskom coal-fired power plants which are scheduled to be decommissioned around the time of the Thabametsi plant's entry into service.

The choice of technology and specifications for this Project were informed by the technical requirements of the DoE as set out in the bid criteria under the Coal Baseload IPP Procurement Programme established under the IRP 2010, including the requirements for proven technology and tariff cap of ZAR0.82/KWh.

3.2. Findings of Climate Resilience Assessment

Potential climate-related risks were identified through the assessment of the interaction between the climate baseline and future climate scenarios, and the project's operations. The aspects of the project considered **when identifying project-related climate change risks included the power plant and ancillary infrastructure** (e.g. pollution control dam, water treatment plants, access roads etc.), raw materials handling (i.e. coal, limestone, fuel oil, and water), transmission lines, staff and local communities, all of which have the potential to affect the performance of the plant.

²¹ Technical Qualification Criterion 4 : Proven Design and Technology Requirements) of Volume 3 (Technical Requirements) Part 1 (Technical Qualification Criteria) of Part B (Functional and Qualification Criteria Requirements of the Coal Baseload IPP Procurement Programme RFP.

²² In line with international good practice, such as that advocated by the IFC Performance Standards, this report does not attempt, nor is it appropriate, to try to calculate the climate change impacts in the broader study area that will be due specifically to emissions from a single source, such as the Thabametsi Power Station. In line with international good practice, this report calculates the projected GHG emissions from the project, across its lifetime. It compares those emissions against appropriate comparators and reference benchmarks in South Africa and globally, and considers their relevance in the context of South Africa's national GHG emissions and policy

Twelve (12) climate-related project risks were identified, and each potential climate-related risk was further explored through a detailed review of project documents, a desktop review of climate change impacts to the power sector, and through engagement with project engineers. Subsequently, risks were scored using a high level, qualitative scoring system based on the likelihood of the impact occurring, and the consequence to the project, should the impact occur.

The following risk categories are assigned using the risk assessment matrix presented in Table 3.2 (Australian DEH, 2006):

- Low (1-4)** - Risks that should be monitored over time, with existing controls sufficient unless the level of risk increases.
- Medium (5-10)** - Risks that can be accepted as part of routine operations, but that require ownership / management by relevant staff, and continual monitoring and reporting.
- High (11-19)** - The most severe risks that can be accepted as part of routine operations without executive sanction. Requires continual monitoring and reporting.
- Extreme (20 +)** - Critical risks demanding urgent attention from senior management / executives.

Table 3.2: Risk assessment matrix

		CONSEQUENCES				
		insignificant	Minor 1	Moderate 2	Major 3	Catastrophic 4
LIKELIHOOD	Almost Certain 5	Very Low (1)	Low (2)	Medium (3)	High (4)	Very High (5)
	Likely 4	Low (3)	Medium (4)	High (5)	Very High (6)	Extreme (7)
	Possible 3	Low (2)	Medium (3)	High (4)	Very High (5)	Extreme (6)
	Unlikely 2	Low (1)	Medium (2)	High (3)	Very High (4)	Extreme (5)
	Rare 1	Low (1)	Medium (2)	High (3)	Very High (4)	Extreme (5)

This risk scoring exercise was done for the below risks / impacts considering baseline (current) climate conditions, and future (projected) climate conditions in the 2050s.

Table 3.3: Results from the risk assessment

Risk	Present climate conditions		Risk (1°C)	Future climate scenario (2040-2060)		Risk (VC)	Notes
	impact (I) Likelihood of Consequence	of impact (C) Likelihood of Consequence		likelihood of impact (I)	Consequence of impact (C)		
							Consequence type: Financial Present: Reference site conditions of 24°C are used in the Feasibility Study and assumed to be based on recent climate. Unusually high temperatures / heatwave events have occurred in recent years, but financial impacts tied to reduction in plant output and hence revenue are understood to be already integrated into the projected plant availability. Future: Significant increases in temperatures (average and maximum) are likely across the year which will impact on the project's output. Considering the inability to exactly match the baseline periods and projections, it is impossible to confirm what the exact daily temperature changes would be in the future and hence to adjust for it, however as part of their planning the project has accounted for some variability in output. Hence the financial impact of this is expected to be minor.
	High temperatures result in reduced thermal efficiency	3		4	2		
2o	High temperatures and heatwave conditions pose a health risk to the workforce	3			2	8	Consequence type: Safety Present: Isolated cases of extreme high temperatures with the potential to cause discomfort / heat stress amongst workforce Future: Increased cases of extreme high temperatures / heatwaves with the potential to cause discomfort / heat stress amongst workforce
2b	High temperatures and heatwave events result in spontaneous combustion at the coal stockpiles	3	3	3	1		Consequence type: Safety, Financial, Environmental Present: Risk of spontaneous combustion exists but fire detection & suppression equipment will be in place to deal with any events. Impact is likely to be limited to smoke generation Future: Increased risk of spontaneous combustion with higher temperatures, though not becoming 'likely'. Impact still likely to be limited to smoke generation on account of fire detection and suppression systems in place

Risk	Present climate conditions Consequence impact (L)	Likelihood of Risk of impact (C)		Future climate scenario (2040-2060) Likelihood of Consequence impact (L) of impact (C)		Risk(LC)	Notes	
2c	Wildfires in the wider area disrupt access to the site and damage utilities infrastructure	2				6	<p>Consequence type: Financial (Operational Disruption) Present: Wilfire events are known to occur in the area, though impacts to plant-related infrotructure ore likely to be minor Future: Wildfires likely to occur with increasing frequency, though consequences are thought to remain minor</p> <p>Consequence type: Financial; Reputational (failure to deliver power) Present (considering Phase 1 Thabometsi, 630 MW): The INACWAP-1 will run at a high risk until MCWAP-2 comes on-stream to enable all water requirements to be met (DWS, 2017). The allocations for different water users ore determined via water use agreements between approved users and DWS. The project's water will be ceded from Exxoro's existing MCWAP-1 allocations and are expected to be provided in fine with the existing water use agreement. Future (considering Phase 1 & 2, 1200 MW): Uncertainties exist in relation to whether the surplus in the Crocodile River catchment will be able to meet demand in Lephalale, and the timings in relation to completion of MCWAP-2. Climate change impacts pose further uncertainty in relation to the ability of MCWAP-2 to meet demands.</p>	
3a	Lower than normal precipitation levels and increased drought result in water shortoges •	3	4	12	4	4	16	<p>Consequence type: Financial (cost of additional water treatment) Present: (considering Phase 1 Thabametsi, 630 MW): Water from Mokolo Dam is of a relotively good quality and will be treated by the plant to the required standards Future (considering Phase 1 & 2, 1200 MW): Water quality is lower in the Crocodile River catchment. Much of the water transferred by MCWAP-2 will be run-off effluent from industrial users. Climate change impacts</p>
3b	Lower than normal precipitation levels and increased drought create water quality issues	2	3	6	4	3	12	

11%)

Risk	Present climate conditions			Future climate scenario (2040-2060)			Notes
	Likelihood of impact (L)	Consequence of impact (C)	Risk (L-C)	Likelihood of impact (L)	Consequence of impact (C)	Risk (L-C)	
4	High wind speeds / wind gusts damage infrastructure	2	2		2	6	<p>are likely to exacerbate existing water quality issues and additional water treatment may be required Consequence type: Financial (asset damage / operational disruption); Safety Present: Detailed wind data is not available; however, likelihood of high winds damaging infrastructure is considered Unlikely on account of relatively low windspeeds in the area. Consequence is assumed to be Minor on the basis that repairs can be made relatively quickly Future: Conservative assumption that wind gusts increase in the area with climate change such that Likelihood increases to Possible. Consequences are assumed to remain Minor. Note: <i>Site-level wind speed data should be assessed with respect to structural design criteria (e.g. wind gust Thresholds) to confirm likelihood & consequence ratings</i> Consequence type: Financial (asset damage / operational disruption); Safety Present: The area is vulnerable to flooding. The likelihood of the site itself flooding is deemed to be low (unlikely) as the area will be raised 200mm above surrounding elevation, and topography maps suggest natural drainage away from the site Future: Conservative assumption is made that precipitation intensify increases with climate change, causing flooding events of increased frequency / severity. In this scenario, in-built protection (e.g. site elevation) may not be sufficient to prevent flooding Note: <i>A site-specific flood risk assessment is required to confirm likelihood & consequence ratings</i> Consequence type: Environmental; Financial: Safety Present: The area is vulnerable to flooding. Current design plans for the cod stockpile run-off pond allow</p>
5 a	Flood events affect the site causing equipment damage / operational disruption	2	3	6	3	3	9
5b	Flood events affect the site causing polluted water overflows	3	3	9	4	3	12

Risk	Present climate conditions		Risk (1"C)	Future climate scenario (2040-2060)		Notes	
	Likelihood of impact (L)	Consequence of impact (C)		Likelihood of impact (L)	Consequence of impact (C)		
5 c	4	2	8	4	2	8	<p>for a 1:50 year flood event, based on historical rainfall intensities. Recent flooding at Grootegeluk mine illustrates the potential for 1:50 flood events to occur. Details of flood design parameters for ash dump run-off drains and pond ore not yet available</p> <p>Future: Future climate scenario assumes precipitation intensity increases, causing flooding events of increased frequency / severity. In the absence of a detailed flood risk assessment, consequence is assumed to be Moderate.</p> <p>Note: A site-specific flood <i>risk</i> assessment is <i>required to</i> confirm likelihood & consequence <i>ratings</i></p> <p>Consequence type: Financial (e.g. if delays in supplies / staff reaching site) / Safety</p> <p>Present: The area is vulnerable to flooding and infrastructure (including access roads to the site) have been damaged in the past. The consequences are assumed to be minor on the basis that alternative access routes are likely to be available and no significant accidents occur</p> <p>Future: Future climate scenario assumes precipitation intensity increases, causing flooding events of increased frequency / severity. In this scenario disruption to key access roads could become more frequent (though remaining in the 'Likely' category). Consequences remain minor, assuming alternative access routes are available and no significant accidents occur</p> <p>Consequence type: Financial (e.g. increased water costs for dust suppression) / Safety / Reputational (if communities are affected)</p> <p>Present: Dust suppression systems will be in place in order to minimise dust generated and are likely to be able to control dust generation in the event of a dry spell</p>
6 a	2	2	4	3	2	6	

Risk	impact (1)	Present climate conditions			Future climate scenario (2040-2060)			Notes
		Likelihood	Consequence	Risk (L * C)	Likelihood	Consequence	Risk (1.*C)	
6b	Dry spells / drought events affect communities and threatens social license to operate	3	2	6	4	3	12	Future: More frequent and prolonged dry spells / droughts increase dust generation at the site. Consequence is considered to be Minor and relates to increased water requirements / costs for dust suppression Consequence type: Reputational / Financial (e.g. if operations are disrupted) Present: Concerns already exist amongst communities in relation to increasing water allocations to industry / new power plants (e.g. Medupi), with minor reputational impacts of present Future: More frequent and prolonged dry spells / droughts are likely to increasingly affect communities, particularly those dependent on rivers or groundwater (e.g. rural villages and farms) but potentially also municipalities who may struggle with falling dam levels. Consequences may include widespread protests / reputational impacts as the power plants in the area are perceived to be taking water 'from' communities

• Note that risks relating to water shortages and water quality issues are influenced by multiple factors, one of which is climate change. Climate-related risks to water supplies cannot be considered in isolation, and therefore the likelihood and consequences of water shortages (3a) and water quality issues (3b) as scored here reflect the various risk drivers as discussed previously. In the case of water shortages, this includes the risk of surplus water in the Crocodile River catchment failing to meet demand and risk of slower than anticipated progress with the construction of MCWAP-2 and/or subsequent infrastructure issues. In the case of water quality issues, this includes risk of increasing pollution in the Crocodile River catchment which could result from poor land-use practices and poor enforcement of WUL conditions in relation to discharges.

There are three risks where residual risk remains 'High' following the implementation of adaptation measures. The risk of plant efficiency losses due to increasing temperatures remains high because there are limited options to manage or prevent these efficiency losses. Additionally, the risks relating to water shortages and water quality issues remain high. This is because these risks are affected by numerous drivers, a number of which the plant has limited influence over. The plant will rely on the successful implementation of the water reconciliation schemes driven by the relevant WMAs and Catchment Management Agencies (CMAs) to ensure adequacy of water supplies in Lephalale in the future, and whilst measures can be implemented to minimise the plant's impact with regard to water resources, the plant is likely to have more limited control and influence over the broader water planning context.

Two risks are ranked as 'Medium' following the implementation of adaptation measures. These include the risk of flood events affecting the wider area and causing reduced accessibility to the site, and the risk of increasing dry spells and drought conditions affecting the plant's social license to operate. Again, in these cases there are actions that the plant can take to reduce risks, but likely only to a certain extent. In the case of floods affecting the wider area, the plant is reliant on the existing roads and transport routes in the area in terms of being able to make use of alternative access routes. In the case of community concerns around industrial users' water consumption in the area in the context of increasing future water stress, the plant can implement actions to improve community relations and address concerns, but this may not be sufficient to address more widespread concerns in relation to water shortages, should the area come under pressure due to lower dam levels and/or delays or issues encountered with the implementation of the water transfer scheme into the area (MCWAP-2).

It is considered that the remaining risks could be reduced to 'Low' following the successful implementation of the recommended adaptation measures.

3.2.1. Conclusions

It is important to note that the risk assessment conducted as part of this study is a qualitative risk assessment, based on high level categories or definition of likelihood and consequence. This is on account of the uncertainty in relation to assigning specific likelihoods and consequences or impact descriptions as the project is not yet in existence (i.e. there is a lack of historical precedent) and has not yet entered detailed design phase, and also due to the uncertainties in the climate scenarios themselves [i.e. uncertainties in projecting future emissions of GHGs and modelling future climatic change, inherent uncertainty due to natural internal variability in the climate system, and potential data uncertainty with respect to historical climate conditions and extreme weather events]. It is recommended that the findings from the CRA are further investigated as the project progresses into more detailed design stages and that the risk assessment and risk register is continually revisited, updated and refined over time. Procedures (integrating with project-level risk management) should be put in place in order to track risks over time and a register of adaptation actions (relating to monitoring, management measures, and technical adaptation measures and projects) should be developed and maintained. This process should be integrated into plant-level risk management procedures and risk registers that cover broader business/project risk (e.g. political, economic, social etc.). Finally, it will be important for someone or a team of individuals to have ownership of both the climate risk assessment process, and associated risk (and mitigation project) registers.

3.3. Findings of the Palaeontological Impact Assessment

The construction of the power transmission line will involve the establishment of regularly spaced pylons. It is anticipated, herein, that the pylons will have foundations that will require excavation of the land surface down to bedrock where they will affect the upper 1-2 m of the bed rock. The servitude road that will accompany the power line will be a twin spoor track that will only affect the immediate land surface and, as such, will only affect the Cenozoic regolith in almost all areas. The depth of any excavations required to construct the power station are unknown at this stage, but for the purposes of this report it is assumed that they may be up to 10 m deep; in this event the power station construction will directly impact upon both the regolith cover and the underlying bed rock. The infrastructure associated with the power plant (e.g., roads, car parks and out buildings) are expected to only impact upon the upper 1-2 m of the land surface. Thus, they will be expected to only impact upon the regolith cover in most areas.

The potential negative impacts of the proposed project on the palaeontological heritage of the area are:

Damage or destruction of fossil materials during the construction of project infrastructural elements to a maximum depth of those excavations. Many fossil taxa (particularly vertebrate taxa) are known from only a single fossil and, thus, any fossil material is potentially highly significant. Accordingly, the loss or damage to any single fossil can be potentially significant to the understanding of the fossil heritage of South Africa and to the understanding of the evolution of life on Earth in general. Where fossil material is present and will be directly affected by the building or construction of the projects infrastructural elements the result will potentially be the irreversible damage or destruction of the fossil(s).

- >> Movement of fossil materials during the construction phase, such that they are no longer in situ when discovered. The fact that the fossils are not in situ would either significantly reduce or completely destroy their scientific significance.
- >> The loss of access for scientific study to any fossil materials present beneath infrastructural elements for the life span of the existence of those constructions and facilities.

The construction of the power plant will affect the will definitely affect the Cenozoic regolith, with a reduced possibility of any effects occurring to the strata of the Karoo Supergroup. The associated infrastructure and out buildings are expected to have relatively shallow impacts (i.e., < 1-2 m) and should mostly affect the Cenozoic regolith. The power line pylons will impact upon the Cenozoic regolith as well as the upper-most 1-2 m of the underlying bedrock units. The servitude road associated with the power lines will only impact upon the Cenozoic regolith. Where the construction activities will impact upon the Cenozoic regolith or the Eendragtpan, Lisbon and Clarens Formations The probability of any negative impact upon the palaeontological heritage of these units is assessed as low. In those locations where the Swartrant Formation will be impacted the probability of any negative impact upon the palaeontological heritage is assessed as being medium. The rocks of the Mogalakwena and Letaba Formations are unfossiliferous and, as such, any disruption of these units will result in nil possibility of any negative impact upon their palaeontological heritage.

Despite the characterisation of the risk of a negative impact resulting upon the palaeontological heritage of the either the Cenozoic regolith or the Eendragtpan, Lisbon and Clarens Formations being assessed as low and that of the Swartrant Formation being assessed as medium any fossil materials that they may contain will potentially be of high scientific and cultural importance. No fossil materials were located during the site investigation undertaken for the project. However, this study has identified that the underlying strata of the Karoo Supergroup and the Cenozoic cover sequences are fossiliferous elsewhere

in South Africa. As such, fossils are potentially present beneath the planned construction projects (particularly in the Karoo Supergroup which is completely covered by the regolith and, as such, could not be directly investigated). Any damage, destruction or inadvertent movement of these fossils will result in permanent and irreversible damage. Similarly, any fossil materials that remain undiscovered after the construction of the project and which are located beneath the maximum depth of the anticipated excavations associated with the constructions will only be negatively affected in so far as they will be unavailable for scientific study for the life expectancy of the infrastructural elements that comprise the project.

3.3.7. *Conclusions*

The probability of a negative impact on the palaeontological heritage contained within the Swartrant Formation is categorised as medium and as low in the remainder of the Karoo Supergroup (the Eendragtpan, Lisbon and Clarens Formations). Similarly, the probability of a negative impact on the palaeontological heritage contained within the Cenozoic regolith underlying the project area is categorised as low, the significance of any negative impact posed by the project on the palaeontological heritage is categorised as potentially high if appropriate mitigation procedures are put into place.

It is recommended that thorough and regular examinations of all excavations that occur within the sediments of the Karoo Supergroup and Cenozoic regolith be made by a palaeontologist. Should scientifically or culturally significant fossil material be confirmed within the project area any negative impact upon it could be mitigated by its excavation (under permit from SAHRA) by a palaeontologist and the resultant material being lodged with an appropriately permitted institution.

The potential negative impact to the palaeontological heritage of the area can be minimised by the implementation of appropriate mitigation processes. It is recommended that thorough and regular examination of all excavations that are conducted upon or within the Karoo Supergroup or Cenozoic regolith be made by a palaeontologist while they are occurring. Should any fossil materials be identified, the mining operations should be halted in that area and SAHRA informed of the discovery.

The social benefits of the project have been classified as beneficial, herein, as the project aims to facilitate the supply and delivery of electricity to an increasingly stressed national power grid. The project will also provide considerable employment during the construction phase as well as ongoing employment opportunities during the operational life of the power plant. As such, the study has not identified any palaeontological reason to prejudice the construction of either the power plant or a power transmission line, subject to adequate mitigation programs being put in place.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1. Conclusions and Recommendations from Climate Change Study

The operation of the 1 200 MW Thabometsi Power Station under the South African DoE's Coal Baseload IPP Programme will result in significant GHG emissions and therefore will have climate change impacts. The main findings of the climate change specialist study are described below.

- >> The 1 200 MW Project's annual and cumulative GHG emissions are significant, estimated to be 9 879 522 t CO₂e per annum assuming a baseload supply scenario, and in the range of 296 Mt CO₂e over the project's 30-year lifetime.
- >> The Project has a relatively high thermal efficiency compared to other coal-fired power plants using sub-critical steam conditions, but a relatively low thermal efficiency in comparison to coal-fired power plants using SC and USC steam conditions, and relative to IGCC power plants (noting that there are few IGCC coal plants in commercial operation).
- >> The Project has relatively high emissions intensity (1.23 t CO₂e per MWh generated) compared to coal-fired power plants, and a high emissions intensity relative to that of Eskom's coal-fired fleet, estimated at 1.05 tCO₂e in 2021-22 including Kusile and Medupi. However, the emissions intensity of the plant is similar or lower compared to the projected 2021/22 estimates of the five Eskom coal-fired power plants that are due to be decommissioned before 2025: Camden (1.25 t CO₂e MWh), Grootvlei (1.36 t CO₂e / MWh), Hendrina (1.33 t CO₂e / MWh), Kriel (1. 24 t CO₂e / MWh) and Komati (1.27 tCO₂e / MWh). Specifically when comparing Camden, which will be the first power station to be decommissioned. and Thabametsi, CO₂e will be reduced. (1.23 CO₂e/MWh (Thabametsi) vs. 1.25 CO₂e/MWh (Camden).
- >> The requirements of the Coal Baseload IPP Programme primarily tariff cap and including the maximum net generating capacity of 600 MW, and the requirement for redundancy, placed within South Africa's energy context including the need for additional baseload power at a low cost, influence the choice of technology for the plant (notably the use of subcritical steam conditions and low-grade coal), which, in turn, affect the emissions performance of the Project.
- >> Thabametsi's GHG emissions are estimated to comprise about 1.7 - 2.5% of South Africa's Peak Plateau and Decline trajectory emissions in 2020/21, rising to 2.3 - 4.7% in 2050.
- >> The greenhouse effect occurs on a global basis and the aeographical source of GHG emissions is irrelevant when considering the future impact on the climate. Due to the global nature of the areenhouse effect, it is not possible to link emissions from a single source - such as the Thabametsi Power Station - to particular environmental and social impacts in the broader study area. Therefore, in line with international good practice such as that established by the IFC Performance Standards, this report: calculates the projected GHG emissions from the project across its lifetime; compares those emissions against appropriate comparators and reference banchmarks in South Africa and globally; and considers their relevance in the context of South Africa's national GHG emissions and policy.

Numerous GHG emissions management measures are proposed for inclusion in the Environmental Management Plan (EMP) with the objective to minimise GHG impact as far as possible by maintaining and maximising plant thermal efficiency over time. These include:

- » Develop and implement a GHG management policy and plan (combined with a thermal efficiency management plan as appropriate).

Measure and track GHG emissions and emissions intensity.

Develop a plan to minimise coal feed variability and implement coal drying wherever possible to enhance plant thermal efficiency and reduce GHG emissions.

Implement flue gas and cooling system heat recovery and recycling to enhance plant thermal efficiency and reduce GHG emissions.

Employ the use of 'smart' instrumentation and combustion controls to track key parameters such that combustion is optimised, and to allow thermal efficiency to be monitored over time.

Undertake scheduled maintenance to recover efficiency losses, including major maintenance re-hauls approximately every 5 years.

In the event of any future changes in plant operating philosophy, undertake a study to assess potential implications on thermal efficiency, GHG emissions intensity, and total GHG emissions per annum and identify and implement measures to mitigate any negative impacts.

>> Consider 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.

These mitigation measures and recommendations have been added to the EMPr for the Thabametsi Power Station. The updated and the revised EMPr is being released along with this assessment report for public comment.

Based on the analysis of the magnitude of the Project's GHG emissions (Very Large), and informed by the findings from the benchmarking assessment and the impact on the national grid emissions factor, the overall significance rating for the Project is High (Negative). The emissions are of a similar but slightly lower magnitude per kWh generated than those from the Eskom coal-fired power plants which are scheduled to be decommissioned around the time of the Thabametsi plant's entry into service.

The choice of technology and specifications for this Project were informed by the technical requirements of the DoE as set out in the bid criteria under the Coal Baseload IPP Procurement Programme established under the IRP 2010, including the requirements for proven technology and tariff COD of ZAR0.82/KWh.

4.2. Conclusions and Recommendations from the Resilience Study

A number of high level risk mitigation (adaptation) options are proposed in order to help manage and reduce the risks identified. For some risks (e.g. risk of floods and high winds) additional, more focused studies are required in order to understand the level of risk posed. In a number of cases, an adaptive management approach can be followed such that risks are monitored over time, and adaptation plans can be tailored and implemented based on climate impacts 'on the ground'. In other cases, it may be prudent to integrate 'hard' adaptation measures into the project's design to mitigate against future risks; for example, integrating a 'buffer' into planned flood defences (e.g. additional raising of key infrastructure above ground level and/or additional drainage capacity at the site) and installing a cover for the raw water dam to reduce evaporative losses. The implementation of the various measures identified will help to increase the resilience of the project to future climatic changes.

It is recommended that the findings from the CRA are further investigated as the project progresses into more detailed design stages and that the risk assessment and risk register is continually revisited, updated and refined over time. Procedures (integrating with project-level risk management) should be put in place in order to track risks over time and a register of adaptation actions (relating to monitoring, management measures, and technical adaptation measures and projects) should be developed and maintained. This

process should be integrated into plant-level risk management procedures and risk registers that cover broader business/project risk (e.g. political, economic, social etc.). Finally, it will be important for someone or a team of individuals to have ownership of both the climate risk assessment process, and associated risk (and mitigation project) registers.

4.3. Conclusions and Recommendations from the Palaeontological Study

The paleontological study has not identified any palaeontological reason to prejudice the construction of the power plant, its associated infrastructure or any of the alternative routes for a power transmission line, subject to adequate mitigation programs being put in place.

It is recommended that thorough and regular examinations of all excavations that occur within the sediments of the Karoo Supergroup and Cenozoic regolith be made by a palaeontologist while they are **occurring**. Should any fossil materials be identified, the excavations in that area should be halted in that location and SAHRA informed of the discovery (see Section 3.4 above). A significant potential benefit of the examination of the excavations associated with the construction of the project is that currently unobservable fossils may be uncovered. As long as the construction process is closely monitored it is possible that potentially significant fossil material may be made available for scientific study.

Should scientifically or culturally significant fossil material exist within the project area any negative impact upon it could be mitigated by its excavation (under permit from SAHRA) by a palaeontologist and the resultant material being lodged with an appropriately permitted institution. In the event that an excavation is impossible or inappropriate the fossil or fossil locality should be protected and the fossil site excluded from any further mining.

These mitigation measures **and** recommendations have also been added to the EMPr for the Thabametsi Power Station. The updated and the revised EMPr is being released along with this assessment report for **public** comment.

4.4. Overall Conclusions

The environmental impact assessment (**EIA**) for the proposed IPP Thabametsi Power Station was undertaken in accordance with the EIA Regulations of June 2010, in terms of Section 24(5) of the National Environmental Management Act (NEMA; Act No 107 of 1998).

From the conclusions of the specialist studies undertaken within the EIA, it was concluded that the impacts associated **with the construction and operation of the power station and associated infrastructure** are expected to **be** of Medium to Low significance with the implementation of appropriate mitigation measures. No environmental fatal flaws were identified to be associated with the proposed project. The **findings of the additional studies undertaken do not alter this overall conclusion, although the** impact rating associated with climate change impacts is rated as high.

No further **recommendations or conditions are required to be included in the Environmental Authorisation** for the project. However, the EMPr must be updated to include the mitigations and recommendations from the Palaeontology and Climate Change studies. The updated EMPr is included as Appendix G of this report.



**South Africa's Third National
Communication under the United
Nations Framework Convention
on Climate Change**

Prepared for

Department of Environmental Affairs

Republic of South Africa

Pretoria

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South African interior, with increases of more than 6 °C plausible over large parts of the western, central and northern parts. Such increases will also be associated with drastic increases in the number of heat-wave days and very hot days, with potentially devastating impacts on agriculture, water security, biodiversity and human health. The model projections are indicative that a high mitigation pathway can still significantly decrease the amplitude of this warming — most projections suggest that under RCP4.5, for example, temperature increases over the interior can be constrained to 2.5 to 4 °C. Nevertheless, it should be realised that South Africa is plausibly committed to relatively large (compared to the global average) increases in near-surface temperatures, even under high-mitigation futures.

Under low mitigation it is also likely that the larger Southern African region will experience generally drier conditions, already by the mid-future (2046-2065) but particularly in the far-future (2080-2099). This pattern is projected robustly by GCMs and their statistical and dynamic downscalings, and is of great significance: South Africa exhibits even under present-day climate a generally dry and warm climate — should this low mitigation future of significantly hotter and drier conditions materialise, it will greatly limit the available opportunities for adaptation. It may be noted that under low mitigation, a minority of downscalings are indicative of rainfall increases over the central interior of South Africa, and/or over the southern interior regions and the Cape south coast. Moreover, extreme convective rainfall events are projected to plausibly increase over the interior regions under low mitigation, even in the presence of a generally drier climate. Under high mitigation, the projections are indicative of potentially very different rainfall futures for South Africa. Even under RCP4.5, a modest-high mitigation pathway, the projected pattern of drying is significantly weaker. In fact, a fairly large number of projections are indicative of generally wetter conditions over the central and eastern interior regions, whilst the remaining projections remain indicative of generally drier conditions. This, in combination with the significantly reduced warming that is projected for southern Africa under high mitigation, emphasize how important it is for South Africa to strive for a (global) high mitigation pathway.

Risk and vulnerability analysis

The concept of vulnerability has become increasingly important in the climate change research community, with extensive developments taking place in the vulnerability assessment field over the last few decades. The complexity involved in defining and measuring the various geographical, spatial, temporal and social dimensions of vulnerability has resulted in a multitude of methodologies for assessing and understanding vulnerability. As a consequence there is generally a lack of consensus regarding the appropriate frameworks and 'best' methodologies for assessing vulnerability. In South Africa, there is no standard approach or best practise guidelines for measuring vulnerability. This makes monitoring of vulnerability and the evaluation of adaptation measures considerably challenging, and precludes comparing different sectors or localities as well as assessing vulnerability over time. A component of Chapter 3 is dedicated to strengthen future vulnerability assessment work in South Africa by building on a number of currently available tools such as the Let's Respond Toolkit, South African Risk and Vulnerability Atlas (SARVA), and the Climate Change Response Plan Toolkit.

Building on South African expert insights and recommendations, practical translations of how to conduct vulnerability assessments are presented. A number of South African case study examples are presented.

In South Africa, there is a constantly growing body of sectoral knowledge on climate change vulnerability. The country saw a great expansion of information from the Second National Communication (2011) to the much more detailed and in-depth LTAS reports (2013/2014). Building upon the work conducted in the Long Term Adaptation Scenarios (LTAS) Research programme (DEA 2013), Chapter 3 reviews and prioritises the most significant climate change risks and vulnerabilities for the following sectors; Agriculture and Forestry, Water Resources, Forestry, Terrestrial Ecosystems, Coastal Zone, Health, Urban and Rural Settlements, and Disaster Risk Management. The complex interdependencies and cross-cutting impacts between the sectors are illustrated in Figure 1 below. A summary of the key impacts of climate change on these sectors is shown in Table 1 below.

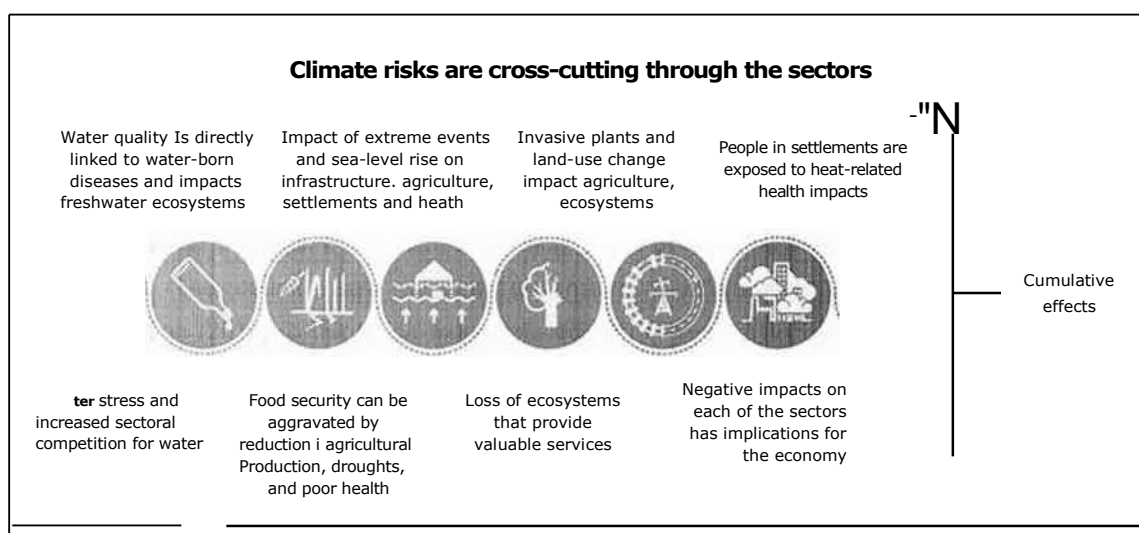
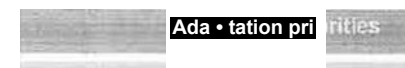


Figure 1: Summary of cross-sectoral linkages for environmental exposure aspects

Table 1: Summary of the vulnerability of key socio-economic sectors in South Africa to climate change

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	Current stresses to the systems	Change in climatic driver (top priority)	Potential future consequences	Geographical Area	Actions required to cope
	<ul style="list-style-type: none"> Land use and change Water stress Invasive alien plants 	<ul style="list-style-type: none"> rainfall 	<p>Reduction in yieldsKZN, Mpumalanga, Western Cape</p>	<p>crop All 9 provinces</p>	<ul style="list-style-type: none"> Climate Smart Agriculture Conservation Agriculture
	<ul style="list-style-type: none"> Direct wave impacts, coastal flooding and inundation, and erosion and under-scouring Land use change 	<p>Provinces with a coastline:</p> <ul style="list-style-type: none"> Intrusion of saltwater Loss of or changes to coastal wetlands Higher (ground)water levels and limited soil drainage Flooding of low-lying areas and resultant damage erosion of beaches and bluffs 	<p>Impact production</p> <p>Increase pressure on water resources</p>	<p>All 9 provinces</p>	<ul style="list-style-type: none"> Land use planning Designation of flood areas/ high risk areas and development - free zones Construction of dykes, groynes, bank protection, sea walls Beach nourishment, dune protection
	<ul style="list-style-type: none"> Quadruple burden of disease in SA and people from neighbouring countries Poor housing, infrastructure and service delivery Habitat fragmentation Land use change Invasive alien plants 	<ul style="list-style-type: none"> A changing climate can have a myriad of impacts on the health sector There is a lack of understanding on the linkages between climate and health in South Africa (e.g. quantitative link between high temperatures and mortality) Rising temp Temp extremes Dec/increase in rain amount Rising CO2 Changes in fire 	<ul style="list-style-type: none"> Climate change will lead to changes across the biomes through the alteration of existing habitats. seasonal rainfall, species distribution. and changing ecosystems functioning. Threats vary in importance between the biomes, increase over time, and increase with the level of GHG. 		<ul style="list-style-type: none"> Cross-seotoral cooperation and collaboration Tailored Adaptation strategies to regions or communities based upon their risks and vulnerability Land use planning Land management Ecosystem-based adaptation Mainstreaming of stewardship programmes Monitoring and evaluation
	<ul style="list-style-type: none"> Deficit in infrastructure and provision of services 	<ul style="list-style-type: none"> Different human settlement types and locations having varying vulnerabilities and capacities will experience the hazards Informal settlements and their population being the most exposed 			<ul style="list-style-type: none"> DRM Mainstreaming of no-regret interventions Principals of water sensitive urban design (WSUD) and consideration for ecological infrastructure
	<ul style="list-style-type: none"> High water demand: current water usage already exceeds reliable yield High levels of variability in rainfall from year to year, resulting in frequent floods and droughts Deteriorating water quality of major river systems, 	<p>rainfall</p> <p>intense rainfall</p>	<p>Increase in water demand from agriculture, power generation, settlements</p> <p>Increased erosions and sedimentation of dams and rivers</p>		<ul style="list-style-type: none"> National water policies, plans and funds mainstream climate change adaptation monitoring and information needs to be appropriately designed Infrastructure development, operation and



water storage reservoirs and ground water resources (e.g. acid mine drainage)

temperature

- Increase evaporation loss from dams
- Affect biological and microbiological processes

- maintenance
- Groundwater needs to be protected by preventing groundwater degradation and unwise exploitation

The South African agricultural sector is highly diverse in terms of its activities and socio-economic context. The agriculture sector employs approximately 860 000 people and is critical in terms of national food security as well as supporting thousands of urban and rural households in terms of subsistence agriculture and small scale production. The sector is considered to be one of the most critical economic sectors in terms of potential impacts of climate change in South Africa. Agriculture is impacted directly by changes in precipitation, temperature and evaporation and through secondary impacts including disaster risk and health issues. The most significant climate change risks and vulnerabilities to agriculture in South Africa include increasing temperatures and more variable precipitation that are likely to have significant impact on a wide variety of crops and forestry products. The yields of rain-fed crops such as maize, wheat and sorghum are likely to be affected most drastically, whilst irrigation demands projected to increase due to increased temperatures. Moreover, more extreme temperature events will directly impact farm labour through enhanced heat stress conditions. Livestock production will also be negatively affected under oppressive temperatures. Adaptation strategies in agriculture include the implantation of Climate Smart Agriculture, improved water management, improved monitoring and early warning, the development of knowledge and decision support systems, and the development of new crop varieties and technologies to support farming.

The interaction between climate change stressors, estuarine processes and features and biotic responses are complex, with multiple interactions which can both amplify and moderate responses. Analysis shows that KwaZulu-Natal and West Coast estuaries will be the most influenced by climate change from a structural and functional perspective. This is contrary to the current monitoring programmes which are focusing on biotic responses in the biogeographic transition zones (e.g. the Transkei and western Southern Cape). In the case of KwaZulu-Natal the major driver of change is increased runoff into the numerous small, perched temporarily open/closed estuaries, which may result in more open mouth conditions, a decrease in retention time and a related decrease in primary productivity and nursery function. In contrast, west coast estuaries may be negatively impacted as a result of reduction in runoff, related decrease in nutrient supply and an increase in sea level rise. This in turn may increase salinity penetration in permanently open estuaries and increase mouth closure in temporarily open ones. Similar to KwaZulu-Natal, west coast estuaries will experience a decline in primary production and loss of nursery function. Although Wild Coast, Eastern and southern Cape estuaries may show some shifts in mouth states, nutrient supply, salinity distribution and ultimately production (e.g. fisheries), the most likely impacts of climate change along these coastal regions will be the change in temperature (nearshore and land), associated species range expansions or contractions and changes in community structure. The bimodal rainfall zone of the Southern Cape is projected to plausibly exhibit an increase in the frequency and magnitude of large floods as well as the duration and intensity of droughts. This region is characterised by medium to small catchments wherein bimodal rainfall ameliorates flow variability and confers a degree of stability on estuarine habitats. An increase in the magnitude of floods can cause deeper scouring of mouth regions, thereby increasing tidal amplitude and exposure of subtidal habitats and communities. The effect of sea level rise, and related increase in tidal prisms, will be less apparent along the KwaZulu-Natal

coastline, where with the exception of estuarine lakes and bays, the majority of estuaries are perched whilst it will be more apparent along the southern and Western Cape coast with their more extended coastal floodplains.

South Africa exhibits multiple risks that contribute to the overall burden of disease (i.e. the quadruple burden of disease), which currently puts stress on the health sector. This stress may make the sector as a whole more vulnerable to climate change due to additional stress a changing climate may put on the system. South Africa does have health policies in place, but action is needed to implement these. The challenging burden of disease in South Africa may make people more vulnerable to the health impacts from climate change (e.g. through pre-existing conditions). However, the impact of pre-existing conditions on the resultant health impact from climate change in South Africa is not quantified. There is a lack of understanding on the linkages between climate and health in South Africa (e.g. quantitative link between high temperatures and mortality). Thus, the current impact of climate-related diseases is not quantified, nor is the vulnerability of communities to such risks. Without a better understanding of the current health burden, it is not possible to understand how climate-sensitive health risks will change in a changing climate. A quantitative vulnerability and risk assessment for the health sector should be performed; this would help to identify the most important health risks, as well as begin to identify the most vulnerable populations or communities. Adaptation strategies can then be tailored to region or communities based upon their risks and vulnerability. The South African health system is also vulnerable to the health status and disease burden of people from neighbouring countries. For example, a majority of malaria in South Africa is not from local transmission. The potential impact on the health sector from climate change has both public and occupational health implications, and both of these aspects need to be considered in adaptation plans.

The climate variability and change threats to terrestrial ecosystems include rising average temperatures, more temperature extremes, changes in rainfall intensity and magnitude, a higher likelihood of extreme events (such as droughts, floods, heat waves, etc.) throughout South Africa, shifting rainfall season, sea level rise and rising atmospheric concentrations of carbon dioxide (⁰2). In addition, non-climatic conditions such as changes in the occurrence, seasonality and severity of fire and land use change resulting from climate variability and change are also presented in this report. These threats vary in their importance between the biomes, increase over time through the 21st century, and increase with the level of greenhouse gas emissions globally.

The nature of human settlements in developing countries makes them particularly vulnerable to the potential impacts of climate change. Each of the settlement types (urban, informal settlements, rural and coastal) have variable vulnerability and exposure to the projected impacts of future climate changes. These variabilities are as a result of Apartheid legacy, spatial variabilities, planned and unplanned growth and dispersion patterns, topography and numerous socioeconomic factors. Addressing the vulnerabilities of the risk areas is a priority for building resilience to climate changes. Different human settlement types and locations having varying vulnerabilities and capacities will experience the hazards associated with the present and future climate changes to an unequal extent.

Higher vulnerability and lower coping capacity areas will have increased risk exposure to climate related hazards; informal settlements and their population being the most exposed. Projected climate changes are likely to compound the impacts felt by the most exposed populations and therefore building adaptive capacity in these areas should be a priority. A deficit in infrastructure and provision of services in some areas acts as barriers to adaptation and increases vulnerability to climate change. This can be compounded by a lack of resources, unclear regulations and unexpected consequences resulting from previous mal-adaptation or poor development practices. Reducing capacity for necessary operation and maintenance is also contributing to the failure of critical infrastructure needed to mitigate the potential impacts and development risks associated with climate change. The development of human settlements impacts on many other sectors such as transport, energy, water and food production and as such a renewed focus on climate compatible development for human settlements will result in reduced climate change risks and vulnerabilities in these associated sectors.

In terms of disaster risk management, climate change is likely to increase existing vulnerabilities to disaster risk. South Africa's history and resulting urban form has resulted in a high level of vulnerability to disaster risk that must be addressed. Addressing existing issues of lack of development will also provide benefits in terms of reducing the risks and vulnerabilities to climate-related disasters. One of the most significant developments since the SNC, has been the Disaster Management Amendment Act No.16 of 2015. The Act now explicitly provides for the inclusion of climate change in disaster risk assessments through all spheres of government and mandates measures to reduce the risk of disaster through adaptation to climate change and the development of early warning mechanisms. Mainstreaming risk reduction, adaptation and management into development activities are important policy goals for responding to climate change and disaster risk and requires a shift in thinking towards more pro-active risk reduction and adaptation planning from a current largely re-active system.

Under an unconstrained greenhouse gas emissions scenario, modelling results suggest a change in runoff that lies between a 20% reduction to a 60% increase. If global emissions are constrained the risk of extreme increases and reductions in runoff are sharply reduced, and the impacts lie between a 5% decrease and a 20% increase in annual runoff. Climate change will affect water quality but in many areas the impacts may be masked by changes in land use, or compliance to effluent standards. Some of the impacts can be foreseen and can be mitigated by careful planning to include potential climate change in water quality management strategies.

Climate Costs

Given the significant vulnerabilities identified across the sectors of water, agriculture, forestry and health, and for urban and rural settlements, the coastal zone and ecosystems, Chapter 3 builds a strong case for an important future area of work in vulnerability analysis, namely the estimation of climate costs. It is important to quantify how future changes in the mean climate and in the attributes of extreme events may increasingly impact on the South African economy. Such costs may be incurred directly through for example reduced crop yield and damage in infrastructure, but also

Some examples of natural disasters in South Africa

- **Floods:** During March 2014 the country experienced severe flooding in the Mpumalanga province. Significant damages to municipal infrastructure, provincial roads and bridges as well as houses were reported. The floods in Mpumalanga were declared a provincial state of disaster as the municipalities in the province

include:



Figure 1.5: Flooding at the Crocodile Bridge Gate at Kruger National Park in Mpumalanga

(Source: <http://floodlist.com/africa/flooding-south-africa-kills-5-affects-kruger-national-park>).

were unable to cope with the effects of the occurrence. The floods resulted in significant damages to municipal infrastructure, provincial roads, bridges and houses which cost over R 61 million to repair (COGTA, 2015).

- **Drought:** During 2014 and 2015 the KwaZulu-

Natal Province received below normal rainfall levels in various catchment areas were affected across nine district municipalities and it was reported that many rural communities were dried up. A provincial state of disaster was declared. The costs of providing emergency disaster relief were estimated at R 1.5 billion (COGTA, 2015).



Figure 1.6 The Umfolozi River in Ulundi, KwaZulu-Natal, negatively impacted by drought.

Source: Department of Governance and Traditional Affairs, Province of KwaZulu-Natal

Disaster risk profiles are determined by a number of factors. These include economic development, natural climate variations and human-based climate change. The Intergovernmental Panel on Climate Change (IPCC) defines disaster risk as the likelihood of

severe alterations in the normal functioning of a community or society due to weather or climate events interacting with vulnerable social conditions (IPCC, 2012). Vulnerability is defined as the predisposition of a person or group to be adversely affected (IPCC, 2012). The development of a risk assessment methodology and vulnerability indices is discussed in Chapter 3, Section 3.5.

The levels of vulnerability across the South African landscape are detailed in Figure 1.7 . The most vulnerable areas are located in the Western Cape Peninsula, KwaZulu-Natal and Gauteng (COGTA,

impact of climate change on a number of sectors. The Pitman model which works at the monthly scale and the quaternary drainage basin scale is useful for cross-sectoral integrated assessment (DEA, 2013).

Schulze (2012) uses output from General Circulation Models (GCMs) from the IPCC's Fourth Assessment Report (IPCC, 2007) to make projections, at the quaternary drainage basin scale, of possible changes to the South African water sector associated with anticipated global climate change.

Cullis *et al.*, (2015), uses outputs from all GCMs in the form of hybrid frequency distributions (HFD) developed by the MIT Global Change Group (Schlosser *et al.* 2012) to make projections, at the quaternary drainage basin scale, of possible changes to the South African water sector associated with anticipated global climate change. Cullis *et al.*, (2015) used the Pitman model (Pitman 1973) to assess at a monthly time scale the impact of climate change on water resources; and a national configuration of the Water Resources Yield Model (WRYM) to assess the impact of climate change on water supply. Henceforth, the understanding of the impact of climate change on the water sector now goes beyond the hydrology.

3.6.9.2 Vulnerability to climate change

3.6.9.2.1 Water Quantity

South Africa already suffers from high-risk hydrology, with high levels of variability in rainfall from year to year, resulting in frequent floods and droughts. As a water scarce country, the river systems and aquifers are highly used and developed, and many are already highly degraded. In addition to this scenario, there is extreme inequality in access to water for productive purposes, arising out of the apartheid legacy. While this is the picture at a national level, closer examination allows the division of the country into six distinct climatic zones, each of which will be impacted differently by climate change.

The key water related vulnerabilities under climate change have been determined through overlaying climate modelling on development scenarios for each of the zones. While the various climate change models agree that there will be significant temperature increases across South Africa in the medium to longer term, when it comes to changes in rainfall, the models provide different results in certain climate change zones. However, there are general trends which are described below. It is important to note that the results below are derived from a relatively wet scenario. Results from other modelling processes such as those used by the CSIR give much drier scenarios.

Northern Interior (Zone 1: Limpopo, Olifants and Inkomati)

Projected changes in rainfall in this region show a great deal of spread and uncertainty as the region falls between areas projected to get wetter (central and eastern South Africa) and areas projected to get drier (Zimbabwe and Botswana). Projections indicate general drying (but with possible slight

wetting) depending on their representation of the regional climate gradient, so this is an area of significant uncertainty.

Zone 1 contains irrigated agriculture, power and mining, urban and forestry, with dryland on the Highveld. It therefore has high water requirements and under climate change will see increasing demand. However, population and economic growth within this zone will have a greater impact on increasing water demand.

Key climate change impacts:

- Likely reduction in rainfall, particularly in the summer rainfall period;
- Significant increased temperatures, and thus evaporation;
- Increase in water demand from agriculture;
- Increase in demand for power generation;
- Increase in domestic demand.

East Coast (Zone 2: Pongola-Umzimkulu)

Projected changes in rainfall along the east coast show strong agreement on wetter conditions due to increased moisture availability, increased heating and resultant instability, and increased advection of moisture from the South Indian anti-cyclone. Increased atmospheric moisture will likely result in increased rainfall intensity with increased frequency of extreme events and flooding. Zone 2 is a water-rich zone but is susceptible to rainfall variability and increases in extreme events, especially flooding, as there is a high occurrence of rain-fed agriculture and subsistence farming.

Key climate change impacts:

- Likely increase in summer rainfall, with increased large events (storms);
- Moderate increase in temperatures due to proximity to ocean.

Central Interior (Zone 3: The Vaal system)

Climate models suggest some possibility of either wetter or dryer conditions, depending upon the strength of the heat low and Indian Ocean high pressure advecting moisture into the region. The likely increase in moisture would produce both more rainfall and more intense convective rainfall systems leading to a possible increase in extreme events. However, regional rainfall is complex and adds a great deal of complexity and uncertainty to the projections. The Vaal system has two extremes, the portion of Gauteng, and the vast expanses of the Free State. Similarly to zone 1, there are a number of important activities including mining, industrial and domestic demand.

Key climate change impacts:

- Highly uncertain future rainfall, with possible wetting or drying during the summer months;
- Likely increase in storm activity and large rainfall events;
- Significant increase in temperatures;
- Increase in water demand from agriculture;
- Increase in demand for power generation;
- Increase in domestic demand.

West Coast and North Western Interior (Zone 4: The Orange system)

With very dry conditions dominating the western parts of this area, projected absolute changes in rainfall are small and have large uncertainties, while temperature increases are expected to be significant. Some suggestion of increased summer rainfall in the eastern high water yield inland areas would be a result of increased moisture availability and a possibly more intense heat, but this is highly uncertain with reduction of summer rainfall also being possible. Rainfall shifts along the coast are uncertain, although the likely change is expected to be relatively small in either direction. Zone 4 is water-scarce with reliance on intensive irrigation and groundwater use. Furthermore, mining in the area contributes to salinity issues.

Key climate change impacts:

- Uncertainty of rainfall patterns in the eastern parts, but with likely increased storm activity;
- Likely drying in the arid western and coastal areas;
- Significant increase in temperature expected;
- Increase in water demand from agriculture;
- Already a water scarce zone in the west, but is projected to become drier.

Southern Cape (Zone 5: Mzimvubu-Tsitsikamma)

Projected changes in rainfall suggest an increase, most likely due to increased moisture availability for both inland convective rainfall as well as coastal orographic rainfall. However, there is considerable uncertainty in the implications for rainfall in this complex interface zone, particularly in the south-western parts of the area. It has a large rural population with a high level of subsistence farming. It also has untapped water resources yield potential.

Key climate change impacts:

- Uncertainty in rainfall impacts in year round rainfall area, although likely drying in the west;
- Likely increases in the summer rainfall in the western parts;
- Moderate temperature increases;

- Extreme events such as flooding might have an impact on the large rural population.

South Western Cape (Zone 6: Breede-Gouritz and Berg Olifants)

A play-off between the southerly shift in the mid-latitudes resulting in drier conditions, and a moister atmosphere producing more orographic rainfall results in a great deal of uncertainty as to the future of rainfall and water availability in this region. A shift to wetter conditions in the mountains and drier conditions in the lower coastal plains is expected, but the confidence of these predictions is currently low. Zone 6 has a large urban population as well as strong commercial agriculture.

Key climate change impacts:

- Uncertain climate impacts on winter rainfall, but likely increase in orographic activity;
- Possibly spread of rainfall beyond the historical winter rainfall period;
- Moderate temperature increases compared to the rest of the country;
- Increase in extreme events will affect vulnerable communities;
- An increase in the demand for water for agriculture and domestic use.

3.6.9.2.2 Water Quality

The consequences of climate change on water quality are poorly understood and only beginning to be studied. This stems from the relatively scanty water quality monitoring network of the country. Nevertheless, there is evidence of deteriorating water quality of South Africa's major river systems, water storage reservoirs and ground water resources — the core water supply systems that underpin social and economic development in South Africa.

The country already faces an enormous task in dealing with the problems posed by key water quality issues such as acid mine drainage, eutrophication (or nutrient enrichment) and salinisation, coupled to the apparent ineffectiveness of many institutions to treat domestic sewage and industrial effluent to levels that are safe for discharge to rivers and streams.

Higher water temperatures will alter water-gas equilibria and increase the rates of microbial processes; these will in turn accelerate nitrification, denitrification, respiration and methanogenesis (the generation of methane by anaerobic bacteria). Floods and droughts will also modify water quality by direct effects of dilution or concentration of dissolved substances. Even if these facts are often inferred, few scientific works have been published until recently on the impacts of climate change on water quality modification. Moreover, climate change is not the only factor affecting water quality. Land use evolution, deforestation, urban spreading and area waterproofing may also contribute to water quality degradation. More often, water pollution is directly linked to human activities of urban, industrial or agricultural origin, and climate change could lead to degradation in surface water quality as an indirect consequence of these activities.

Northern Interior (Zone 1: Limpopo, Olifants and Inkomati)

If there is no or very little change in the hydrological drivers for climate change then current water quality trends would probably continue. Water quality in the Mokolo River is still good but it is deteriorating as a result of intensive agricultural activities and in future, water quality is expected to deteriorate further as a result of the exploitation of coal reserves in the Lephelala area (acid mine drainage impacts) as well as informal settlements (microbial contamination), urban areas (organic loads, nutrients), and industrial developments (salinity, trace metals) associated with new mining and power generation activities in the area. The water quality impacts would probably be similar to those experienced in the coal mining areas of the upper Olifants River (Witbank, Middelburg area). Intensive agricultural developments (agro-chemicals, salinity) in the Letaba, Luvuvhu, middle and lower Olifants rivers, are also contributing to the slow deterioration in water quality. Elevated nutrient concentrations and eutrophication would probably continue or increase due to increased urbanisation and the growth in effluents from wastewater treatment works serving the towns in this zone. Very few WWTW's meet effluent standards and problems associated with nutrient enrichment, microbial pollution, and elevated organic loads, will continue until operational problems at the WWTW's have been resolved. A number of the coal mines in the upper Olifants River are reaching their end of economic lives and mine workings will start filling up and ultimately start decanting into surface waters. This will probably aggravate acid mine drainage problems in the Olifants River. The impacts associated with mining (acid mine drainage), intensive irrigation agriculture (agro-chemicals, nutrients, salinity), and urbanisation and dense settlements (organic loads, microbial pollution) in the Crocodile River and lower Komati River will probably continue.

Key climate change impacts:

- Water quality would continue to deteriorate due to man-made impacts;
 - A moderate increase in water temperature would affect biological and microbiological processes.

East Coast (Zone 2: Pongola-Umzimkulu)

Water quality in the Pongola River may improve slightly as flow increase in the river, diluting agricultural return flows from Pongola Irrigation Scheme (salinity, nutrients). An increase in rainfall intensity will probably lead to more erosion of topsoil in communal lands and areas where overgrazing is common leading to higher suspended sediment loads in rivers, and sediment deposition in river channels and in receiving dams. Acid mine drainage problems may increase in the coal mining areas in the upper Mfolozi system, upper Mkuze River, and upper Thukela River. However, an increase in floods (dilution) would probably mitigate some of the impacts and one could probably expect wider seasonal fluctuations in quality than experienced under current conditions. More frequent floods may also alleviate the hypersaline conditions that develop in Lake St. Lucia during extended dry periods. Wetter conditions will probably promote the spread of waterborne diseases such as cholera through the mobilisation of pollutants from the catchment surfaces, and warmer air and water temperatures

Integrated Water Quality Management Plan for the Olifants River System

Inception Report



A handwritten signature in black ink, appearing to be 'AS' followed by a flourish.

DEPARTMENT OF WATER AND SANITATION
Water Resource Planning System Series

**Development of an Integrated Water Quality
Management Plan for the Olifants River
System**

Inception Report

Study Report No. 1
P WMA 04/B50100/891611

APRIL 2016

VERSION 02

water & sanitation

Department
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

EXECUTIVE SUMMARY

The Olifants River System, comprising the Olifants, Letaba and Shingwedzi catchments, is a highly utilised and regulated catchment and like many other Water Management Areas (WMA) in South Africa, its water resources are becoming more stressed from both a water quantity and water quality point of view. This is due to an accelerated rate of development and the scarcity of water resources. There is therefore an urgency to ensure that water resources in the Olifants River System are able to sustain their level of uses and be maintained at their desired states.

The Department of Water and Sanitation (DWS) from a planning perspective has therefore identified the need to develop an overarching Integrated Water Quality Management Plan (IWQMP) for the Olifants WMA in order to manage the water resources. This plan needs to take cognisance and align to a number of studies and initiatives that have been completed to date, and needs to establish clear goals relating to the quality of the relevant water resource in order to facilitate a balance between protection and use of water resources.

The main objective of the study is to develop management measures to maintain and improve the water quality in the Olifants WMA (as per the National Water Resources Strategy, Second Edition, 2013) in a holistic and sustainable manner so as to ensure sustainable provision of water to local and international users. The management measures will be of an overarching nature and will deal with the broader Olifants WMA while taking the strategies and plans developed at the sub-catchment level into account. The plan will detail feasible management options for implementation in the short term (next 5 years), assess the medium term strategies (10 years) at the pre-feasibility level and longer term strategies at the reconnaissance level. A further important deliverable from the study will be a set of integrated Water Quality Planning Limits (WQPLs) for the Olifants WMA and the individual sub-catchments that will include development of WQPLs, adjustments to the existing WQPLs and alignment to Resource Quality Objectives (RQOs).

The spatial extent of the area includes tertiary drainage regions B11, B12, B20, B31, B32, B41, B42, B52, B52, B60, B71, B72 and B73 in the Olifants River catchment, B81, B82 and B83 in the Letaba catchment and B90 in the Shingwedzi catchment. The Olifants River originates at Trichardt, east of Johannesburg, and flows through to the Kruger National Park. The Letaba River joins the Olifants River upstream of the border into Mozambique, thereafter the Olifants joins the Limpopo River before discharging into the Indian Ocean. The Shingwedzi River flows through the Kruger National Park becoming the Rio Shingwedzi in Mozambique.

Formal economic activity in the system is highly diverse and is characterised by commercial and subsistence agriculture (both irrigated and rain fed), diverse mining activities, manufacturing, commerce and tourism. Large coal deposits are found in the eMalahleni and Middelburg areas (Upper Olifants) and large platinum group metal (PGM) deposits are found in the Steelpoort, and copper in the Phalaborona areas. The catchment is home to several large thermal power stations, which provide energy to large portions of the country. Extensive agriculture can be found in the Loskop Dam area, the lower catchment near the confluence of the Blyde and Olifants Rivers as well as in the Steelpoort Valley and the upper Selati catchment. A large informal economy exists in the Middle Olifants, with many resource-poor farmers dependent upon ecosystem services. The area has many important tourist destinations, including the Blyde River Canyon and the Kruger

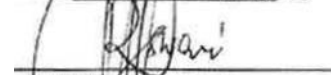
GENERAL NOTICES • ALGEMENE KENNISGEWINGS

NOTICE 429 OF 2015

**DECLARATION OF PROVINCIAL STATE OF DISASTER: DISASTER
MANAGEMENT ACT, 2002 (ACT 57 OF 2002)**

I, David Dabede Mabuza, hereby, in my capacity as Premier of Mpumalanga Province, and after consultation with the other Members of the Mpumalanga Executive Council declare, in terms of section 41(1) of the Disaster Management Act, 2002 (Act No. 57 of 2002), a Provincial state of disaster in the Chief Albert Luthuli Local Municipality, Msukaligwa Local Municipality, Mkhondo Local Municipality, Dr J.S. Moroka Local Municipality, Dr Pixley Ka Isaka Seme Local Municipality, Thembisile Hani Local Municipality, Dipaleseng Local Municipality, Govan Mbeki Local Municipality, Lekwa Local Municipality, Emakhazeni Local Municipality, Thaba Chweu Local Municipality, Nkomazi Local Municipality, Bushbuckridge Local Municipality and Umjindi Local Municipality, with immediate effect.

I further authorize in terms of section 41(2) of the Disaster Management Act, 2002, the Member of the Executive Council for Co-operative Governance and Traditional Affairs to issue directions in respect of the declared Provincial state of disaster, as and when necessary, as contemplated in section 41(2) of the said Act subject to section 41(3) thereof.


MR D.D. MABUZA**PREMIER** FUMALANGA PROVINCEDATE 11.2015

MS R.M. MTS HWNI (MPL)**MEMBER OF THE EXECUTIVE COUNCIL****CO-OPERATIVE GOVERNANCE AND TRADITIONAL AFFAIRS**DATE 23/11/2015

(Countersigned in terms of section 140(2) Of the Constitution, 1996)


411R S.E. RHOLWANE (MPL)**MEMBER OF THE EXECUTIVE COUNCIL.****FINANCE AND ECONOMIC DEVELOPMENT**DATE 23/11/2015

(Countersigned in terms of section 140(2) of the Constitution, 1996)



environmental affairs

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287

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DEA Reference: 12112)2012067

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Mr. Julian Eslait
Anglo Operations Limited
P.O. Box 61587
MARHALLTOWN
2000

Fax no: (013) 691 5153

PER FACSIMILE / MAIL

Dear Mr Eslait

APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 2010: GN **R.544**, GN **R.545** AND GN **R.546**: CONSTRUCTION OF **450MW** KHANYISA COAL FIRED POWER STATION IN EMALAHLENI, MPUMALANGA PROVINCE

With reference to the above application, please be advised that the Department has decided to accept Environmental Impact Assessment Report and grant authorisation. The environmental authorisation (EA) and reasons for the decision are attached herewith.

In terms of regulation 10(2) of the Environmental Impact Assessment Regulations, 2010 (the Regulations), you are instructed to notify all registered interested and affected parties, in writing and within 12 (twelve) days of the date of the EA, of the Department's decision in respect of your application as well as the provisions regarding the submission of appeals that are contained in the Regulations.

Your attention is drawn to Chapter 7 of the Regulations, which prescribes the appeal procedure to be followed. This procedure is summarised in the attached document. Kindly include a copy of this document with the letter of notification to interested and affected parties,

Should the applicant or any other party wish to appeal any aspect of the decision a notice of intention to appeal must be lodged by all prospective appellants with the Minister, within 20 days of the date of the EA, by means of one of the following methods:

By facsimile; 0123207561;

By post: Private Bag X447,
Pretoria, 0001; or

By hand: 2nd Floor, Fedsure Building, North Tower,
Cnr. Lilian Ngoyi (Van der Wait) and Pretorius Streets,
Pretoria.

If the applicant wishes to lodge an appeal, it must also serve a copy of the notice of intention to appeal on all registered interested and affected parties as well as a notice indicating where, and for what period, the appeal submission will be available for inspection, should you intend to submit an appeal,

Please Include the Department (*Attention: Director Integrated Environmental Authorisations*) in the list of interested and affected parties, notified through your notification letter to interested and affected parties, for record purposes

Appeals must be submitted Writing to:

Mr Z Hassam Director: Appeals and Legal Review, of this Department at the above mentioned addresses or fax number. Mr Hassam can also be contacted at:

Tel: 012-310-3271

Email: AppealsDirectorate@environmentoovia

The authorised activities shall not commence within **twenty (20)** days of the date of signature of the authorisation, Further, please note that the Minister may, on receipt of appeals against the authorisation or conditions thereof suspend the authorisation pending the outcome of the appeals procedure,

Yours faithfully



Mr. Ishamirade, Deputy Director General: Legal, Authorisations, Compliance and Enforcement

Department 1 Environmental Affairs

Date: 10, ___013

CC:	Leandri Joubert	Aurecon	Fax: 013 753 2116
	Mr T Motoane	Emalahteni Local Municipality	Fey: 013 753 2116
	Mr Noe	DWA	Fax: 012 323 0321



APPEALS PROCEDURE IN TERMS OF CHAPTER 7 OF THE NEMA EIA REGULATIONS, 2010 (THE REGULATIONS) GN R, 543 OF 2010 TO BE FOLLOWED BY THE APPLICANT AND INTERESTED AND AFFECTED PARTIES UPON RECEIPT OF NOTIFICATION OF AN ENVIRONMENTAL AUTHORISATION (EA)

APPLICANT	INTERESTED AND AFFECTED PARTIES (IAPs)
1. Receive EA from the relevant Competent Authority (the Department of Environmental Affairs [DEAD	1. Receive EA from Applicant/Consultant
2. Within 12 days of date of the EA notify all IAPs of the EA and draw their attention to their right to appeal against the EA in terms of Chapter 7 of the Regulations.	2. N/A
3. If you want to appeal against the EA, submit a notice of intention to appeal within 20 days of the date of the EA, with the Minister of Water and Environmental Affairs (the Minister).	3. If you want to appeal against the EA, submit a notice of intention to appeal within 20 days of the date of the EA, with the Minister of Water and Environmental Affairs (the Minister).
4. After having submitted your notice of intention to appeal to the Minister, provide each registered IAP with a copy of the notice of intention to appeal within 10 days of lodging the notice	4. After having submitted your notice of intention to appeal to the Minister, provide the applicant with a copy of the notice of intention to appeal within 10 days of lodging the notice
5. The Applicant must also serve on each IAP: <ul style="list-style-type: none"> a notice indicating where and for what period the appeal submission will be available for inspection. 	5. Appellant must also serve on the Applicant within 10 days of lodging the notice, <ul style="list-style-type: none"> a notice indicating where and for what period the appeal submission will be available for inspection by the ,ppker2t_____
The appeal must be submitted in writing to the Minister within 30 days after the lapsing of the period of 20 days provided for the lodging of the notice of intention to appeal,	6. The appeal must be submitted to the Minister within 30 days after the lapsing of the period of 20 days provided for the lodging of the notice of Intention to appeal.
7. Any IAP who received a notice of intention to appeal may submit a responding statement to that appeal to the Minister within 30 days from the date that the appeal submission was lodged with the Minister.	7. An Applicant who received notice of Intention to may submit a responding statement to the appeal to the Minister within 30 days from the date that the appeal submission was lodged with the Minister.

NOTES:

- An appeal against a decision must be lodged with:-
 - the Minister of Water and Environmental Affairs if the decision was issued by the Director- General of the Department of Environmental Affairs (or another official) acting in his/ her capacity as the delegated Competent Authority;
 - the, Minister of Justice and Constitutional Development if the applicant is the Department of Water Affairs and the decision was issued by the Director- General of the Department of Environmental Affairs (or another official) acting in his/ her capacity as the delegated Competent Authority;
- An appeal lodged with:-
 - the Minister of Water and Environmental Affairs must be submitted to the Department of Environmental Affairs;
 - the Minister of Justice and Constitutional Development must be submitted to the Department of Environmental Affairs;
- An appeal must be:-
 - submitted in writing;
 - accompanied by:
 - a statement setting out the grounds of appeal;
 - supporting documentation which is referend to ln the appeal; and
 - a statement that the appellant has complied with regulation 62 (2) or (3) together with copies of the notices referred to in regulation 82,



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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Integrated Environmental Authorisation Issued in terms of

The National Environmental Management Act, 1998 and the Environmental Impact
Assessment Regulations 2010

and

The National Environmental Management: Waste Act, 2008 and Government Notice 718
of 2009

**Construction of 450MW Khanyisa Coal-fired Power Station and associated infrastructure in
Emalahleni, Mpumalanga Province**

Emalahleni Local Municipality

<i>Authorisation register number:</i>	<i>'12/12/20/2067</i>
<i>Last amended:</i>	<i>First Issue</i>
<i>Holder of integrated authorisation:</i>	<i>Anglo Operations Limited</i>
<i>Location of activities:</i>	<i>MPUMALANGA PROVINCE: the Remaining Extent of the farm Groenfontein 331.-JS Portions 7, 11 and the Remaining Extent of the Farm Klippen 332-JS,, within Emalahleni Local Municipality</i>

This authorisation does not negate the holder of the authorisation's responsibility to comply with any other statutory requirements that may be applicable to the undertaking of the activity.

DECISION

The Department Is satisfied, on the basis of information available to it and subject to compliance with the conditions of this integrated environmental authorisation ("the environmental authorisation") that the applicant should be authorised to undertake the NEMA EIA and NEMWA listed activities specified below.

Details regarding the basis on which the Department reached this decision are set out in Annexure to this environmental authorisation,

NEMA EIA AND NEMWA ACTIVITIES AUTHORISED

By virtue of the powers conferred on it by NEMA, the NEMA EIA Regulations, 2010, NEMWA and Government Notice 718 of 3 July 2009 the Department hereby authorises —

ANGLO OPERATIONS LIMITED

Mr. Julian Esfait
 Anglo Operations Limited
 P.O. Box 61587,
MARHALLTOWN
 2000

Tel: (013) 691 6153
 Fax: • (013) 691 9200
 E mail igEleitnangloccal.co.za

to undertake the following activities (hereafter referred to as "the activities"):

Notice number	Activity number	Activity description (as per the relevant notice)
GN R. 544	2	The construction of facilities or infrastructure for the storage of ore or coal that requires an atmospheric emissions license in terms of the National Environmental Management: Air Quality Act (Act

		No.39 of 2004)
GN R. 544	9	<p>The construction of facilities or Infrastructure exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water-</p> <ul style="list-style-type: none"> i. With an Internal diameter of 0,36 metres or more; or ii. With a peak throughput of 120 litres per second or more, <p>Excluding where:</p> <ul style="list-style-type: none"> a. Such facilities or infrastructure are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or b. Where such construction will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse
GN R. 544	10	<p>The construction of facilities or Infrastructure for the transmission and distribution of electricity -</p> <ul style="list-style-type: none"> i, outside urban areas or industrial complexes with a capacity of more than, 33 but less than 275 kilovolts; or ii, Inside urban areas or industrial complexes with a capacity of 275 kilovolts or more,
GN R. 544	13	<p>The construction of facilities of Infrastructure for the storage, or for the storage and handling, of dangerous goods, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres.</p>
GN R. 544	22	<p>The construction of a road, outside urban areas,</p> <ul style="list-style-type: none"> i. With a reserve wider than 13,5 meters or, ii. Where no reserve exists where the road is wider than 8 metres, or iii. For which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 297 of 2006 or activity 18 in Notice 545 of 2010.
GN R. 644	23	<p>The transformation of undeveloped, vacant or derelict land to —</p> <ul style="list-style-type: none"> i. Residential, retail, commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares, or

		<p>II. Residential, retail, commercial, recreational, industrial or Institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares;-</p> <p>Except where such transformation takes place for linear activities.</p>
GN R. 545	1	The construction of facilities or Infrastructure for the generation of electricity where the electricity output is 20 megawatts or more.
GN R. 545	5	The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2006) In which case that Act will apply.
GN R 545	6	The construction of facilities or infrastructure for the bulk transportation of dangerous goods- In solid form, outside an Industrial complex, using funiculars or conveyors with a throughput capacity for more than 50 tons day.
GN R. 545	9	The construction of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 Kilovolts or more, outside an urban area or industrial complex.
ON R. 545	15	<p>Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, Industrial or institutional use where the total area to be transformed is 20 hectares or more;</p> <p>Except where such physical alteration takes place for.</p> <p>I. Linear development activities; or</p> <p>ii. Agricultural or afforestation where activity 16 in this Schedule will apply,</p>
GN R. 545	18	The route determination of roads and design of associated physical infrastructure, including roads that have not yet been built for which routes have been determined before 03 July 2006 and which have not been authorised by a competent authority in terms of the Environmental Impact Assessment Regulations, 2006 or 2009, made under section 24(6) of the Act and published in Government Notice No. R.385 of 2006-

		<p>I. It is a national road as defined in section 40 of the South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7 of 1998)</p> <p>II, It is a road administered by a provincial authority</p> <p>ill. The road mserve is wider than 30 metres; or</p> <p>iv. The road will cater for more than one lane of traffic in</p>
GN R. 718	Category A 1	The storage, including the temporary storage, of general waste at a facility that has the capacity to store in excess of 100m ³ of general waste at any time, excluding the storage of waste in lagoons.
ON R.718	Category A 2	The storage including the temporary storage of hazardous waste at a facility that has the capacity to store in excess of 35 V of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons.
GN R.718	Category A 18	The construction of facilities for activities listed in Category A or this Schedule (not in Isolation to associated activity).
ON R.718	Category B 7	The treatment of effluent, wastewater or sewage with an annual throughput capacity of 15 000 cubic metres or more.
ON R.718	Category B 9	, The disposal of any quantity of hazardous waste to land
GN R.718	Category B 11	The construction of facilities for activities listed in Category B of this Schedule (not in isolation to associated activity)

as described in the Environmental Impact Report (EIR) dated March 2012 at:

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- for the construction of 450MW Khanyisa Coal Fired Power Station, which includes the design, construction, commissioning, operation and decommissioning of discard coal fired power station using fluidised bed technologies and its associated infrastructure in Emalahieni, Mpumalanga Province hereafter referred to as "the property".

The proposed project will consist of the following:

- Coal silo and sorbent stock yard;
- Coal, ash, sorbent and gypsum conveyors;
- A high voltage (HV) yard within the power station precinct;
- Water and wastewater treatment facilities;
- Ash and spent sorbent disposal systems. and dump site;
- Gypsum (sorbent) storage facility;
- Access roads (temporary and permanent, and external and Internal roads);
- Maintenance, medical, administration, services, control buildings;
- Water supply pipeline for construction and operation phase;
- Raw water pipeline and reservoirs;
- Dams for storage of 'clean' and 'dirty' water;
- Power supply for the construction phase;
- Communication mast/ telecommunication facilities;
- General and hazardous waste storage and handling facilities (temporary and permanent);
- Batching plant (including concrete and asphalt); and ' Construction accommodation.

SCOPE OF AUTHORISATION

1. The 450MW Khanyisa Coal Fired Power Station, with coordinates indicated above, which includes the design, construction, commissioning, operation and decommissioning of discard coal fired power station using fluidised bed technologies and its associated infrastructure is hereby approved.
2. The Department shall by written notice to the holder of an environmental authorisation suspend with Immediate effect an environmental authorisation if suspension of the authorisation is necessary to prevent harm or further harm to the environment,
3. The activities must commence within a period of five (5) years from the date of issue. If commencement of the activity does not occur within that period, the environmental authorisation lapses and a new application for an environmental authorisation must be made for the activities to be undertaken. Commencement with one activity listed in terms of this authorisation constitutes commencement of all authorised activities.
4. The holder of the environmental authorisation shall be responsible for ensuring compliance with the conditions contained in this environmental authorisation. This includes any person acting on the

holder's behalf, including but not limited to, an agent, servant, contractor, sub-contractor, employee, consultant or person rendering a service to the holder of the authorisation.

5. Any changes to, or deviations from, the project description set out in this authorisation must follow the amendment processes as prescribed in Chapter 4 (Parts 1.3) of the NEMA EIA Regulations, 2010 and be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further authorisation in terms of the regulations.

Management of the activity

6. The Environmental Management Programme (EMPr) integrated as part of the application for EA is hereby approved. This **EMPr** must be implemented and adhered to,
 - 6.1. The approved EMP and operational EMP for the power station must be implemented and strictly enforced during all phases of the project. It shall be seen as a dynamic document and shall be included in all contract documentation for all phases of the development when approved, 7, Changes to the EMP and the operational EMP for the power station which are environmentally defensible, shall be submitted to this Department for acceptance before such changes could be effected.
8. The Department reserves the right to request amendments to the EMP and the operational EMP for the power station should any impacts that were not anticipated or covered in the EIR be discovered.
9. The provisions of the approved EMP and the operation EMP for the power station including the Mitigation measures identified in the EIR and specialise studies shall be an extension of the conditions of this EA and therefore noncompliance with them would 'constitute noncompliance with the EA.
10. The power station must be managed and operated:
 - 10.1, In accordance with an Environmental Management System (EMS), that inter alia identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents and non-conformances and those drawn to the attention of the holder of the environmental authorisation as a result of complaints;
 - 10.2. By sufficient persons who are competent in, respect of the responsibilities to be undertaken by them In connection with the operation of the activities.

Environmental Control Officer

11. The holder of this authorisation must appoint an independent Environmental Control Officer (EGO) with experience or expertise in the field for the construction phase of the development, The ECU
 - will have the responsibility to ensure that the conditions referred to in this authorisation are implemented and to ensure compliance with the provisions of the EMPr.
12. The EGO must be appointed before commencement of any authorised activity.
13. Once appointed, the name and contact details of the ECU must be submitted to the Director: Compliance Monitoring Of the Department.
14. The EGO must remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.
 - 14.1, The ECO must:
 - 14.2. Keep record of all activities on site, problems identified, transgressions noted and a schedule of tasks undertaken by the EGO.
 - 14.3. Keep and maintain a detailed incident (including spillage of bitumen, fuels, chemicals, or any other material) and complaint register on site indicating how these issues were addressed, what rehabilitation measures were taken and what preventative measures were implemented to avoid re-occurrence of incidents/complaints.
 - 14.4, Keep and maintain a daily site diary.
 - 14.5, Keep copies of all reports submitted to the Department.
 - 14,6, Keep and maintain a schedule of current site activities including the monitoring of such activities.
 - 14.7. Obtain and keep record of all documentation, permits, licences and authorisations such as waste disposal certificates, hazardous waste landfill site licences etc, required by this facility.
 - 14.8, Compile a monthly monitoring report,

Waste Management Control Officer

15. The applicant must designate a Waste Management Control Officer (WMCO), who will monitor and ensure compliance and correct implementation of all conditions and provisions as stipulated in the environmental authorisation and approved EMP related to the power station,
16. The WMCO must report any non-compliance with any environmental authorisation conditions or requirements or provisions of NEMVVA to the Department through the means reasonably available,

17. The duties and responsibility of the WMCO should not be seen as exempting the holder of the environmental authorisation from the legal obligations in terms of the NEMWA.

Recording and reporting to the department

18. The holder of this authorisation must keep all records relating to monitoring and auditing on site and make it available for inspection to any relevant and competent authority in respect of this development.

- 19; All records and/or reports required or resulting from activities relating to this environmental authorisation must:

19.1. be legible;

19.2. be submitted as required and must form part of the external audit report;

19.3. if amended, the record and/or report must be amended in such a way that the original and any subsequent amendments remain legible and are easily retrievable; and

19.4. be retained in accordance with documented procedures which **are** approved by the Department. **N.**

All documentation e.g. audit/monitoring/compliance reports and notifications, required to be

submitted to the Department in terms of this authorisation, must be submitted to the Director: Compliance Monitoring at the Department.

21. The holder of the environmental authorisation must keep records and update all the information referred to in Annexure II and submit this Information to the Department on an annual basis.

Environmental audit report for construction

22. The holder of the authorisation must submit an environmental audit report to the Department within 30 days of completion of the construction phase (i.e. within 30 days of site handover) and within 30 days of completion of rehabilitation activities,

23, The environmental audit report must:

23.1. Be compiled by an independent environmental auditor;

23.2. Indicate the date of the audit, the name of the auditor and the outcome of the audit;

23.3. Evaluate compliance with the requirements of the approved EMP and this environmental authorisation;

23,4, Include measures to be implemented to attend to any non-compliances or degradation noted;

23,5. Include copies of any approvals granted by other authorities relevant to the development for the reporting period;

- 23.6. Highlight any outstanding environmental issues that must be addressed, along with recommendations for ensuring these issues are appropriately addressed;
- 23.7. Include a copy of this authorisation and the approved EMP
- 23.8. Include all documentation such as waste disposal certificates, hazardous waste landfill site licences etc. pertaining to this authorisation; and
- 23.9. Include evidence of adherence to the conditions of this authorisation and the EMP where relevant such as training records and attendance records.

Commencement of activities

24. The authorised activity shall not commence within twenty (20) days of the date of signature of the authorisation.
25. An appeal under section 43 of the National Environmental Management Act (NEMA), Act 107 of 1998 (as amended), does not suspend an environmental authorisation or exemption, or any provisions or conditions attached thereto, or any directive, unless the Minister, MEC or delegated organ of state directs otherwise.
26. Should you be notified by the Minister of a suspension of the authorisation pending appeal procedures, you may not commence with the activity until such time that the Minister allows you to commence with such an activity in writing.
27. The holder of this authorisation must obtain a Water Use Licence from the Department of Water Affairs (DWA) prior to the commencement of the project should the holder impact on any wetland or water resource, A copy of the license must be submitted to the Director: Environmental Impact Evaluation at the Department.
28. The holder of this authorisation must obtain the appropriate permits from the Department of Agriculture, Forestry and Fisheries (DAFF) for the removal of plants listed in the National Forest Act and from the relevant provincial department for the destruction of species protected in terms of the specific provincial legislation. Copies of any such permits obtained must be included in the first audit submitted to the Department.

Notification to authorities

29. Fourteen (14) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence. This notification period

may coincide with the Notice of Intent to Appeal period, within which construction may not commence.

Operation of the activity

30. Fourteen (14) days written notice must be given to the Department that the activity operational phase will commence.

31. The holder of this authorisation must compile an operational EMPr for the operational phase of the activity or alternatively, if the holder has an existing operational environmental management system, it must be amended to include the operation of the authorised activity.

Site closure and decommissioning

32. Should the activity ever cease or become redundant, the applicant shall undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and competent authority at that time.

Leasing and alienation of the site

33. Should the holder of the environmental authorisation want to alienate or lease the site, he/she shall

- notify the Department in writing of such an Intention at least 120 days prior to the said transaction. Should the approval be granted, the subsequent holder of the environmental authorisation shall remain liable to compliance with all licence conditions.

Transfer of environmental authorisation

34. Should the holder of the environmental authorisation transfer holdership of this environmental authorisation due to a change of ownership [as provided for in terms of S24E(c) of NEMA], he/she must apply in terms of Section 52 of NLMWA.

35. Should the transfer of holdership of this environmental authorisation mentioned above be for any reason other than the change of ownership in the property, the holder of this environmental authorisation must inform the Department of any change in ownership in the property and must request an amendment to this environmental authorisation to reflect such change in ownership.

36. Any subsequent holder of an environmental authorisation shall be bound by conditions of this environmental authorisation.

Investigations

37. If, in the opinion of the Department, pollution, nuisances or health risks may be or are occurring on the site, the holder of the environmental authorisation must initiate an investigation into the cause of the problem or suspected problem, including such investigations as identified by the Department related to the risks posed, Should the investigation carried out reveal any unacceptable levels of pollution, the holder of the environmental authorisation must submit mitigation measures to the satisfaction of the relevant Department.

SPECIFIC CONDITIONS

38, Permissible waste

- 38.1 Any portion of the Site which has been constructed or developed according to condition 2 of this Licence, may only be used for the storage and disposal of Hazardous Waste in terms of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008).
- 38.2 The classification, acceptance and treatment criteria as listed in the latest edition of the document . "Minimum Requirements of Handling, Classification and Disposal of Hazardous Waste, Waste Management Series, Department of Water Affairs and Forestry', must be conformed to.

39. Construction

- 39;1 The construction and further development within the Site must be in accordance with the drawings 289348-SHF-012 Stormwater system and drainage layout, 289348-SHF-013 Stormwater system and drainage details; 289348-SHF-020 to 289348-SHF-034 Ash disposal liner, site plans, cos, earthworks and the agreed amendments indicated in the letter from the Department of Water Affairs Engineer dated 11 June 2013,
- 39;2 The construction may not commence before the agreed amendment design for the proposed Khanyisa Coal Power Station, indicated in the letter from the Department of Water Affairs Engineer dated 11 June 2013, is approved by the Director: Licensing.

- 39.3 Construction and further development within the Site must be carried out under the supervision of a Professional Civil Engineer, registered under the Engineering Profession of South Africa Act, 1990.
- 39.4 After construction of the Site or further development within the Site, the Licence Holder shall notify the Responsible Authority thereof and the person referred to in condition 39.3 shall submit a certificate or alternatively a letter to the Responsible Authority that the construction of the Site or further development within the Site, as proposed by the Licence Holder and approved by the Responsible Authority, is in accordance with recognised civil engineering practice and the requirements in this Licence, before disposal may commence on the Site. If the Responsible Authority is satisfied with the construction of the Site or any further development within the Site and has given written permission, the Licence Holder may use the Site or any further development Within the Site for the disposal of waste.
- 39.5 The Site must be constructed in accordance with recognised civil engineering practice.

40. Runoff Management

- 401 All runoff water (storm water) arising as a result of precipitation on **land adjacent to the Site** must be prevented from coming into contact with any substance, whether such substance is a solid, liquid, vapour or gas, or a combination thereof, which is produced, used, stored, dumped or spilled on the premises, including leachate and must be diverted and drained from the Site, by means of works constructed by the holder of the environmental authorisation in accordance with condition 39.
- 40.2 All runoff water (stormwater) arising as a result of precipitation on the Site, must be prevented from coming into contact with any substance, as enumerated in condition 401 and must be diverted and drained from the Site and working face of the Site, by means of works constructed by the holder of the environmental authorisation in accordance with condition 39. •
- 40.3 *in* the event that runoff water referred to in conditions 40.1 and 40.2 becomes contaminated, it must be regarded as leachate and must be dealt with according to condition 41 in this License, 40.4 Runoff water arising from operational actions, for example the washing of vehicles and containers, must be regarded as contaminated runoff and shall be treated according to condition 40.3.
- 40.5 Uncontaminated runoff water must under no circumstances be used to dilute leachate emanating from the Site but must be diverted to and discharged into the nearest stormwater channel.
- 40.6 The Holder of the environmental authorisation must ensure that contaminated water is not used for dust suppression on any unlined area.

41. Leachate Management

41.1 All leachate from the Site, including contaminated runoff water, must be -

- i, treated in works constructed according to Condition 39 to comply with the quality requirements of the General and Special Standard, as published in Government Notice 991 of 18 May 1984 or with such quality requirements as may from time to time be determined by the Responsible Authority; and/or
- ii, discharged into any convenient sewer only if accepted in writing by the authority in control of the sewer,

42. Water quality monitoring

42.1 Monitoring of groundwater, surface water and leachate must be conducted at the locations specified in conditions 43 and 44 at any other location or locations that may from time to time be specified by the Responsible Authority.

42.2 The Holder of the environmental authorisation must conduct kinetic leach testing separately on fly ash and coal ash to determine what will leach out, also do a geochemical study to determine what will leach from the combined material. The Kinetic Leach test report and the Geochemical modeling results and report must be submitted within eight months from the date of this license to the Director: Licensing.

43, Groundwater quality monitoring network

43.1A monitoring borehole network for the Site must be maintained by the holder of the environmental authorisation as stipulated in the Anglo American Khanyisa Power Station project: EIA Geohydrological Evaluation for the Environmental Impact Assessment pages 61-62 dated August 2011 compiled by Aurecon.

43.2 Monitoring boreholes must be equipped with lockable caps. The Responsible Authority reserves the right to take water samples at any time and to analyse these samples, or to have them taken and analysed,

44. Surface water quality monitoring network

44.1 Surface water monitoring shall be performed in all stormwater drains on and adjacent to the Site at locations selected in conjunction with the Responsible Authority and at such a frequency as determined by Responsible Authority.

44.2 Stormwater monitoring shall be conducted after each rainfall event.

45. Background monitoring

45.1 Samples from the borehole where the groundwater in the borehole is at an expected higher hydraulic pressure level than the hydraulic pressure level of the ground water under the Site, shall be considered as background monitoring,

45.2 Background groundwater monitoring must be conducted during each monitoring occasion in terms of conditions 46 and 48 for the water quality variables listed in Annexure

46. Detection monitoring: frequency of water quality monitoring and variables for analysts

46.1 Monitoring for surface and groundwater quality must be conducted for variables listed in Annexure IV quarterly at locations specified in conditions 43.1 and 44.1.

46.2 Monitoring of leachate must be conducted monthly for the water quality variables listed in Annexure III if there is a leachate dam.

47. Leak and failure detection monitoring

47.1 Inspection of liners, where liners are accessible, must be performed monthly.

47.2 Liners must be repaired when possible, or replaced when necessary, when inspection tests show deterioration, or leaking and these corrective actions shall be performed to the satisfaction of the Responsible Authority.

47.3 Should a leak or failure be suspected or detected during monitoring or tests performed in accordance with conditions 47.2, or at any other time, it must be regarded as an incident and be reported to the Director: Licensing.

48. Investigative monitoring

48.1 If, in the opinion of the Responsible Authority, a water quality variable at any monitoring point listed under the detection monitoring programme, as referred to in condition 46, shows an increasing trend, the Holder of the environmental authorisation shall initiate a monthly monitoring programme for the water quality variables listed in Annexure ill.

49. Further investigations

49.11f, in the opinion of the Responsible Authority, groundwater and/or surface water pollution have occurred or may possibly occur, the Holder of the environmental authorisation must conduct and/or appoint specialists to conduct the necessary investigations and implement additional monitoring and rehabilitation measures to the satisfaction of the Responsible Authority,

50, Analysis of samples

- 50.1 The Holder of the environmental authorisation must ensure that all samples taken in accordance with condition 4, are analysed by a laboratory accredited by the South African Bureau of Standards (SABS); and
- 50.2 According to the methods prescribed in terms of Government Notice 991 of 18 May 1984, or another method of analysis for which written approval has been obtained from the Responsible Authority.

51. Audits and inspection

51.1 The Responsible Authority reserves the right to audit and/or Inspect the Site at any time and at such a frequency as the Responsible Authority may decide, or to have the Site audited or inspected.

51,2 The Holder of the 'environmental authorisation must make. any records or documentation available to the Responsible Authority upon request, as well as any other Information the Responsible Authority may require,

52. Reporting of incidents

52.1 The Holder of the environmental authorisation must, within 24 hours, notify the Responsible Authority of the Occurrence or detection of any incident on the Site, or incidental to the operation of the Site, which has the potential to cause, or has caused water pollution.

52.2 The Holder of the environmental authorisation must, within 14 days, or a shorter period of time, if specified by the Responsible Authority, from the occurrence or detection of any incident referred to in condition 52.1, submit an action plan, which must include a detailed time schedule, to the satisfaction of the Responsible Authority of measures taken to -

i correct the impact resulting from the incident;

i prevent the Incident from causing any further impact; and

i prevent a recurrence of a similar incident'

52.3 The Holder of the environmental authorisation shall, within 48 hours, notify the Responsible Authority of any sporadic leachate generated on account of unusual circumstances on the Site.

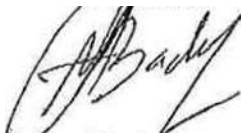
52.4 In the event that measures have not been implemented within 21 days of the incident to address impacts caused by the incident referred to in condition 62.1, or measures which have been implemented are inadequate, the Responsible Authority may implement the necessary measures at the cost and risk of the Holder of the environmental authorisation.

52.5 The Holder of the environmental authorisation must keep an incident report and complaints register, which must be made available to both external and the Responsible Authority auditors for the purpose of their audits:

53. Other reports

53.1 The information required in terms of condition 4 must be reported to the Responsible Authority in a yearly report. The information must also be included into a trend report, which must contain a graphical presentation of all results obtained previously at any specific point, as well as an interpretation and discussion of the results of each monitoring occasion.

Date of environmental authorisation; **C31 C1650C.--20/3**



Mr Iam Abater

Deputy Director General: Legal, Authorisations, Compliance & Enforcement

Department of Environmental Affairs

Annexure Reasons for Decision

1. Key factors considered in making the decision►

All In reaching its decision, the Department took, *Infer elle*, the following into consideration

- a) The information contained in the EIR dated March 2012;
- b). The mitigation measures included in the EIR dated March 2012 and the FMP;
- c) The Information contained in the specialist studies contained within EIR dated March 2012;
- d) .The comments received from the Directorate: Licensing, Chief Directorata! Air Quality and comments from interested and affected parties as included In the EAIR dated March 2012;
- e) The ROD from Department of Water Affairs; and
- f) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1908 (Act No. 107 of 1998).

2. Findings

After consideration of the information and factors listed above the Department.reached the following conclusions:

- a) The identification **and** assessment of impacts are detailed in the EIR dated March 2012 and sufficient assessment of the key identified issues and impacts have been completed.
- b) A waste product That is going to provide the power generation in the form of discard coal.
- c) The proposed plant **will** utilise reclaimed and treated mine water from the Emalahieni Waste Water Treatment Works,
- d) At peak construction time which is going to be a period of six to eight months approximately 1200 people will be employed with approximately 900 people during the construction period and approximately 120 people will be employed during operation.
- e) The procedure followed for impact assessment is adequate for the decision-making process,
- 0 The proposed mitigation of impacts identified and assessed adequately curtails the identified impacts.

g) A sufficient public participation process was undertaken and the applicant has satisfied the minimum requirements as prescribed in the E1A regulations, 2008, for public involvement,

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorisation, the activities will not conflict with the general objectives of integrated environmental management laid down in Chapter 5 of the National Environmental Management Act, 1998 and that any potentially detrimental environmental impacts resulting from the activity can be mitigated to acceptable levels. The application is accordingly granted,

ANNEXURE II

**INFORMATION WHICH SHALL BE SUBMITTED ON AN ANNUAL BASIS IN ACCORDANCE WITH THE
"RECORDING AND REPORTING TO THE DEPARTMENT" ABOVE**

*= Indicate with an X. Please print legibly,

NAME OF SITE: _____	DATE OF REPORT: ____ (y/m/d)
---------------------	------------------------------

1. Registered owner(s) of property on which the power station is situated;

Name	Telephone	
Postal Address	Fax	
	Postal Code	

2. Operator in control of the power station;

Name	Telephone	
Identity number	Tel. After hours	
Educational Qualifications		
Other Relevant competencies:		

3. Indicate the type of waste and approximate quantities disposed of during the year:

TOTAL	

4. Indicate the type of waste and approximate quantities transferred for reuse, recycling, or treatment of during the year.

TOTAL	

I, the undersigned, declare that the information stated above is to my knowledge a true reflection of the status at the _____ waste management facility.

Signature: _____

Name: _____

Capacity: _____

Place: _____

Date _____

This form may be obtained electronically from the Department.

ANNEXURE III

WATER QUALITY VARIABLES THAT MUST BE MONITORED: CONDITISE45; 46 & 48

pH
Calcium (Ca)
Chlorides (Cl)
Manganese (Mn)
Alkalinity (Al)
Electrical Conductivity (EC)
Magnesium (Mg)
Potassium (K)
Sulphate (SO₄)
Iron (Fe)
Boron (**B**)
Total Petroleum Hydrocarbons (TPH)
Total Chrome (Cr⁺)
Copper (Cu)
Cadmium (Cd)
Chrome VI (Cr⁺⁶)
Arsenic (As)
Lead (Ph)
Zinc (Zn)
Sodium (Na)



SP17⁷ : F 311
A



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**Environmental Authorisation
Amendment Report**

Khanyisa Power Station, eMalahieni,
Mpumalanga Province

Reference: 111411',

Prepared for: ACVVA
Power (Pty) Ltd

Revision: 1

18 June 2015

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Approver signature

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ANNEXURE	Storm Water Assessment



Air Quality Impact Assessment of the Proposed Khanyisa Power Station, Mpumalanga

Project done for Aurecon



Report Compiled By:
Gerrit Kornelius
Rocheile Boo rman

Project Manager:
Gerrit Kornelius

Report No: 10AURO 4,0 Date: March 2015



AQSRs	Option	1	Option 2	
	Highest Hourly GLC (pglm ³)	8-Hourly Avg GLC (pg/m ³)	Highest Hourly GLC (pgim)	8-Hourly Avg GLC (pg/m ³)
Duvha Park (highest)	148.98	56.69	119.47	46.55
Tasbeth Park (highest)	427.15	73.55	240.87	58.12
Dixon AH	155.56	55.42	39.88	28.28
Highveld Single Quarters	277.55	62.90	186.31	53.29
Reyno Ridge	183.89	92.84	59.01	26.19
Farmstead	263,90	100.40	187,07	97.03
Clewer	378.99	156.94	258.70	61.31
Max grid concentration (X=721237,Y=7125236)	860.93	543.14	528.63	374.37
Criteria	30 000	10 000	30 000	10 000

4.4 Greenhouse Gas Emissions

4.4.1 Impact Statement

The total greenhouse gas emission reported to be emitted in South Africa and globally for a year is approximately 433 million metric tons of CO₂ and 29,319 million metric tons of CO₂ in 2007 (UN Statistical division, 2010), respectively. The proposed power station is likely to contribute about 4.3 million metric tons of CO₂ per year (assuming the operation of a 600 MW power station with an emission factor of 1100 g CO₂ per kWh sent out, operating with Flue Gas Desulfurisation (FGD) on Kleinkopje discard for 8700 h per year) (Mott McDonald 2011). Since the proposed project will emit Scope 1 emissions in excess of 100 000 tons of GHGs annually, a pollution prevention plan and emissions inventory will have to be submitted once the draft regulations have been finalised,

Table 417: Approximate annual South African greenhouse gas emissions in 2018

	10 ⁶ tons of CO ₂ /annum
South Africa 2007 (UN Statistical Division, 2010)	433
Medupi Power Station (under construction) 4 800 MW	29.9
Kusile Power Station (under construction) 4 800 MW	29.9
TOTAL emissions	502.8

plate: Annual South African emissions for 2018 are likely to be under-estimated. This is because growth of emissions since 2007 has not been included, other than for new coal-fired power stations, which are currently under construction. The estimate therefore excludes the return to service of mothballed stations, as well as growth in the private sector.

4.4.2 Description and Significance of Potential Impact

The emissions from Khanyisa Power Station would increase South Africa's CO₂ equivalent emissions by some 0.85 % and would increase the country's contributions to global emission of greenhouse gases by some 0.01 %.

This is a limited increase in greenhouse gas emissions, given the aims of the Kyoto Protocol, which aims to

Air Quality Impact Assessment of the proposed Khanyisa Power Station, Mpumalanga

reduce overall emission levels of the six major greenhouse gases to 5 % below the 1990 levels, between 2008 and 2012 in developed countries.

The proposed station has a slightly higher emission factor than that of the average Eskom coal-fired power station (approximately 1100 g/kWh vs 1065 g/kWh). However, it should be taken into account that the proposed power station includes an emission premium for FGD of approximately 50 g/kWh and will replace power generation from Eskom's marginal (not average) stations. The latter may be expected to have a considerably higher GHG emission factor than the average. The proposed station will therefore have a neutral or slightly positive effect on total GHG emissions.

4.4.3 Mitigation Measures

Carbon Capture and Storage (CCS) is a way of mitigating the contribution of fossil fuel emissions to global warming, based on capturing CO₂ from large point sources such as power stations and storing it away from the atmosphere. CCS involves carbon dioxide being concentrated through various options and then stored permanently.

The best researched carbon dioxide option is geological storage: This method involves injecting carbon dioxide directly into underground geological formations. Oil fields, gas fields, saline formations, unmineable coal seams, and saline-filled basalt formations have been suggested as storage sites. Various physical (e.g. highly impermeable rock) and geochemical trapping mechanisms would prevent the CO₂ from escaping to the surface. The CSIR undertook a study into the potential for CO₂ storage in South Africa (2004). The study concluded that the storage of CO₂ in depleted gas fields, coal mines or gold mines is very limited. Deep saline reservoirs offer the highest potential for the geological storage of CO₂. The Karoo Super Group sediments offer the highest potential, and within that, the Vryheid Formation in the north and the Katberg Formation near Burgersdorp/Molteno offer the biggest potential. However, due to a lack of information about the porosity and permeability of these of reservoirs, significant work is required before CO₂ sequestration into geological formations will be possible (CSIR, 2004).

The South African CCS Atlas identified at a theoretical level that South Africa had about 150 Gigatons (Gt) of storage capacity. Less than 2% of this is onshore.

A significant limitation of CCS is its energy penalty. The technology is expected to use between 10 —40 % of the energy produced by a power station to capture the CO₂ (IPCC, 2005). Wide scale adoption of CCS may erase efficiency gains of the last 50 years, and increase resource consumption by one third. However, even taking the fuel penalty into account, overall levels of CO₂ abatement remain high, at approximately 80 - 90% compared to a plant without CCS.

In view of the above, and in the light of the difficulties imposed by the site, it is unlikely that CO₂ capture and storage will in the short and medium term become viable for the Khanyisa project.



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Department:
Energy
REPUBLIC OF SOUTH AFRICA

Remarks by the Minister of Energy, Ms Tina Joemat-Pettersson, MP

COAL-BASED IPP PROGRAMME ANNOUNCEMENT

Cape Town, 10 October 2016

Programme Director

Project Developers, Members of the Media

Ladies and Gentlemen

Coal is South Africa's dominant energy source. 77% of South Africa's energy needs are provided by this mineral. Environmental considerations and the increasing prevalence of extreme climate events compel us to progressively reduce our dependence on coal and traditional coal fired electricity plant technologies. As one of the United Nations Framework Convention on Climate Change participating member states, South Africa has made international commitments to both sustainable development and climate change. With the understanding that this will entail a reduction in the use of fossil fuels, these commitments signalled an important step in South Africa's journey to a cleaner energy future. In October 2015, along with energy ministers from the G20 countries, we affirmed our commitment to enhanced deployment of RE.

Our commitments to a lower carbon and carbon resilient future have also been embedded throughout our national policy framework¹.

¹ Including the National Development Plan, 2010; National Climate Change Response White Paper, 2011; Renewable Energy White Paper, 2003, among others.

In 2010, the South African Government adopted a plan to grow the share of renewable energy² in the electricity mix from 0% to 21% over the 20 year planning horizon to 2030; simultaneously reducing the capacity share of fossil fuels in the electricity mix from 86.5% to 57%.

Our RE1PPPP is effecting this commitment. As at the end of June 2016, 6376 MW of electricity had been procured from 102 RE Independent Power Producers in six bid rounds. Of this, 2 200 MW of electrical generation capacity from 44 IPP projects has been connected to the national grid.

However, given South Africa's current economic realities, our development focus and available resources, we have to take a pragmatic approach. Despite the significant diversification of our electricity mix, investment in baseload capacity remains a necessity, requiring the addition of 16 383 MW of coal within our current planning horizon to 2030. To meet the additional requirement for coal baseload generation capacity, in December 2012, the then Minister of Energy announced a determination for 2500 Megawatt to be procured through a coal baseload Independent Power Producers Programme.

Launched in December 2014, the Coal Programme is the first baseload programme which allows the private sector to generate energy using coal resources, This programme is rolled out through two bid windows. **It is my pleasure today, to announce the preferred bidders of the first bid window coal baseload programme, namely Thabametsi and Khanyisa.** Both bidders were selected as per the stringent requirements of the first bid submission phase, with all bids reviewed and evaluated by the IPP Office.

Thabametsi and Khanyisa will collectively add 863.3MW to the country's grid in the next five years, with Khanyisa set to begin commercial operation in December 2020, followed closely by Thabametsi in March 2021. Both projects will use proven technology from suppliers with a track record of timeous delivery.

² Renewable energy source not including hydro. Share of RE including hydro was 5% in 2010, to grow to 26% in 2030 (IRP 2010).

With the collective backing of foreign developers from Korea, Japan and Saudi Arabia, the SA banking sector, including the Development Bank of South Africa (DBSA), the PIC and IDC, the two bidders already have a formidable set of partners committed to enabling their projects' success,

In their bids, Thabametsi and Khanyisa have submitted prices well below the stipulated qualification price of 82c/kwh, which will escalate with CPI (all components of the tariff other than the Fuel Charge Rate, which will escalate with reference to a basket of published indexes, currently CPI plus 1%). Sellers are not able to seek adjustment of the tariff (outside of the agreed escalation) for cost overruns or delays during the construction period, and for ongoing operating cost overruns, including the cost of coal, limestone and water charges over the life of the PPA. Coal and Limestone Supply Agreement's are entered into between the Seller and its Supplier/s. The Buyer (Eskom) has no exposure to ongoing mine operating costs including residual environmental risks arising from mining operations. Significant penalties will be levied for not timeously achieving scheduled commercial operation (i.e. 6 days for 1 day late connection).

While these two projects will add much needed capacity to our national grid, they ultimately have a far greater role to play in terms of the overall value they will add to the sector. This value has been enabled through strategic bid design — which saw participants required to have a minimum South African entity participation of 51%, black ownership of 30%, and a weighted B-BBEE contributor status of level five in respect of locally based shareholders, among others."

I sought and obtained exemption from various requirements of the PPPFA and its regulations to enable the Department to set forward-looking commitments for B-BBEE and job creation so as to ensure long-term economic development. Thresholds for some of these elements were set up front, with sub-contracting of the project activities allowed to facilitate special skills transfer, as well as foreign investment in the project. The two coal 1PPs will additionally unlock investment in much needed infrastructure and stimulate local procurement."

While the over R40 164 million of debt and equity funding committed to the projects demonstrates what the investors see in the coal programme space, the jobs created both during construction (6 613) and operations (13 524) will impact surrounding communities in Limpopo and Mpumalanga where Thabametsi and Khanyisa are' respectively based. Each of the projects has additional differentiators that will add specific value. Thabametsi is a mouth-of-mine project for which a new mine will be developed, resulting in further indirect job creation, and Khanyisa will use discarded coal reducing emissions from discard coal dumps.

Their collective emphasis on skills transfer and enterprise development will create additional opportunities for transformation and empowerment in these regions. This once again reinforces the critical contribution of the 1PP programme far beyond the supply of electricity alone. The value these projects will add to South Africa's broader national development objectives, including economic development, social upliftment, job creation, broad based economic empowerment and development of small and women owned vendors, cannot be underestimated — and we are looking forward to seeing both Thabametsi and Khanyisa deliver meaningful impact in the energy space.

The Department of Energy will be working closely with Thabametsi and Khanyisa through our IPP Office to realise the full potential of the Coal Programme. In this way, we will establish a positive foundation for future bid windows and deliver on the holistic objectives of the (PP programme leaving a legacy that future generations can be proud of.

In conclusion, while South Africa's energy build plan still incorporates the development of fossil fuel assets in the foreseeable future, we are committed to transition to a low-carbon economy, with priority to be given to clean energy alternatives, subject to current technological and cost constraints. We are already seeking ways and new technologies to use fossil fuels with minimal carbon emissions - the RFP for the second coal bid window is being reviewed to give consideration to the inclusion of clean coal technologies.

I Thank you.

COAL RFP PART A - GENERAL REQUIREMENTS RULES (Issue Version - 15 December 2014) (2)

First issued: 15 December 2014

First Bid Submission Date: 8 June 2015

TENDER NO: DOE/010/2014/15

The Republic of South Africa

Department of Energy

REQUEST FOR QUALIFICATION AND PROPOSALS FOR NEW GENERATION
CAPACITY UNDER THE COAL BASELOAD IPP PROCUREMENT PROGRAMME

PART A: GENERAL REQUIREMENTS, RULES AND PROVISIONS



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2.1.39	"Coal"	in respect of a Project that is the subject matter of a Bid Response or Affected Project Request, as the case may be, the type, quantity and quality of coal that the relevant Bidder proposes using in respect of that Project;
2.1.40	"Coal Baseload IPP Procurement Programme"	the procurement programme being conducted in terms of this RFP;
2.1.41	"Coal Baseload IPP website"	www.ipwcoal.co.za ;
2.1.42	"Coal Supplier"	any entity or organisation engaged by the Bidder or Project Company, as the case may be, from time to time to supply Coal to the Project Company as Seller and any successors thereto;
2.1.43	"Coal Supply Agreement"	the coal supply agreement or agreements entered into or to be entered into between the Bidder or the Project Company, as the case may be, and the Coal Suppliers for the supply of Coal to the Project Company as Seller;
2.1.44	"Codes"	has the meaning given to it in the PPA;
2.1.45	"Commercial Close" -	the Effective Date as defined in the Implementation Agreement;
2.1.46	"Commercial Energy"-	has the meaning given to it in the PPA;
2.1.47	"Commercial Operation Date"	has the meaning given to it in the PPA;
2.1.48	"Companies Act"	the Companies Act No. 71 of 2008, and where relevant, applicable provisions of the Companies Act No. 61 of 1973;

- 2.1.104 "Financial Institution"- any entity that falls within the definition of "financial institution" in the Financial Services Board Act No. 97 of 1990 and that is registered and regulated pursuant to the Financial Services Board Act No. 97 of 1990 or any analogous legislation in a foreign jurisdiction, provided that, if there is no analogous legislation in the jurisdiction of the relevant entity's primary establishment, an entity may be a financial institution for the purposes of this RFP if It can establish to the satisfaction of the Department, in its sole discretion, that it undertakes (in the jurisdiction of its primary establishment) an activity falling within the definition of "financial institution" in the Financial Services Board Act No. 97 of 1990 with the express consent of all the appropriate authorities in the jurisdiction of its Ornerly establishment;
- 2.1.105 "Financial Close" irrespective of its definition and application in the Financing Agreements (which this RFP does not seek to dictate by this definition), for the purposes of this RFP it shall mean the date on which the Seiler, as the Borrower under the Financing Agreements, has received confirmation that all suspensive conditions to the Financing Agreements have either been met to the relevant Lenders' satisfaction or have been appropriately waived by the Lenders;
- 2.1.106 "Financial Model" the financial model that Is included in the Bidder's Bid Response and that meets the requirements of clause 4 (*Financial 011104017 3 - Robustness of Financial Model*) of Volume 4 (*Financial Requirements*) Part 1 (*Financial*

		<i>Qualification Criteria</i>) of Part B (<i>Functional and Qualification Criteria Requirements</i>) of this RFP;
2.1.107	"Financing Agreements"	has the meaning given to it in the Implementation Agreement;
2.1.108	"First Bid Submission Date"	the date identified in clause 10.1 (<i>Structure of the Coal Baseload IPP Procurement Programme</i>) and clause 12 (<i>Timetable for the Coal Baseload IPP Procurement Programme</i>) of Part A (<i>General Requirements, Rules and Provisions</i>) of this RFP, namely 28 April 2015;
2.1.109	"Government"	the Government of the Republic of South Africa, and any of its departments, agencies or other entities that it manages or controls;
2.1.110	"Grid Provider"	a Distributor or NTC, as the case may be;
2.1.111	"Host Country"	means the country in which the Cross Border Facility is located;
2.1.112	"IDC"	the Industrial Development Corporation of South Africa Limited, a juristic company established under Section 2 of the Industrial Development Corporation Act No 22 of 1940;
2.1.113	"Implementation Agreement"	the implementation agreement to be entered into between the Seller and the Department, provided in Appendix 2C (<i>Implementation Agreement</i>) in Volume 2 (<i>Legal Requirements</i>) Part 3 (<i>Legal Agreements</i>) of Part B (<i>Functional and Qualification Criteria Requirements</i>) of this REP;

2.1.143	"Net Available Capacity"	has the meaning given to it in Schedule 9 (<i>Calculation of Payments</i>) of the PPA;
2.1.144	"Net Dependable Capacity"	has the meaning given to it in the PPA;
2.1.145	"New Gen Regulations"	the Electricity Regulations on New Generation Capacity published under GNR 399 in Government Gazette 34262 of 4 May 2011, in terms of section 35(4) of the Electricity Regulation Act;
2.1.146	"Operate"	has the meaning given to it in the PPA;
2.1.147	"Operating Expenditure"	- has the meaning given to it in the PPA;
2.1.148	"Operating Period"	- has the meaning given to it in the PPA;
2.1.149	"O&M Contractor"	means any contractor directly engaged by the Bidder to undertake the whole or any part of the Operation and or Maintenance of the Facility;
2.1.150	"Ownership"	has the meaning given to it in the Implementation Agreement;
2.1.151	"Payment"	has the meaning given to it in the PPA;
2.1.152	"PB PD Undertaking"	the undertaking to be provided to the Department by each Preferred Bidder, for the purposes of developing a Project under this Coal Baseload IPP Procurement Programme, substantially in the form of Appendix 21 (<i>PB PD Undertaking</i>) of Volume 2 (<i>Legal Requirements</i>) Part 5 (<i>Preferred Bidder Documents</i>) of Part B (<i>Functional and Qualification Criteria Requirements</i>) of the RFP;

- 11.6 Before appointing any Bidder as a Preferred Bidder, the Department reserves the right to satisfy itself that for such Bidder, each provider of Debt and Equity Finance meets the requirements of Volume 4 (*Financial Requirements*) Part 1 (*Financial Qualification Criteria*) of Part B (*Functional and Qualification Criteria Requirements*) of this RFP, taking into account the total amount of Debt and Equity Finance to be provided by it, in respect of all potentially successful Bid Responses, if 2 (two) or more of those Bid responses are selected for appointment in accordance with clauses 11.1 to 11.5 of Part A (*General Requirements, Rules and Provisions*) of this RFP, as applicable.
- 11.7 if the maximum available MW allocation in respect of this Coal Baseload IPP Procurement Programme is taken up by the Preferred Bidders in a particular Bid Submission Phase or the Department considers that the MW available for allocation are insufficient to allow for adequate competition, there will be no succeeding Bid Submission Date, unless additional MW are allocated by the Department, or through a new or amended determination in terms of section 34 of the Electricity Regulation Act.
- 11.8 Preferred Bidders will, at all times, be held to, and be required to comply with the Charge Rates and Economic Development proposals that they submit in their Bid Response, even if there is no Part C (*Comparative and Competitive Evaluation Criteria*) evaluation. The Implementation Agreement and PPA will be entered into with a Preferred Bidder on the basis of the Charge Rates and Economic Development proposals made in the Bidder's Bid Response, subject only to such adjustments as are explicitly provided for in this RFP or are approved by the Department in writing in accordance with the process set out in clauses 22.3 to 22.9 of Part A (*General Requirements, Rules and Provisions*) of this RFP.
- 11.9 The Department will notify Bidders of their appointment as Preferred Bidders and of the terms and conditions of the appointment, as and when the Department selects Bidders as Preferred Bidders.

12. Timetable for Coal Baseload IPP Procurement Programme

Milestone	Anticipated Date
Issue of RFP	15 December 2014
Bidders' Conference	To be announced at a later date

	by way of Briefing Note
Submission of Affected Project Requests	23 February 2015
Last date for Bidders to submit written questions in terms of clause 33 (<i>Time for requests and clarifications</i>) of this Part A (<i>General Requirements, Rules and Provisions</i>)	23 April 2015

First Bid Submission Phase	
Bid Submission Notification Date	11 May 2015
First Bid Submission Date	8 June 2015
Announcement of Preferred Bidders in respect of First Bid Submission Date	Beginning of August 2015
Preferred Bidders to provide signed PB PD Undertakings to the Department	Not later than 15 (fifteen) days after announcement of Preferred Bidders
Commercial Close and Financial Close	6 (six) months after announcement of Preferred Bidders

- 12.1 The Department anticipates running 1 (one) Bid Submission Phase per year for this Coal Baseload IPP Procurement Programme and anticipates that the schedule for any subsequent Bid Submission Phase will mirror the schedule for the First Bid Submission Phase set out above, so that the Bid Submission Date will potentially be 12 (twelve) months after the preceding Bid Submission Phase. The Department gives no guarantee that there will be any subsequent Bid Submission Phase after the First Bid Submission Phase, nor that there will be a Bid Submission Phase in any particular year.
- 12.2 The Department will notify potential Bidders of any applicable dates for subsequent Bid Submission Phases in due course by Briefing Note and on the Coal Baseload IPP website. All references in tile REP to specific dates in respect of any Bid Submission Phase should be interpreted accordingly.

First Issued: 15 December 2014

First Bid Submission Date: 8 June 2015

TENDER NO: DOE/010/2014/15

The Republic of South Africa

Department of Energy

REQUEST FOR QUALIFICATION AND PROPOSALS FOR NEW GENERATION
CAPACITY UNDER THE COAL BASELOAD IPP PROCUREMENT PROGRAMME

VOLUME 2: PART 5: PREFERRED BIDDER DOCUMENTS

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effect after such expiration or termination, notwithstanding that these provisions do not expressly state this; and

- 2.2.14 if any provision in clause 2.1 is a substantive provision conferring rights or imposing obligations on the Bidder then, notwithstanding that such provision is contained in such clause, the effect shall be given thereto as if such provision were a substantive provision in the body of this Undertaking,

3. Commencement and Term

This Undertaking shall commence on the Signature Date and terminate upon the earlier of Commercial Close or its termination by the Department in terms of clause 10.2.2.

4. Appointment of the Preferred Bidder and Preferred Bidder Guarantee

- 4.1 The Department has appointed the Bidder as a Preferred Bidder on the terms of this Undertaking, as read and implemented together with the RFP and the Preferred Bidder Letter. For the avoidance of doubt, the RFP shall continue to apply to the Preferred Bidder, who shall be required to continue to comply with the terms and requirements of the RFP.

- 4.2 On the Signature Date, the Preferred Bidder shall provide the Department with the Preferred Bidder Guarantee, substantially in the form of the guarantee attached to this Undertaking as Appendix 4. The provisions of clause 26.2 (*Preferred Bidder Guarantee*) of Part A (*General Requirements, Rules and Provisions*) of the RFP shall continue to be applicable to all aspects, circumstances and events in respect of the Preferred Bidder Guarantee.

- 4.3 Any additional conditions, which are imposed on the Preferred Bidder by the Department in respect of its appointment as a Preferred Bidder (as attached in a schedule to the Preferred Bidder Letter) are included in this Undertaking as Appendix 5 (*Conditions to Appointment as Preferred Bidder*). The Preferred Bidder undertakes to comply with any such additional conditions in accordance with the terms prescribed by the Department in the Preferred Bidder Letter.

5. Implementation of the Project Development Plan and reporting to the Department

- 5.1 The Preferred Bidder undertakes to develop the Project in accordance with the Project Development Plan, in order to achieve Commercial and Financial Close by

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not later than the date specified as the date for the achievement of such Commercial and Financial Close in Project Development Plan, Details of the milestones to be achieved by the Preferred Bidder in accordance with the Project Development Plan have been specifically included in Appendix 2 of this Undertaking and the Preferred Bidder shall be required to achieve these milestones.

- 5.2 The Bidder must submit a level 3 (three) Project Development Plan gantt chart at monthly resolution to show key activities, events, dependencies and milestones from the date of appointment as a Preferred Bidder in order to achieve Commercial and Financial Close as required in clause 10 (*Technical Qualification Criterion 9: Project Schedule*) of Volume 3 (*Technical Requirements*) Part 1 (*Technical Qualification Criteria*) of Part B (*Functional and Qualification Criteria Requirements*) of the RFP.

This Project Development Plan shall be attached to this Undertaking as Appendix 2 (*Project Development Plan*). In particular, the Project Development Plan shall show a minimum of the following milestones:

- 5.2.1 all necessary land agreements executed and registered at the Deeds Office and all necessary Land Use Consents obtained;
- 5.2.2 \ all necessary Environmental Consents obtained, including any transfers of Environmental Consents to the Project Company;
- 5.2.3 all appeals and or reviews of any Environmental Consents settled;
- 5.2.4 Coal Supply Agreement executed;
- 5.2.5 Key Equipment Supply Agreement executed;
- 5.2.6 Water Supply Agreement, if applicable, executed;
- 5.2.7 Limestone Supply Agreement, if applicable, executed;
- 5.2.8 Distribution or Transmission Connection Agreement, executed;
- 5.2.9 submission of the application for the Generation Licence to NERSA;
- 5.2.10 Generation Licence (NERSA) obtained;
- 5.2.11 Grid Code Compliance Study completed;
- 5.2.12 Construction Contractor appointed;

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- 5.5.7.8.5.5 the proposed training system to be established by the Preferred Bidder to ensure compliance with the OHS&A;
- 5.5.8 submission of an application to NERSA for the generation licence and the obtaining of the generation licence from NERSA;
- 5.5.9 Eskom Budget Quote;
- 5.5.10 fully developed, negotiated and agreed Financing Agreements;
- 5.5.11 completion of any and all due diligence investigations and studies performed on the instructions of the Lenders;
- 5.5.12 process for completion of financial model and associated sensitivities;
- 5.5.13 finalisation of hedging strategies;
- 5.5.14 credit committee approvals process;
- 5.5.15 finalisation of financial model audit;
- 5.5.16 execution of Commercial Close (including, if appropriate, dummy runs);
- 5.5.17 all applicable and outstanding technical documents and drawings in respect of the Project;
- 5.5.18 executed Distribution or Transmission Connection Agreement;
- 5.5.19 completion of Grid Code Compliance Study;
- 5.5.20 in respect of Economic Development, all applicable economic development documents and or information in respect of the Project and the Contractors' Economic Development commitments, including:
- 5.5.20.1 its Economic Development Plan, the form of which has been provided to the Preferred Bidder;
- 5.5.20.2 its Annual Obligations; and
- 5.5.20.3 the figures to be included in clause 7 (*Economic Development Performance Measurement*) of Schedule 1 (*Economic Development Obligations*) of the Implementation Agreement; and
-



Ms Karen Breytenbach

Head of IPP Office

Department of Energy: IPP Projects

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The Honourable Minister Ms Mmamolo Kubayi

Minister of Energy

Department of Energy

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By [email: thabo.mothibi@energy.gov.za](mailto:thabo.mothibi@energy.gov.za)

By [email: bianca.selao@energy.gov.za](mailto:bianca.selao@energy.gov.za)

Our ref: NL/IPP

6 April 2017

Dear Ms Breytenbach

UPDATE ON THE THABAMETSI POWER COMPANY (PTY) LIMITED AND ACWA POWER KHANYISA THERMAL POWER STATION (RF) (PTY) LIMITED INDEPENDENT POWER PRODUCER PROJECTS

1. We address you on behalf of Earthlife Africa Johannesburg¹ (ELA) and groundWork (gW)² ("our clients").
2. Our clients were registered interested and affected parties (I&APs), in relation to the authorisation processes for the proposed Thabametsi and Khanyisa coal-fired power stations, respectively.
3. The authorisation for the proposed 1200 MW Thabametsi power station ("Thabametsi") is held by Thabametsi Power Company (Pty) Limited and the authorisation for the proposed 600 MW Khanyisa power station ("Khanisa") is held by ACWA Power Khanyisa Thermal Power Station (RF) (Pty) Limited South Africa ("ACWA").

Earthlife Africa Johannesburg is a non-profit organisation that seeks to encourage and support individuals, businesses and industries to reduce pollution, minimise waste and protect natural resources. Its largest campaign is the Sustainable Energy and Climate Change Project (SECCP), which seeks a just transition to renewable energy and a low-carbon economy. The SECCP works to promote local and global environmental and social justice on sustainable energy and climate change issues, by changing policies and behaviour through building the awareness and capacity of civil society and government, to achieve an equitable future with respect for all. See more information at: www.earthlife.org.za

groundWork is a non-profit environmental Justice campaigning organisation working primarily in South Africa, in the areas of Climate & Energy Justice, Coal, Environmental Health, Global Green and Healthy Hospitals, and Waste See more information at: [www.groui\)ciwork.org.za](http://www.groui)ciwork.org.za)

Both projects were appointed in October 2016 as preferred bidders under the Coal Baseload Independent Power Producer Procurement Programme (CBIPPPP).

4. We refer to our letter to your office of 18 October 2016, wherein we brought to your attention relevant information concerning the Thabametsi project. We have not yet received a response to this letter, despite your advice on 27 October 2016 that the Department of Energy ("the Department") was considering its position, and a subsequent assurance in an email of 18 November 2016 that a response would be forthcoming soon. A copy of this correspondence is again attached, marked 1 for your ease of reference. In the 18 October 2016 letter, we alerted you to:
 - 4.1. our client, ELA's review application, launched in the North Gauteng High Court in August 2016 (under case no 65662/16), to set aside the environmental authorisation (EA) for Thabametsi, based on Thabametsi's failure to conduct a climate change impact assessment, and the Department and Minister of Environmental Affairs' failure to consider the climate change impacts of the proposed coal-fired power station as a relevant factor in deciding whether to authorise the power station; and
 - 4.2. Thabametsi's duty to inform the Department of the pending litigation against them pursuant to the criteria set out in Clause 4.1.3 of the Legal Qualification Criteria, Volume 2 of the Request for Proposals (RFP) for the CBIPPPP.
5. We now write to you with reference to both Thabametsi and Khanyisa — to ensure that relevant information pertaining to these preferred bidders is brought to your attention and also to inform you of the recent decision of the North Gauteng High Court (pertaining to Thabametsi) which is relevant to all coal baseload IPPs under the CBIPPPP (both for the current two preferred bidders and for all the other proposed coal baseload IPPs, of which there are many).
6. We note, in terms of Legal Qualification Criteria, Volume 2 of the RFP for the CBIPPPP,³ that, in order for a preferred bidder to reach financial and commercial close, such bidder must, at least one month before the scheduled commercial close, provide the Department with the following, *inter alio*:⁴
 - 6.1. the approval of all outstanding Environmental Consents integral to the Project, including, but not limited to the following:⁵
 - 6.1.1. an EA;
 - 6.1.2. a water use licence (WUL);
 - 6.1.3. any provisional atmospheric emission licence (AEL), required in terms of the National Environmental Management: Air Quality Act, 2004 (AQA); and
 - 6.1.4. any heritage approvals in terms of the National Heritage Resources Act, 1999, other applicable provincial laws, and, if applicable, Phase II mitigation permits;
 - 6.2. a generation licence from the National Energy Regulator of South Africa (NERSA);⁶ and
 - 6.3. proof of the resolution or settlement of any appeals and or reviews which may have been lodged or instituted against a decision to grant any environmental consent for the project.¹

³ Coal RFP "Request for Qualification and Proposals for New Generation Capacity under the Coal Baseload IPP Procurement Programme" Volume 2, Part 3 'Legal Agreements', December 2014. See Pages 14 - 17.

Ibid. Volume 2, Part 5 'Preferred Bidder Documents'. See Section 5.5.

⁵ Ibid. Volume 2, Part 5 'Preferred Bidder Documents'. See Section 5.2.2

ibid. Volume 2, Part 5 'Preferred Bidder Documents'. See Section 5.5.8

Ibid. Volume 2, Part 5 'Preferred Bidder Documents'. See Section 5.2.3

7. In relation to the above RFP requirements, the following information, pertaining to Thabametsi and Khanyisa, is relevant.
8. With regard to the proposed Thabametsi project we point out the following:
- 8.1. On 8 March 2017, the North Gauteng High Court ruled in favour of our client ELA, confirming that a climate change impact assessment was required as part of Thabametsi's environmental impact assessment (EIA) before a decision could have been made to authorise Thabametsi. The court set aside the Minister's decision remitting the appeal of the EA to the Minister for reconsideration.
- 8.2. The High Court has ordered the Minister to consider Thabametsi's final climate change impact assessment report (and public comment thereon) and to make a fresh decision on the appeal. A copy of the judgment ("the Thabametsi judgment") is attached marked **2**. Until such time as the Minister's decision is made, Thabametsi's EA is suspended.
- 8.3. The Thabametsi judgment further confirmed that:
- 8.3.1. coal-fired power stations significantly contribute to climate change,⁹ which in turn, poses a substantial risk to sustainable development in South Africa;⁹
- 8.3.2. coal-fired power stations not only contribute to climate change, but are also at risk from the consequences of climate change. As water scarcity increases due to climate change, this will place electricity generation at risk, as it is a highly water-intensive industry; and
- 8.3.3. all proposed new coal plants must fully assess climate change impacts within an EIA, before a decision can be made to authorise (or refuse authorisation for) such plants.
- 8.4. Thabametsi has conducted and published a draft climate change impact assessment report.¹⁰ The draft report points out significant climate change impacts, as well as numerous risks for the power station resulting from climate change, it states, *inter alia*, that:
- 8.4.1. the power station will emit 8.2 million tons of CO₂ equivalent per year, which is considered "very large" in terms of greenhouse gas (GHG) emissions, when compared with international standards;"
- 8.4.2. the plant does not represent an improvement on the emissions intensity of South Africa's grid, but only represents an improvement (from a GHG-emissions perspective) on South Africa's three oldest coal-fired power plants — Eskom's Camden, Hendrina and Arnot stations— all of which are well over 40 years old' - and which have all sought to postpone compliance with South Africa's weak minimum emission standards;
- 8.4.3. the impacts of climate change — particularly on water availability, water quality and temperature increases — are likely to pose a high risk to the power station in the short to long - term future;¹³ and
- 8.4.4. drought conditions have historically negatively impacted local communities, including farmers and other rural residents directly dependent on water supplies for cattle farming and other

⁹ Ibid, Paragraph 25.

¹⁰ Judgement of 8 March 2017, Murphy J, *Earthhfe Africa v the Minister of Environmental Affairs and 4 others (NGHC)*, case number: 65662/16, Paragraph 119.

¹¹ Available at <http://www.savannahsa.comnip/objet11>.

¹² Thabametsi Draft Climate Change Impact Report "Greenhouse Gas Assessment for the 1200NW Thabametsi Coal-Fired Power Station in Lephalale, Limpopo Province South Africa: Final report" Savannah Environmental (Pty) Ltd, January 2017. Page 45 Available at: <http://vwww.savannahsa.comnip/projects/prolpct.php?project=438>

¹³ Ibid, Page 59.

¹⁴ Thabametsi Climate Resilience Report, at page XI, available at <http://www.savannahsa.comnip/projects>

agriculture in the Lephalale region. Additional water stress brings about increased community concerns and tension, and the increased dry spells/drought events will affect communities and may threaten "Thabametsi's social licence to operate".¹⁴

- 8.5. Thabametsi is yet to be issued with any of the following: an integrated WUL (IWUL), an AEL, or a licence to generate electricity from NERSA — these are consents vital to key activities required by the CBIPPPP, and are required in order for Thabametsi to reach commercial and financial close.¹⁵
- 8.6. We, on behalf of ELA, have submitted objections to Thabametsi's IWULA and NERSA licence applications, which objections are attached hereto as annexures **3** and **4** respectively. We were recently advised by NERSA that the public hearing for Thabametsi's NERSA licence application has been placed on hold in light of the Thabametsi judgment, and until "the issue of the [EA] is sorted out".
9. With regard to **Khanyisa**, we record and point out the following:
 - 9.1. ACWA obtained an EA for the project in 2013. This EA has subsequently been amended numerous times. One of these amendments, in 2015, included an amendment to increase the plant capacity from 450MW to 600MW.
 - 9.2. Khanyisa's EIA is legally unsound, in that it failed to adequately consider the climate change impacts of the proposed power station. In accordance with the ruling handed down in the Thabametsi judgment —this is a fatal flaw, and in light of this, our client gW has instructed us to obtain leave from the Minister of Environmental Affairs to appeal the EA. We are in the process of drafting submissions to show good cause for the late filing of the notice of intention to appeal on 18 April 2017, as required by regulation 60(4) of the EIA Regulations, 2010. In the event that the Minister refuses to allow the appeal to proceed, we are instructed to follow appropriate legal remedies to challenge this decision.
 - 9.3. Khanyisa does not yet have an IWUL or licence from NERSA. Objections have been submitted by gW against Khanyisa's IWUL application and its NERSA electricity generation licence application — see attached, annexures **5** and **6**.
 - 9.4. Khanyisa obtained a provisional AEL (PAEL) in 2013. However, our client has numerous objections to and concerns around the validity of the PAEL, in that, *inter alia*, it was issued for a 450 MW plant and not a 600 MW plant and has not been varied to provide for the increased plant capacity. We wrote to the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (MDARDLEA) to object to ACWA's reliance on a dated and inaccurate AEL, on 1 December 2016. On 20 February 2017, the environmental assessment practitioner (EAP) advised I&APs that ACWA intended to apply to transfer the AEL from Anglo Operations (Pty) Ltd ("Anglo"), the original applicant and holder of the PAEL, to ACWA. gW has objected to the proposed transfer and to the continued reliance on the PAEL by ACWA, based on the fact that it would be wholly inadequate and unlawful to rely on an inaccurate, outdated and procedurally-flawed PAEL: we have submitted that a fresh AEL application is required. The relevant correspondence is attached marked **7**.
10. The RFP provides that financial and commercial close must be reached within 6 months from the date of announcement of the preferred bidders¹⁶ — this being April 2017. In accordance with section 5.5 of the RFP, both Thabametsi and ACWA should already be providing the Department with proof of the above consents,

¹⁴ Ibid, at page XII.

¹⁵ Coal RFP "Request for Qualification and Proposals for New Generation Capacity under the Coal Baseload IPP Procurement Programme" Volume 2, Part 5 'Preferred Bidder Documents', December 2014. See Section 5.2.

¹⁶ Coal RFP "Request for Qualification and Proposals for New Generation Capacity under the Coal Baseload IPP Procurement Programme" Part A: General Requirements Rules, P 97. See Section 12.

with it now being less than one month from the commercial and financial close deadline. Yet neither of the projects have their IWUL or NERSA licences and their EAs and AELs are either suspended and/or contested.

11. On the face of it, and based on the requirements of the RFP, it appears that neither Khanyisa nor Thabametsi is able to meet the threshold legal qualification criteria for commercial and financial close. Kindly advise whether extended deadlines for commercial and financial close have been granted to either Thabametsi and/or ACWA, and if not, what steps will be taken in relation to this likely non-compliance.
12. Kindly also respond to our letter of October 2016 by providing the requested clarity on the following:
 - 12.1. whether Thabametsi informed the Department of ELA's application to review and set aside Thabametsi's EA;
 - 12.2. whether Thabametsi made submissions to the Department as to why its bid should be accepted, despite the then pending appeal and subsequent review application (if so kindly provide us with a copy of these submissions); and
 - 12.3. what the Department's reasons for appointing Thabametsi as a preferred bidder were, in the face of ELA's pending review application.
13. We also wish to emphasise the importance of the Thabametsi judgment, and the court's confirmation that the climate change impacts of all proposed coal baseload IPPs must now be comprehensively assessed and considered by government in considering the EIAs of these projects. We are instructed to require that this is done for all such projects, including those that will bid in terms of any future CBIPPPP bidding round.
14. We look forward to your response.

Yours sincerely

CENTRE FOR ENVIRONMENTAL RIGHTS



per:

RbynRbynHugo

Attorney and Programme Head: Pollution & Climate Change

Direct [email: rhugo@cer.org.za](mailto:rhugo@cer.org.za)



Independent Power Producer Office

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Second Floor. Springtime Studios
 1 Scott Rd
 Observatory
CAPE TOWN
 7925
 South Africa

**CONFIDENTIAL AND
 WITHOUT PREJUDICE**

ATTENTION: **Robyn Hugo**
 rhugo@cer.org.za

Dear Sir/Madam

CENTRE FOR ENVIRONMENTAL RIGHTS' ACTION AGAINST THABAMETSI POWER COMPANY (PTY) LIMITED AND ACWA POWER KHANYISA THERMAL POWER STATION (RF) (PTY) LIMITED AS PREFERRED BIDDERS UNDER THE COAL BASELOAD IPP PROCUREMENT PROGRAMME

1. We refer to your latest letter dated 6 April 2017, the contents of which have been noted.
2. With the finalisation of the court proceedings', the Department is now in a position to respond to your letter.
3. Firstly, as correctly cited in your letter, the RFP provides an Anticipated Date for Commercial Close and Financial Close namely, 6 (six) months after announcement of Preferred Bidder. In terms of




Clause 6.1.6.3 of the RFP², the Department has, having regard to the applicable Project Development Plans and other relevant factors including the Department's readiness, allowed an extension for Commercial Close and Financial Close to both Preferred Bidders until 3 November 2017.

4. Secondly, as you may know, the Bid Responses received by the Department are confidential and in this regard we are unable to provide you with the information you have requested.
5. Aligned with the provisions of the RFP³ and the recommendations by the Department's Transaction Advisors, provisions of the Preferred Bidder Project Development Undertaking for each of the Preferred Bidders stipulate *inter alia* that the Preferred Bidder must have, at Commercial and Financial Close, all applicable permits, licences, approvals and consents including the Environmental Consent in respect of its Project. In the absence of these, the Project will not be able to achieve Commercial Close and Financial Close.
6. Furthermore, we note the outcome of the Thabametsi judgment and your request that the climate change impacts of all proposed coal baseload IPPs must be comprehensively assessed and considered. The Department's requirement, as you are aware, is for the Bidder to have an Environmental Consent. We are confident that the Department of Environmental Affairs, as the relevant regulatory authority, will consider the necessary in awarding the Environmental Consents of these and any other coal baseload project.

Yours faithfully

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Head: 1PP Office

Date: (2).2 Ib /zit'

² Part A - General Requirements Rules

³ Volume 2, Part 5 Preferred Bidder Documents

SP22 341

Name of Prospective
Appellant: groundWork
(gW) represented by the
Centre for Environmental
Rights (CER) CER:
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Fax: (+27) 33 342 5665

Date: 29 March 2017

The Minister of Environmental Affairs
Private Bag X313
PRETORIA
0001

For attention:

Mr Ziyaad Hassam

Director: Appeals and Legal Review, Department of Environmental Affairs

Fax: (012) 320 7561

[Email: AppealsDirectorate@environment.gov.za](mailto:AppealsDirectorate@environment.gov.za)

NOTICE OF INTENTION TO APPEAL AGAINST THE INTEGRATED ENVIRONMENTAL AUTHORISATION ISSUED IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2010 FOR THE ESTABLISHMENT OF A 600MW COAL-FIRED POWER STATION AND ASSOCIATED INFRASTRUCTURE — IPP KHANYISA POWER STATION NEAR EMALAHLENI, MPUMULANGA PROVINCE.

We address you on behalf of our client, groundWork.

We hereby give notice of our client's intention to appeal against the above integrated Environmental Authorisation issued by the Department of Environmental Affairs to ACWA Power Khanyisa Thermal Power Station (RF) (Pty) Limited ("ACWA"). The particulars of which are as follows:

/

Reference number: 12/12/20/2067

Name of project: 450MW (amended to 600MW) Khanyisa coal-fired power station and associated infrastructure — IPP Khanyisa power station near Emalahleni, Mpumalanga Province

Date of issue of authorisation: 31 October 2013

Date of issue of amendments of authorisation: 28 July 2015 (increase in capacity and road realignment); 25 February 2016 (road realignment); and 2 February 2017 (change in applicant name and farm names)

We acknowledge that this notice of appeal is submitted outside the 20-day period stipulated in regulation 60(1) of the Environmental Impact Assessment Regulations, 2010 under the National Environmental Management Act, 1998 (NEMA) ("EIA Regulations, 2010").

We submit that there is good cause for an extension, in terms of regulation 60(4) of NEMA, on the basis of the recent judgment in *Earthlife Africa Johannesburg v Minister of Environmental Affairs and Others*, case no 65662/16 ("the *Thabametsi* judgment"). We will address the reasons for this extension in greater detail in our submissions on appeal. In brief, these reasons are as follows:

1. On 8 March 2017, the Gauteng Provincial Division of the High Court delivered the *Thabametsi* judgment. This judgment held, for the first time in our law, that climate change impacts must be comprehensively assessed as part of an environmental impact assessment (EIA) for proposed developments with potentially significant climate change impacts, such as the Khanyisa power station.
2. There was no comprehensive assessment of the climate change impacts of the Khanyisa power station. ACWA did not adequately assess the climate change impacts of the proposed power station and the Department of Environmental Affairs did not give adequate consideration to the project's climate change impacts, as it is required to do under section 240(1)(b) of NEMA.
3. The *Thabametsi judgment* holds that such omissions are unlawful. This appeal affords the Minister of Environmental Affairs ("Minister") an opportunity to address this unlawfulness in considering this appeal.
4. It would also be unfair to allow the Khanyisa coal-fired power station to proceed without requiring a climate change impact assessment. Khanyisa and Thabametsi are the only proposed coal-fired power stations that have been granted preferred bidder status under the Coal Baseload Independent Power Producer Procurement Programme. Thabametsi has now been required to conduct and submit for approval, a climate change impact assessment. The *Thabametsi* judgment rightly requires the Minister to consider these impacts before reaching a decision on whether to uphold Thabametsi's environmental

- authorisation. Khanyisa should now be subjected to substantially similar conditions and legal requirements to ensure consistency and fair treatment.
5. This notice of appeal is delivered within 20 days of the *Thabametsi* judgment.
 6. Moreover, while the delay in delivering this notice is regretted, it must be considered in light of the fact that the Khanyisa power station will be operational until at least the year 2060. In those circumstances, it is plainly appropriate and necessary to extend the period for the filing of the appeal to ensure that the power station is not constructed without climate change impacts first being comprehensively assessed, as the High Court has now held is required.

Furthermore, since Khanyisa's environmental authorisation (EA) was issued in 2013, the circumstances around international climate change commitments;¹ air and water impacts in the project area; and the communities residing in the area have changed substantially. Public interest dictates that these changed circumstances be considered on appeal, particularly in light of the fact that the Khanyisa power station will be operational until at least the year 2060.

Therefore, we hereby request an extension for the late filing of this notice of intention to appeal in terms of regulation 60(4). This notice is lodged within 20 days of the *Thabametsi* judgment, and the appeal will be submitted within 30 days from the date of delivering this notice.

We confirm that we will, within 10 days of the lodging of this notice, provide the applicant with a copy of this notice. In relation to the regulation 60(3) requirements of the EIA Regulations, 2010 to inform the applicant where and for what period the appeal submission will be available for inspection by the applicant, we will furnish the applicant directly with a copy of our appeal submissions, thereby rendering it unnecessary to give notice of the time and place for an inspection of the appeal submissions.

Yours faithfully



The Centre for Environmental Rights

Per: Robyn Hugo

Attorney and Programme Head: Pollution and Climate Change

Direct [email: rhugo@cer.org.za](mailto:rhugo@cer.org.za)

¹ South Africa ratified the Paris Agreement on Climate Change in November 2016.

From: Ziyaad Hassam <ZHassam@environment.gov.za>
Sent: 30 March 2017 08:59 AM
: Nicole Loser; Robyn Hugo
Cc: Heloise Van Schalkwyk; Linda Garlipp
Subject: FW: Khanyisa IPP Power Station - Notice of Intention to Appeal
Attachments: Notice of Intention to Appeal - IPP Khanyisa.pdf
Importance: High

Dear Nicole,

We hereby acknowledge receipt of your notice of intention to appeal, dated 29 March 2017.

Given that the EA was issued on 31 October 2013, the Minister will first need to make a decision on whether or not to grant an extension of the appeal period. Please confirm, therefore, whether you intend to make any further submissions to the Minister in terms of Regulation 60(4) of the 2010 EIA Regulations.

The applicant will thereafter be afforded an opportunity to respond to the request to extend the appeal period, where after the Minister will make a decision in respect thereof.

Regards

Ziyaad Hassam
Director: Appeals and Legal Review
Department of Environmental Affairs
Tel: 012 399 9356
Mobile: 083 456 9878
[Email: zhassam@environment.gov.za](mailto:zhassam@environment.gov.za)

From: Nicole Loser (<mailto:nloser@cer.org.za>)
Sent: 29 March 2017 03:40 PM
To: Ziyaad Hassam
Cc: Robyn Hugo
Subject: Khanyisa IPP Power Station - Notice of Intention to Appeal
Importance: High

Good afternoon

Please find attached our client's notice of intention to appeal in relation to the above power station project.

Kindly confirm receipt.

Kind regards

Nicole Loser
Attorney
Centre for Environmental Rights NPC
A non-profit company with registration number 2009/020736/08, PBO No. 930032226, NPO No. 075-863, VAT No. 4770260653
and a Law Clinic registered with the Law Society of the Cape of Good Hope
2nd Floor, Springtime Studios, 1 Scott Road, Observatory, 7925, Cape Town, South Africa
Tel +27214471647



Centre for Environmental Rights 345

The Honourable Ms Edna Molewa

The Minister of Environmental Affairs

By [email: minister@environment.gov.za](mailto:minister@environment.gov.za)

For attention: Z Hassam

Director: Appeals and Legal Review, Department of Environmental Affairs

By [email: appealsdirector@environment.gov.za](mailto:appealsdirector@environment.gov.za)

Copied to:

Sabela Malaza

Chief Director: Integrated Environmental Authorisations

Department of Environmental Affairs

By [email: smalaza@environment.gov.za](mailto:smalaza@environment.gov.za)

Rakhee Boora

Partner

Fasken Martineau

By [email: rbhoora@fasken.com](mailto:rbhoora@fasken.com)

Our ref: CER 54.1/RH 18

April 2017

Dear Minister

APPELLANT'S SUBMISSIONS TO THE MINISTER IN TERMS OF REG 60(4) OF THE 2010 EIA REGULATIONS IN RESPECT OF ACWA POWER KHANYISA THERMAL POWER STATION RF (PTY) LIMITED.

1. We act for groundWork¹ ("our client"), a registered interested and affected party in relation to the proposed independent power producer coal-fired Khanyisa Power Station ("Khanyisa") to be developed by ACWA Power Khanyisa Thermal Power Station RF (Pty) Ltd.
2. We refer to our client's notice of intention to appeal submitted on 29 March 2017 (attached to these submissions as annexure "B") and to the email from the Director: Appeals and Legal Review of 30 March 2017, inviting our client to make further submissions to the Minister in terms of Regulation 60(4) of the 2010 EIA Regulations.

A non-profit environmental justice service and developmental organisation aimed at improving the quality of life and vulnerable people in South Africa (and increasingly in Southern Africa), through assisting civil society to have a greater impact on environmental governance, groundWork places particular emphasis on assisting vulnerable and previously disadvantaged people who are most affected by environmental injustices. See more information at: www.groundwork.co.za

3. Our client's further submissions are enclosed herewith in support of our client's intention to appeal the environmental authorisation issued to Khanyisa. We were advised that these submissions could be submitted **by** 18 April 2017.
4. Kindly confirm receipt of our client's submissions and the two accompanying annexures marked "A" and "B".
5. We await to hear from you.

Yours sincerely

CENTRE FOR ENVIRONMENTAL RIGHTS



per:

Nicole Loser
Attorney

Direct [email: nloser@cer.org.za](mailto:nloser@cer.org.za)

APPEAL TO THE MINISTER OF ENVIRONMENTAL AFFAIRS

In the matter between:

GROUNDWORK

Appellant

and

THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS

First Respondent

**ACWA POWER KHANYISA THERMAL POWER
STATION (RF) (PTY) LIMITED**

Second Respondent

**APPELLANT'S SUBMISSIONS TO THE MINISTER
IN TERMS OF REG 60(4) OF THE 2010 EIA REGULATIONS**

INTRODUCTION

- 1 groundWork intends to appeal to the Minister of Environmental Affairs ("Minister") against the integrated environmental authorisation issued by the Department of Environmental Affairs (and signed by Mr Ishaam Abader, the Deputy Director General: Legal, Authorisations, Compliance & Enforcement) to ACWA Power Khanyisa Thermal Power Station (RF) (Pty) Limited ("Khanyisa") on 31 October 2013, and amended on four subsequent occasions.'

- 2 groundWork only became aware of Khanyisa's environmental authorisation in June 2015, when groundWork's attorneys, the Centre for Environmental Rights (CER), were informed of Khanyisa's intention to amend its environmental authorisation for the first of four times. A copy of this email is attached marked

'Authorisation register number 12/12/20/2067. Subsequently amended on 28 July 2015, 25 February 2016, 2 February 2017, and 3 April 2017.

"A". The most recent amendment of Khanyisa's environmental authorisation — of which the CER was advised on 12 April 2017 - was on 3 April 2017.

3 The notice of appeal was filed on 29 March 2017, outside of the 20-day time limit stipulated in regulation 60(1) of the Environmental Impact Assessment Regulations, 2010 of GN R543, GG 33306 ("2010 EIA Regulations") under the National Environmental Management Act, 1998 ("NEMA"). A copy of the notice is attached marked "B".

4 In these submissions we demonstrate why there is good cause to extend the period for filing a notice of appeal, in terms of regulation 60(4) of the 2010 EIA Regulations.

5 groundWork seeks this extension on the basis of the landmark judgment in ***Earthlife Africa Johannesburg v Minister of Environmental Affairs & Others*** ("the *Thabametsi* judgment") which was handed down on 8 March 2017.²

5.1 The *Thabametsi* judgment confirms - for the first time in our case law - that a comprehensive climate change impact assessment must be conducted and considered before granting environmental authorisation to a new coal-fired power station.

5.2 In light of this judgment, Khanyisa's environmental authorisation is unlawful and invalid as it was granted in the absence of a comprehensive climate change impact assessment.

² *Earthlife Africa Johannesburg v Minister of Environmental Affairs and Others* (65662/16) [2017] JOL 37526 (GP) (8 March 2017).

- 5.3 groundWork filed its notice of appeal on 29 March 2017, within 20 days of the *Thabametsi* judgment.
- 6 If the Minister grants this extension, the appeal will afford the Minister the opportunity to cure the unlawful environmental authorisation, in line with the guidance offered in the *Thabametsi* judgment.
- 7 In what follows, we show that there is good cause to extend the deadline under regulation 60(4) by addressing the following points in turn:
- 7.1 First, we provide background to Khanyisa's environmental authorisation;
- 7.2 Second, we explain the significance of the *Thabametsi* judgment for groundWork's appeal against Khanyisa's environmental authorisation;
- 7.3 Third, we briefly outline the further submissions that groundWork intends to make on appeal; and
- 7.4 Fourth, we address the meaning of "good cause" under regulation 60(4) and demonstrate why this requirement has been satisfied.

BACKGROUND

- 8 The Khanyisa power station is a proposed 600MW independent power station that is intended to be built in the Mpumalanga Province, near eMalahleni. Khanyisa has submitted a bid to be appointed as an independent power producer (IPP) under the Coal Baseload Independent Power Producer Procurement Programme (CBIPPPP).

- 9 Khanyisa obtained its integrated environmental authorisation on 31 October 2013. This environmental authorisation has since been amended on four occasions:
- 9.1 On 28 July 2015, the authorisation was amended to increase the capacity of the power station from 450MW to 600MW and to make provision for road realignment;
- 9.2 On 25 February 2016, the environmental authorisation was again amended to make provision for road realignment;
- 9.3 On 2 February 2017, an amendment was approved to change the name of the applicant and the name of the property on which the power station will be constructed; and
- 9.4 Most recently, on 3 April 2017, the environmental authorisation was again amended to postpone the date by which kinetic leach testing for the plant must be conducted.
- 10 Khanyisa has also been issued with further separate environmental authorisations, relating to the power station project. On 5 May 2016, Khanyisa was issued with an environmental authorisation for a proposed bulk water supply pipeline which would connect the eMalahleni Water Reclamation Plant with Khanyisa power station; and on 13 May 2016, Khanyisa was issued with an environmental authorisation for a 400kV substation and power line for the Khanyisa power station.

- 11 On 10 October 2016, Khanyisa was announced as one of two "preferred bidders" under the CBIPPPP. The other preferred bidder is the Thabametsi power station ("Thabametsi"), which was the subject of the recent *Thabametsi* judgment.
- 12 Khanyisa is yet to reach "financial and commercial close" under the CBIPPPP, which is required before it can commence operating as an IPP under the **CBIPPPP**. It is still in the process of applying for various licences and outstanding environmental approvals, including its integrated water use licence (IWUL); and a licence to generate electricity from the National Energy Regulator of South Africa (NERSA). Furthermore, the validity of the provisional atmospheric emission licence (PAEL) issued for Khanyisa in 2015 is in dispute and groundWork have objected to the transfer of the PAEL to Khanyisa.
- 13 As a consequence, Khanyisa has not yet commenced construction of the coal-fired power station and will not be in a position to do so until it has received all the necessary licences and approvals and has the necessary funding.

THE SIGNIFICANCE OF THE *THABAMETSI* JUDGMENT FOR THIS APPEAL

- 14 In its appeal submissions, groundWork will contend that the *Thabametsi* judgment shows that Khanyisa's environmental authorisation was improper and unlawful as there was no adequate assessment of climate change impacts.

The key findings in the judgment

15 The *Thabametsi* judgment reviewed and set aside the Minister's decision to uphold an environmental authorisation for the Thabametsi power station.³ The High Court remitted the matter back to the Minister for a fresh decision on receiving Thabametsi's final climate change impact assessment report, and public comment thereon.

16 This judgment lays down several legal principles that had not previously been addressed by our courts and which were, until now, accordingly not being followed by the Department of Environmental Affairs ("the Department") in dealing with environmental authorisations. Four principles are most relevant for the appeal against Khanyisa's environmental authorisation.

17 First, the judgment confirms that section 240(1) of NEMA imposes a duty on competent authorities to do a thorough assessment of the climate change impacts of a coal-fired power station before taking a decision on environmental authorisation:

*"[A] plain reading of Section 240 (1) of NEMA confirms that climate change impacts are indeed relevant factors that must be considered. The injunction to consider any pollution, environmental impacts or environmental degradation logically expects consideration of climate change."*⁴

18 Second, the judgment finds that a climate change impact assessment must, at the very minimum, consider the following factors:

³ *Earthlife Africa Johannesburg v Minister of Environmental Affairs and Others* (65662/16) [2017] ZAGPPHC 58 (8 March 2017).

⁴ *Ibid* at para 88.

*"(i) the extent to which a proposed coal-fired power station will contribute to climate change over its lifetime, by quantifying its [Greenhouse gas] emissions during construction, operation and decommissioning; (ii) the resilience of the coal-fired power station to climate change, taking into account how climate change will impact on its operation, through factors such as rising temperatures, diminishing water supply, and extreme weather patterns; and (iii) how these impacts may be avoided, mitigated, or remedied."*⁵

19 Third, the judgment confirms that these climate change impacts are best assessed by means of a *"professionally researched climate change impact report"*:

*"[T]he legislative and policy scheme and framework overwhelming (sic) support the conclusion that an assessment of climate change impacts and mitigating measures will be relevant factors in the environmental authorisation process, and that consideration of such will best be accomplished by means of a professionally researched climate change impact report. For all these reasons, I find that the text, purpose, ethos and intra- and extra-statutory context of section 240(1) of NEMA support the conclusion that climate change impacts of coal-fired power stations are relevant factors that must be considered before granting environmental authorisation."*⁶

20 Fourth, the High Court found that it is not permissible for competent authorities to shirk this duty under section 240(1) of NEMA, by leaving that assessment to other licensing authorities or to defer to government policies such as the integrated resource plan for electricity (IRP):

*"Much time was expended in argument on the implications of [National Environmental Management: Air Quality Act (NEMAQA)] requiring consideration of climate change impacts in the AEL process. While the NEMAQA process will involve an investigation of GHG emissions in determining whether to grant an AEL, that does not alter the peremptory statutory duty of the Chief Director and the Minister to thoroughly investigate climate change impacts in terms of section 240 of NEMA with regard to national and international consequences."*⁷

⁵ Ibid at para 6 and 94.

⁶ Ibid at para 91.

⁷ Ibid at para 124.

"...an abstract, macro-level assessment of the climate change impact of additional coal-fired power could not cast any light on the specific climate change impacts and mitigation strategies of specific coal-fired power stations located at specific sites. These relevant considerations are context specific and have to be distinctively considered"⁸

"the respondents' 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."⁹

The impact of these findings on Khanyisa's environmental authorisation

21 In light of the *Thabametsi* judgment, groundWork submits that Khanyisa's environmental authorisation was unlawful and invalid as there was no adequate assessment of the climate change impacts of this project.

22 Khanyisa's environmental impact assessment report was deficient as it did not give an adequate assessment of these impacts.

22.1 Khanyisa did not commission a thorough climate change impact assessment report prepared by experts in this field, resulting in a number of significant omissions.

22.2 While the initial environmental impact report of 2012 appears to have calculated Khanyisa's annual estimated greenhouse gas (GHG) emissions during the plant's operation, there is no evidence of a full

⁸ Ibid at para 95.

⁹ Ibid at para 96.

assessment of the GHG emissions from the Khanyisa power station over its life-cycle, which would also include construction and decommissioning.

22.3 There was also no comprehensive, lifecycle assessment of GHG emissions in Khanyisa's 2015 environmental impact assessment report which it submitted in support of its application to increase the approved capacity of the power station from 450MW to 600MW. Despite the proposed addition of 150MW in capacity, the 2015 report contained emissions figures that were identical to the earlier 2012 report. This suggests a clear error and omission that would have been identified had a comprehensive climate change impact assessment been conducted.

22.4 In both the 2012 and 2015 reports, no attempt was made to assess climate change resilience, which requires an assessment of how future climate change will impact on the operational viability of the plant and its resilience to these impacts over its full life-cycle, and how the power station will impact on the climate change resilience of the surrounding region, as well as the resilience of South Africa as a country, to the impacts of climate change as exacerbated by the power station.

22.5 As a consequence of these omissions, there was also no adequate assessment of how to avoid, mitigate or remedy these climate change impacts.

23 In the absence of a thorough climate change impact assessment, the decision of the Department on the environmental authorisation cannot stand. It is notable

that the Department also made no attempt to engage with the climate change impacts of this project in its reasons for granting the authorisation.

24 As a consequence of these deficiencies, the environmental authorisation is unlawful and invalid. This appeal will give the Minister the opportunity to cure this unlawfulness by taking appropriate action. In the *Thabametsi* judgment, the High Court explained that the Minister has at least two options on appeal:

24.1 The Minister may remit the matter back to the Department for reconsideration, based on a comprehensive climate change impact assessment report;

24.2 Alternatively, the Minister may use her wide powers on appeal to order Khanyisa to prepare a comprehensive climate change impact assessment report and then she may take a decision on whether to set aside or uphold the environmental authorisation after considering this report.

25 If the Minister refuses to grant this requested extension under regulation 60(4) of the 2010 EIA Regulations, then groundWork will have no option but to resort to litigation to review and set aside the environmental authorisation.

CHANGING CIRCUMSTANCES

26 In its appeal submissions, groundWork will further demonstrate that there are changed circumstances that warrant the reconsideration of the environmental authorisation on appeal.

27 Since Khanyisa's environmental authorisation was issued in 2013, the circumstances around: air quality impacts; international climate change commitments; and water impacts in the project area have changed substantially. Public interest dictates that these changed circumstances be considered on appeal, particularly in light of the fact that the Khanyisa power station will be operational for at least 40 years.

28 First, the changing air quality within the area where Khanyisa will be developed warrants closer attention in light of recent reports and studies.

28.1 Khanyisa would fall within the declared Highveld Air Quality Priority Area (HPA). This was declared a priority area nearly ten years ago by the then Minister in terms of section 18 of NEMAQA, due to the concern that the health-based ambient air quality standards were being exceeded or may be exceeded and that a situation exists in which is causing or may cause a significant negative impact on air quality in the area.¹⁰

28.2 An air quality management plan (AQMP) (published in March 2012) was adopted in order to bring the air quality within compliance with the National Ambient Air Quality Standards (NAAQS). However, at present, both air quality modelling and monitoring stations show that pollution levels, especially of sulphur dioxide (SO₂) and particulate matter (PM), regularly exceed the NAAQS that are supposed to help protect public health.

¹⁰ GN 1123, GG 30518 of 23 November 2007. Available at https://www.environment.gov.za/sites/default/files/gazetted_notices/nema_highvelddeclaration_830518gon1123.pdf.

28.3 In February 2017, the Department's own mid-term evaluation of the AQMP ("the draft mid-term review") confirmed that "*there has not been an appreciable improvement in ambient air quality*" since the AQMP was put into place.¹¹ In short, virtually no progress has been made towards improving air quality in the eMalahleni area in the nearly ten years since the HPA designation.

28.4 In light of the Department's draft mid-term review and growing research (which will be referenced and attached to the appeal), which shows the significant health impacts that coal-fired power stations within the HPA are having on communities living in the area, it would be unlawful to allow Khanyisa to continue relying on the authorisation of 2013, without adequate consideration being given to the significant and worsening health impacts within the HPA and the unacceptable contribution that Khanyisa will make to the poor air quality within the HPA.

29 A further changed circumstance since the granting of Khanyisa's environmental authorisation pertains to the adoption of the Paris Agreement on climate change in December 2015. South Africa signed and then ratified the Paris Agreement in November 2016, committing to, *inter alia*:

29.1 pursue efforts to ensure temperature increase remains below 1.5°C;

¹¹ Department of Environmental Affairs, The Medium-Term Review of the 2011 Highveld Priority Area (HPA): Air Quality Management Plan (Dec. 2015) at 52. While the Medium-Term Review document states that it is "A Publication of December 2015," the document was posted for public comment on 20 February 2017. See <http://www.saabis.org.za/ReadNews.aspx> (visited 23 February 2017)

29.2 emissions in a range between 398Mt and 614Mt CO₂-eq (carbon dioxide equivalent) between 2025 to 2030;¹²

29.3 decline emissions in absolute terms from the year 2035;

29.4 near zero emissions of CO₂ and other long-lived GHGs in the second half of the century, which is needed to avoid even greater impacts that are beyond adaptation capability;¹³ and

29.5 prepare, communicate, and maintain successive nationally-determined contributions (NDCs) every 5 years,¹⁴ which must represent a progression beyond the current NDC and reflect South Africa's highest possible ambition.¹⁵

30 These commitments are binding on the Republic and must be adhered to.¹⁶ Yet, our current commitments as reflected in our NDC already fall short of the Paris Agreement goal of limiting temperature increases to 1.5 °C.¹⁷ Furthermore, Khanyisa will have a lifespan of at least 40 years, meaning that it will be operating into the year 2060. This directly contradicts South Africa's commitment to reduce emissions from 2035 and to ensure near zero emissions in the second half of the century in order to avoid impacts beyond adaptation capability. South Africa's commitments under the Paris Agreement are therefore a further relevant

¹² Page 6, NDC.

¹³ Page 1, NDC.

¹⁴ Article 4(9), the Paris Agreement.

¹⁵ Article 4(3).

¹⁶ Section 231(2) of the Constitution.

¹⁷ According to Climate Action Tracker, "if most other countries were to follow South Africa's approach, global warming would exceed 3-4°C." See <http://climateactiontracker.org/countriesouthafrica.html>.

consideration and changed circumstance, which would warrant the reconsideration of the environmental authorisation.

- 31 Furthermore, recent research demonstrates that Khanyisa will have a substantial negative impact on water quality in the region.

31.1 Khanyisa and its coal ash disposal site would be located in Upper Olifants River sub-catchment, which forms part of the greater Olifants River catchment.¹⁸ The Olifants serves vital ecosystem benefits, yet is facing a water quality crisis, largely due to acid mine drainage from decanting coal mines.¹⁹ The Association for Water and Rural Development explains that: *"The Olifants and its contributing waterways are critical for supporting life in the area, yet unchecked pollution, inappropriate land and resource use, weak and poorly enforced policies and regulations, and poor protection of habitats and biodiversity are degrading the Olifants at an alarming rate."*²⁰ A recent media report has highlighted the severe *"crisis"* presently faced by the Olifants River, which, as a result of significant pollution and systematic failures of governance, is *"in danger of collapse"*.²¹

31.2 Furthermore, a recent report and analysis from a coal ash expert in the United States, highlights the significant risks that would be posed by Khanyisa's ash dump for groundwater and the Olifants River, as well as

¹⁸ FEIR, Appendix L, Surface Water Assessment, p. 10.

¹⁹ *Ibid.*, Appendix L, Surface Water Assessment, p. 10.

²⁰ Association for Water and Rural Development, Olifants River Basin, <http://award.oroia/resilim-o/olifants-river-basini>. See also, Final Environmental Impact Review, Appendix L, Surface Water Assessment, p. 10.

²¹ See <https://mq.co.za/article/2017-04-13-00-a-river-of-shit-chemicals-metals-flows-through-our-land>.

the concerning gaps in the environmental impact report, which does not adequately consider these risks. This report will be made available on appeal, should condonation be granted. We submit that this information must be taken into account in considering whether to reject or uphold the environmental authorisation.

THERE IS "GOOD CAUSE" UNDER REG 60(4)

32 As indicated above, regulation 60(1) of the 2010 EIA Regulations requires notices of appeal to be filed within 20 days of a decision under the regulations. This is subject to regulation 60(4), which empowers the Minister to extend this deadline on good cause shown. This provision provides:

"(4) The Minister, MEC or designated organ of state, may, as the case may be, in writing, on good cause extend the period within which a notice of intention to appeal must be submitted."

33 In this section, we demonstrate that there is good cause to grant an extension under regulation 60(4), starting with a brief analysis of the meaning of "good cause".

The requirement of "good cause"

34 The requirement of "*good cause*" is used in different contexts in our law. It indicates the need for a value judgment that "*consider[s] each case on its merits*

*in order to achieve a just and equitable result in the particular circumstances.*²²

This is an inherently flexible enquiry.²³

- 35 In ***Madinda v Minister of Safety and Security***,²⁴ the Supreme Court of Appeal identified some of the considerations that are relevant in assessing "good cause" for the extension of a statutory deadline:

"Good cause looks at all those factors which bear on the fairness of granting the relief as between the parties and as affecting the proper administration of justice. In any given factual complex it may be that only some of many of such possible factors become relevant. These may include prospects of success in the proposed action, the reason for the delay, the sufficiency of the explanation offered, the bona fides of the applicant, and any contribution by other persons or parties to the delay and the applicant's responsibility therefore."²⁵ (Emphasis added)

- 36 Most recently, in ***City of Cape Town v Aurecon***,²⁶ the Constitutional Court summarised the considerations that are relevant in assessing whether to condone a delay in launching judicial review proceedings:

"Factors that are relevant to this enquiry include but are not limited to the nature of the relief sought, the extent and cause of the delay, the effect of the delay on the administration of justice and other litigants, the reasonableness of the explanation for the delay, the importance of the issue to be raised in the intended appeal and the prospects of success."²⁷

- 37 While these judgments deal with extensions and condonation in different contexts, we submit that these considerations are just as relevant under

²² *South African Forestry Co v York Timbers Ltd* 2003 (1) SA 331 SCA para 14.

²³ *Cohen Brothers v Samuels* 1906 TS 221 at 224; *HDS Construction (Pty) Ltd v Wait* 1979 (2) SA 298 (E) at 300H - 301A; *Silber v Ozen Wholesalers (Pty) Ltd* 1954 (2) SA 345 AD at 352H.

²⁴ *Madinda v Minister of Safety and Security* 2008 (4) SA 312 (SCA).

²⁵ *Ibid* para 10.

²⁶ *City of Cape Town v Aurecon South Africa (Pty) Ltd* [2017] ZACC 5 (28 February 2017).

²⁷ *Ibid* para 46.

regulation 60(4). The courts have stressed that these considerations should be approached in a balanced and holistic way:

*"The relevant circumstances must be assessed in a balanced fashion. The fact that the applicant is strong in certain respects and weak in others will be borne in mind in the evaluation of whether the standard of good cause has been achieved."*²⁸

38 This requirement of "good cause" must also be interpreted in a manner that promotes the section 24 constitutional right to have the environment protected for the benefit of present and future generations.²⁹

39 We now turn to address each of the five considerations that are relevant to this application for an extension.

The nature and importance of the issues

40 There can be no dispute that climate change poses a substantial threat to South Africa. As stated in the *Thabametsi* judgment, "[c]limate change poses a substantial risk to sustainable development in South Africa. The effects of climate change, in the form of rising temperatures, greater water scarcity, and the increasing frequency of natural disasters pose substantial risks".³⁰ Coal-fired power stations are also South Africa's single largest source of GHG emissions, and contributor to climate change.

²⁸ *Madinda v Minister of Safety and Security* 2008 (4) SA 312 (SCA) para 13.

²⁹ Section 39(2) of the Constitution imposes a duty both on courts and on administrative tribunals to interpret legislation in a manner that promotes the spirit, purport and object of the Bill of Rights. See further *Makate v Vodacom (Pty) Ltd* 2016 (4) SA 121 (CC) at paras 87-89.

Thabametsi judgment para 82.

- 41 If the Khanyisa coal-fired power station goes ahead, it will remain in operation for at least 40 years. During this time, it will, in all likelihood, emit substantial GHG emissions. Climate change will potentially pose a substantial threat to this power station, as rising temperatures and increasing water scarcity will impact on its operation and on the surrounding region.
- 42 The *Thabametsi* judgment confirms that these climate change impacts must be thoroughly assessed before a new coal-fired power station is granted environmental authorisation. The High Court held that the failure to conduct this assessment has substantial prejudicial effects:

"[T]he decision to grant the authorisation without proper prior consideration of the climate change impacts is prejudicial in that the permission has been granted to build a coal-fired power station which will emit substantial GI-IG's in an ecologically vulnerable area for 40 years without properly researching the climate change impacts for the area and the country as a whole before granting authorisation"³¹

- 43 The importance of these issues and the potential long-term impacts of the power station, over a period of more than 40 years, far outweighs any delay in launching this appeal.

The prospects of success on appeal

- 44 For the reasons set out above, groundWork has substantial prospects of success in its appeal. The *Thabametsi* judgment puts it beyond doubt that a thorough climate change impact assessment is required before a coal-fired power station is granted environmental authorisation. There has not yet been a thorough and

³¹ *Thabametsi judgment* pars 119.

comprehensive assessment of the climate change impacts of the Khanyisa power station. As a result, Khanyisa's environmental authorisation is currently unlawful and invalid.

The explanation for the launching an appeal now

45 groundWork acknowledges that its notice of appeal was filed outside of the 20-day deadline prescribed in the regulation 60(1), more than three years after the environmental authorisation was first granted. It should, however, be noted that this authorisation was subsequently amended in 2015, 2016 and twice again in 2017. We submit that these amendments must be taken into account in calculating the period of the delay.

46 The delay in filing a notice of appeal is fully justified by the fact that the *Thabametsi* judgment has, for the first time, confirmed that there is a legal requirement to conduct a climate change impact assessment.

47 The *Thabametsi* judgment now provides certainty on the duty to conduct a climate change impact assessment and requires a reassessment of Khanyisa's environmental authorisation. Prior to this judgment, the Department and the Minister maintained that there was no legal duty to conduct a climate change impact assessment.³²

³² See, for example, the Minister's decision on appeal against the environmental authorisations granted to the Ki Power and Colenso IPPs.

48 Thus, while as a strict matter of legal theory it may be correct that the *Thabametsi* judgment merely recognised a pre-existing legal position, as a practical matter, the judgment produced a considerable shift in the prevailing position. It made clear, for the first time and contrary to the stance of the Department, the Minister and Khanyisa, that the four principles set out above regarding climate change were part of our law regarding environmental authorisations. Practically speaking, therefore, the judgment has had a considerable effect on the rights and obligations of the Department, the Minister, Khanyisa, groundWork and members of the public.

49 As soon as groundWork became aware of the *Thabametsi judgment*, it consulted its attorneys and started work on its notice of intention to appeal. It filed this notice of intention to appeal on 29 March 2017, within 20 days of the *Thabametsi* judgment.

50 It also bears emphasis, as indicated above, that groundWork only became aware of Khanyisa's environmental authorisation in 2015 — almost two years after the authorisation had been granted.

50.1 During 2015 and 2016, groundWork and its attorneys, CER, were confronted with numerous applications for environmental authorisations and other requisite environmental licences for proposed coal-fired power stations under the CBIPPPP. At the time, there were nine proposed IPPs of which CER and groundWork were aware. It was not known, in 2015, which of the proposed IPPs intended to submit bids under the first bid



window of the CBIPPPP, and which would be appointed as preferred bidders.

50.2 In 2015, groundWork and CER, and other interested and affected parties represented by the CER, decided to direct their limited capacity and resources at three environmental authorisation processes that were still under way: the Thabametsi, KiPower, and Colenso IPPs.

50.3 At that stage, groundWork did not have the capacity nor the resources to take a risk on a condonation application and appeal against Khanyisa's environmental authorisation, which had been granted in 2013.

50.4 It was only once the *Thabametsi* judgment was handed down that it became clear that the Khanyisa environmental authorisation was unlawful and susceptible to appeal, and it was necessary and appropriate to expend the limited capacity and resources on pursuing the matter.

51 Moreover, the changing circumstances identified above could not have been addressed at an earlier stage. If condonation is granted, this will allow the Minister to consider these changing circumstances on appeal.

No material prejudice to Khanyisa

52 groundWork acknowledges that there has been a delay in launching this appeal, but this delay will not cause any material prejudice to Khanyisa.

53 As indicated above, Khanyisa is still a long way from being able to commence construction of its power station. It still requires various outstanding licences and

approvals. While it is a "preferred bidder" under the CBIPPPP, it has yet to satisfy the requirements for financial and commercial close.

54 In a letter dated 7 April 2017, Khanyisa's attorneys claimed that, since 2013, Khanyisa *"has been developing the project on the strength of a valid Environmental Authorisation at significant cost. Development work is ongoing and (Khanyisa) has entered into a material agreement in terms of which the necessary measures to commence the authorised activities have begun. Any appeal at this stage will clearly result in significant prejudice to (Khanyisa) ..."*

55 It is not clear what "development work" Khanyisa has undertaken as it may not commence work while its NERSA licence and IWUL licences are still outstanding. Any expense and effort that Khanyisa has already incurred is a normal part of the process of applying for regulatory approval. It has voluntarily assumed this risk and expense and must bear the costs if its applications were invalid.

56 Finally, any minor prejudice that Khanyisa may experience is far outweighed by the importance of the issues at stake and the merits of this appeal, taking into account the fact that this power station will operate for at least 40 years.

Consistency and fair treatment

57 Finally, allowing this appeal to proceed will ensure fairness and consistency in the Department's treatment of Khanyisa and Thabametsi. Khanyisa and Thabametsi are identical in all relevant respects. Both are preferred bidders

under the CBIPPPP and neither has commenced construction, given the various outstanding licences and approvals. Most importantly, neither has conducted the required climate change impact assessment.

58 Following the *Thabametsi* judgment, the appeal against Thabametsi's environmental authorisation is now before the Minister for reconsideration, on receipt of a final climate change impact assessment.

59 This appeal against Khanyisa's environmental authorisation will allow the Minister to ensure that Khanyisa is subjected to similar conditions and requirements as Thabametsi.

60 If the Khanyisa power station is allowed to proceed without any assessment of its climate change impacts, this will not only be unlawful, but will also result in unequal and unfair differentiation between Khanyisa and Thabametsi. Therefore, this appeal will allow the Minister to promote fairness and consistency in the environmental authorisation process.

CONCLUSION

61 For the reasons set out above, we submit that there is good cause for the Minister to extend the deadline for appeal submissions. On balance, the importance of the issues at stake, the substantial prospects of success on appeal, the explanation for the delay, the absence of any real prejudice, and the importance of promoting fairness and consistency in the environmental authorisation process all indicate the need for an extension of the deadline under regulation 60(4).



DATED at CAPE TOWN on this the 18th day of APRIL 2017



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Nicole Loser

From: Anne-Mari White <Anne-Mari.White@arecongroup.com>
Sent: 10 June 2015 03:44 PM
To: Ruth Kruger
Cc: Robyn Hugo; Sylvia Kamanja; Nicole Loser; Nathan Philander; Maanda Maseli; Sizwe Mabadi
Subject: RE: Khanyisa IPP
Attachments: BID - EA Amendment to Khanyisa Power Station AWRH 06 05 15.pdf; BID - Proposed substation relocation RH 15.04.15 rev 1.pdf; BID - Proposed water pipe realignment RH 15.05.26.docx

Dear Ruth and other Interested and Affected Parties

Thank you for your email, I have added all of the contact details given below to our I&AP database.

As per our discussion this morning: Anglo Operations received Environmental Authorisation (EA) for the Khanyisa Power Station in 2013 and since then the project has been taken over by ACWA Power Pty Ltd. ACWA Power is proposing a few changes and for this reason the current EA must be amended. Some of the changes cannot be dealt with under the amendment process and therefore a Scoping and EIA application was also submitted to the Department of Environmental Affairs.

The following processes are currently underway to apply for the following changes:

1. EA Amendment Process

- Changing the applicant from Anglo Operations Pty Ltd to ACWA Power Pty Ltd
- Increasing the capacity of the power station from 450MW to 600MW
- Realignment of the road travelling through the proposed Khanyisa Power Station

Please note that various specialist studies were revised **to assess the** impact that the increased capacity will have on the environment. This **report was distributed for public comment** and the public is given until the 12th of June to comment on this report. **The EA Amendment report with** all of its appendices can be downloaded from our website (<http://www.aurecondroup.com/public-participation.aspx>)

2. Scoping and EIA Process

- Relocation of the 400kV substation and power lines to an area that was not assessed during the initial EIA process.

Please find the BID for this process attached.

3. Basic Assessment Process

- Realignment of the water pipeline connecting **the Emalahleni Water Reclamation Plant with the** Khanyisa Power Station. This realignment will **cross an area that was not previously assessed during the EIA process. The information for this realignment has been included into the BID for the Scoping** and EIA process as **the PPP** processes will run **parallel. Due to internal matters the client preferred that the Scoping and EIA and Basic Assessment Process be split and therefore the realignment of the water pipeline will not be included in the Scoping and EIA process.**

We will keep you informed and send you a notification of the availability of documentation when it is available for public comment.

Should you have any questions, please do not hesitate to contact me.

Regards

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DISCLAIMER

From: Ruth Kruger [<mailto:rkruger@cer.org.za>]

Sent: 10 June 2015 01:22 PM

To: Anne-Mari White

Subject: Khanyisa IPP

Dear Anne-Marie,

Further to our conversation on the phone earlier, please could you register the following people from the Centre for Environmental Rights as I&APs for all processes running in the Khanyisa Coal Fired Power Station project.

1. Robyn Hugo: rhugo@cer.org.za
2. Sylvia Kamanja: skamania@cer.org.za
- 3, Nicole Loser: nloser@cer.org.za
4. Nathan Philander: nphilander@cer.org.za
5. Ruth Kruger: rkruger@cer.org.za

We can all be reached at the Centre for Environmental Rights, 021 447 1647.

Many thanks,
Ruth

Ruth Kruger
Programme officer
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www.facebook.com/CentreEnvironmentalRights www.twitter.com/CentreEnvRights



Centre *Pr*
Environmental Rights

Advancing Environmental Rights in South Africa

Report violations of environmental rights to the 24-hour Environmental Crimes & Incidents Hotline on **0800 205 005**.
More reports of environmental violations assist in justifying more investment in more inspectors, and more enforcement of environmental laws. Numbers matter; Take the time to report violations, even if you have done so elsewhere. For more information about this CER campaign, visit <http://cicer.org.za/news/numbers-matter-join-us-in-reporting-violations-of-environmental-rights>.



APPEAL TO THE MINISTER OF ENVIRONMENTAL AFFAIRS

In the matter between:

GROUNDWORK

Applicant

and

DEPARTMENT OF ENVIRONMENTAL AFFAIRS

First Respondent

**ACWA POWER KHANYISA THERMAL POWER
STATION (RF) (PTY) LTD**

Second Respondent

**SECOND RESPONDENTS RESPONSE TO APPELLANT'S SUBMISSIONS IN
TERMS OF REGULATION 60(4) OF THE 2010 EIA REGULATIONS**

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INTRODUCTION

- 1 On 18 April 2017, the attorneys of the applicant ("Groundwork") submitted, on its behalf, "Submissions to the Minister in terms of Reg 60(4) of the 2010 EIA Regulations", Prior to that, on 29 March 2017, Groundwork filed its notice of intention to appeal in terms of regulation 60(1) of the Environmental Impact Assessment Regulations, 2010 ("the 2010 EIA Regulations").¹ Groundwork wants to appeal the decision of the Department of Environmental Affairs ("the Department") to grant an integrated environmental authorisation in respect of the Khanyisa Thermal Power Station ("Khanyisa").

- 2 Although Groundwork refers, in various places in its submissions,² to its "notice of appeal", it is assumed that it means to refer to its "notice of intention to appeal". Regulations 60 and 61 of the 2010 EIA Regulations distinguish between the notice of intention to appeal (already filed by Groundwork and in respect of which condonation is sought) and the appeal itself (which Groundwork will presumably file if condonation is granted). Regulation 60(4) envisages that, if the notice of intention to appeal is to be filed late, condonation from the Minister of Environmental Affairs ("the Minister") may be sought. The implication is that, if condonation is refused, no appeal may be lodged in terms of regulation 61,

The 2010 EIA Regulations were published on 18 June 2010 in GN R543 in GG 33306. The 2010 EIA Regulations were repealed by the 2014 Environmental Impact Assessment Regulations. However, because the Khanyisa authorisation was granted when the 2010 Regulations were in force, Groundwork has followed the 2010 EIA Regulations in attempting to appeal the decision to grant the authorisation.

See, for instance, paragraphs 3 and 4

- 3 In an email from Ms Heloise van Schalkwyk, the Deputy Director: Appeals and Legal Review, ACWA Power Khanyisa Thermal Power Station (RE) (Pty) Ltd ("ACWA") was invited to object to the condonation application. This is ACWA's objection. ACWA submits below that condonation ought to be refused. It submits that the case for condonation is so deficient that the Minister ought to refuse it without engaging the merits of Groundwork's appeal. However, it reserves the right to address the merits of the appeal in due course, should condonation be granted.
- 4 Groundwork says that it "only became aware" of the environmental authorisation in respect of Khanyisa in June 2015. It does not say precisely when in June 2015 it acquired this knowledge. However, the email annexed to the condonation application as Annexure A reveals that Groundwork acquired this knowledge on 10 June 2015.
- 5 One of the questions that the Minister will consider, when deciding whether to grant condonation, is how late the notice of intention to appeal was submitted by Groundwork. There are two ways to assess this question:
 - 5.1 Regulation 60(1) requires a notice of intention to appeal to be submitted "within 20 days after the date of the decision". It does not say that the notice of intention to appeal may be submitted within 20 days of the date on which the appellant "became aware of the decision". This is a formulation that is used elsewhere,³ and the drafter of the 2010 EIA

See, for example, regulation 14 of the Kwazulu-Natal Tourism Regulations, 2004; Section 36(1)(a) of the Property Valuers Profession Act 47 of 2000; regulation 14 of the Gauteng Heritage Resources Authority Regulation, 2002: and section 161 of the Kwazulu Nature

Regulations chose not to use it. On this basis, the notice of intention to appeal is approximately 3 years and 4 months late. (This is based on the following calculation: the environmental authorisation was granted on 31 October 2013. The 20-day period envisaged by regulation 60(1) expired on 20 November 2013. The notice of intention to appeal was filed some 3 years, 4 months and 9 days later). It is submitted that, on the clear wording of regulation 60(1), this is the correct approach.

5.2 Alternatively, it may be assumed, for the sake of argument, that the clock only began to run when Groundwork became aware of the decision. On this basis, the notice of intention to appeal was filed 21 months late. (This is based on the following calculation: the 20-day period envisaged by regulation 60(1) would have expired, if calculated from 10 June 2015, on 30 June 2015. The notice of intention to appeal was filed one day short of 1 year and 9 months after this date.)

6 On either basis, therefore, the notice of intention to appeal was filed very, very late. ACWA submits below that Groundwork has given the Minister no good reason to condone its extremely late filing of its notice of intention to appeal.

Conservation Act 29 of 1992. All of these pieces of legislation, and many others, entitle an aggrieved party to appeal or review a decision within a certain *number* of days of having "become aware of the decision".



THE CASE FOR CONDONATION

7 Groundwork argues that it should be granted condonation for the following reasons:

7.1 It has good prospects of success on appeal .⁴

7.2 There have been changed circumstances since the environmental authorisation was granted, which warrant the reconsideration of the environmental authorisation.⁵

7,3 It has a good explanation for its delay:

7,3.1 Although the notice of intention to appeal was filed more than three years after the authorisation was first granted, the authorisation has been amended on four occasions. These amendments must be taken into account for the purpose of calculating the delay.⁶

7.3.2 A judgment of the High Court ("the *Thabametsi* judgment") was handed down on 8 March 2017.⁷ The delay is justified because the *Thabametsi* judgment confirmed, for the first time, the legal duty on the part of the Department to conduct a climate-change assessment when deciding whether to grant

Condonation application at pares 21-24 and pare 44

Condonation application at pares 26-31

Condonation application at para 45

Earthlife Africa Johannesburg v Minister of Environmental Affairs [2017] JOL 37526 (GP)



an environmental authorisation in terms of section 24 of the National Environmental Management Act 107 of 1998 ("NEMA"). The judgment now provides certainty when, prior to this judgment, "the Department and the Minister maintained that there was no legal duty" to conduct such an assessment.⁸

7.3.3 While it may be so that, as a matter of "legal theory", the *Thabametsi* judgment only confirmed the pre-existing legal position, as a practical matter the judgment produced a shift in the prevailing position.⁹ (This argument appears to be a response to some of the submissions set out below, which were mentioned briefly in correspondence sent by ACWA to the Department after the notice of intention to appeal was filed.)

7.3.4 Groundwork only became aware of the environmental authorisation in 2015. At that stage, it chose to prioritise the environmental authorisations of other Independent Power Producers. Only when *the Thabametsi* judgment was handed down, did it realise that the Khanyisa authorisation was unlawful and susceptible to appeal, at which point it brought the appeal."

Condonation application at paras 46-7

Condonation application at para 48

10 Condonation application at para 50

7.3.5 The changed circumstances described above could not have been addressed earlier."

7.4 ACWA will not be prejudiced by condonation being granted. In this regard, Groundwork argues that:

7.4.1 ACWA is a long way from being able to commence construction of its power station because further approvals are outstanding.¹²

7.4.2 Any development work done thus far by ACWA on the project was at risk and a normal part of the process of seeking regulatory approval.¹³

7.4.3 Any minor prejudice to be suffered by ACWA as a consequence of condonation being granted is outweighed by the importance of the stakes of the appeal."

7.5 A decision by the Minister to grant condonation will ensure consistency and fairness by treating the Thabametsi project and Khanyisa in the same way.¹⁵

¹¹ Condonation application at para 51

Condonation application at pars 53

¹³ Condonation application at paras 54-55

¹⁴ Condonation application at para 56

¹⁵ Condonation application at paras 57-60

THE CASE FOR CONDONATION IS MERITLESS

8 It is submitted that, for the reasons given below, none of the arguments summarised above has any merit. Condonation should, therefore, be refused.

The role of the amendments

9 When it comes to calculating the extent of Groundwork's delay, it is necessary to address the relevance of amendments that have been made to the Khanyisa environmental authorisation. As shown above, Groundwork submits that the amendments to the authorisation (some being effected recently) must be "taken into account" when calculating the period of delay. Despite the fact, therefore, that it seems to accept that its delay in appealing has been lengthy, it seeks to muddy the waters by referring to recent amendments to the environmental authorisation.

10 It is not clear on what basis these amendments are alleged to be relevant. On Groundwork's own version¹⁶ (which is correct), the amendments had the following effect:

10.1 The amendment of 28 July 2015 increased the permissible capacity of the power station from 450MW to 600MW and made provision for road realignment.

10.2 The amendment of 25 February 2016 related, again, to road realignment.

See Condonation Application at para 9

10.3 The amendment of 2 February 2017 related to the name of the applicant and the name of the property on which the station is to be erected.

10.4 The amendment of 3 April 2017 related to the date by which kinetic leach testing for the plant must be conducted (and extended that date).

11 The only one of these amendments which could possibly have been material to Groundwork's appeal was the first one, in which the potential capacity of the project was increased from 450MW to 500MW. However, this amendment was made less than two months after Groundwork claims first to have become aware of the impugned decision, and *after it* went on record as an interested and affected person.¹⁷ Therefore, even if one were to allow the date of that amendment (i.e. 28 July 2015) to be taken into account when calculating *the* delay, the delay would be almost two years.

12 In short, therefore, the fact that the environmental authorisation was amended on several occasions does not assist Groundwork in its attempts to justify the very late filing of its appeal.

No legal basis for condonation

13 Section 240 of NEMA came into force on 1 May 2009.¹⁸ Some of the criteria to be taken into account by the Minister when deciding whether to grant

¹⁷ See Annexure A to Groundwork's submission

¹⁸ Section 240 was introduced by section 8 of the National Environmental Management Amendment Act 62 of 2008, which was assented to on 5 January 2008 and commenced on 1 May 2008.

environmental authorisations have been amended since that date. However, the obligation to take account of any pollution, environmental impacts or environmental degradation likely to be caused if the application is approved or refused" has been included in section 240(1)(b) since inception (i.e., 1 May 2009). This is the provision on which Groundwork relies in this application, and which enjoyed the court's attention in the *Thabametsi* judgment.

14 The main premise of Groundwork's condonation application is that:

14.1 The *Thabametsi* judgment found for the first time in our law" that section 240(1) of NEMA requires the Department to take account of climate change when deciding whether to grant an environmental authorisation.

14.2 The notice of intention to appeal was tiled within 20 days of the *The bametsi* judgment.

14.3 Condonation should therefore be granted. Or (although this is never expressly said, perhaps was not necessary in the first place.

15 However, these submissions are indefensible in law:

15.1 It is well-accepted that judges do not make law; they interpret law. It is also well-accepted that our law adopts an objective approach to validity and meaning — the validity and meaning of statutes are to be

determined at enactment, and not when a particular interpretive question comes before court)

15.2 The consequence of this is that, even if the court in *Thabametsi* was correct, the judgment (which is, in any event, distinguishable from the present case in several respects) did not make law or change the legal position. It simply informed the parties of the correct interpretation of section 240(1)(b), as it has read since 1 May 2009.

15.3 There is therefore nothing magical about the judgment when it comes to the calculation of time. If the Court in *Thabametsi* was correct in its interpretation of section 240(1)(b), then that was the meaning of section 240(1)(b) from the date on which it was enacted (1 May 2009). That means that it bore the same meaning on the date when the Khanyisa authorisation was granted (31 October 2013) and on the date on which Groundwork alleges to have become aware of it (10 June 2015).

15.4 There is a good reason why the law adopts this stance: the unavoidable consequence of the approach proposed by Groundwork in this condonation application is that, from the moment the *Thabametsi* judgment was handed down, every EA granted since section 240 came into force would be vulnerable to being set aside, even years later. The law turns its face against such chaos.

¹⁹ See *New National Party of SA v Government of South Africa* 1999 (3) SA 191 (CC) at pars 22

15.5 There was, therefore, no legal impediment that prevented Groundwork from filing its notice of intention to appeal within 20 days of the decision being made or, at the very least, within 20 days of becoming aware of the decision. However, it waited almost two more years before doing so.

15.6 Specialist litigants — such as an NGO focusing on environmental questions that wishes to litigate on an environmental matter — are presumed to know the area of law in which they operate.²⁰ Groundwork's contention that it did **not** know that the Department's Khanyisa decision was "unlawful" until it received the *Thabametsi* judgment is therefore not to be accepted.

15.7 it is also irrelevant what stance the Department previously adopted to this question. it was always open to Groundwork to appeal against the Khanyisa authorisation decision and advance all arguments available to it, in support of its contention that the decision should be set aside. If the Minister rejected these arguments, then Groundwork was entitled to take the Minister on review. Indeed, it has threatened to do so in this very case.²¹ In the *Thabametsi* judgment, in an extract relied upon by Groundwork, the Court held that "a plain reading of section 240(1) of NEMA confirms that climate change impacts are indeed relevant factors that must be considered".²² If that is so, then there was nothing stopping

²⁰ See, for example, *S v Molubi* 1988 (2) SA 576 (BG) at 581; See also *S v de Blom* 1977 (3) SA 513 (A) at 528-533; *Nuance Investments (Pty) Ltd v Maghilda investments (Pty) Ltd* 2016 JDR 2255 (SCA) at para 64

²¹ See paragraph 25 of the condonation application.

²² *Thabametsi* judgment at para 88; Groundwork condonation application at para 17

Groundwork advancing this argument when it first became aware of the environmental authorisation.

15.8 It is, for this reason, also wrong of Groundwork to rely on the alleged need to treat Thabametsi and Khanyisa equally, for the sake of fairness (see paragraph 7.5 above). The *Thabametsi* judgment makes clear that, unlike Groundwork, Earthlife Africa (the NGO applicant in the *Thabametsi* case) took advantage of its internal remedies, prosecuted its appeal promptly and then instituted a review when the appeal was against it.²³ That is precisely what Groundwork ought to have done in this case. Litigants who behave differently are treated differently. There is nothing unfair about this. On the contrary, it would be unfair on ACWA to permit Groundwork to appeal now.

16 The argument summarised in paragraph 15 above is not merely legal theory".²⁴

It is a summary of the prevailing legal position, to which the Minister (and, indeed, Groundwork) is bound. Therefore, the contrast that Groundwork seeks to draw between legal theory" and the practical implication of the *Thabametsi* judgment is impermissible. Groundwork would in principle be entitled to rely on the reasoning in the judgment when arguing the merits of the appeal. However, the judgment is totally irrelevant when it comes to calculating Groundwork's delay.

²¹ See para 2 of the *Thabametsi* judgment which shows that the entire appeal process, including the Minister's decision, was completed within 1 year of the environmental authorisation being granted.

²ⁱ See paragraph 48 of the condonation application

Delay causes uncertainty and prejudice

17 There is another, related, reason why our law does not accept the approach proposed by Groundwork. It is because of the importance of legal certainty:

17.1 Our law assumes administrative decisions to be valid.²⁵ It also, based on this assumption, considers citizens to be entitled to act on the validity of such decisions.²⁶ Accordingly, undue delay in challenging administrative decisions precludes them from being challenged at all, even if actual prejudice has not been shown 21

17.2 When the environmental authorisation was granted in October 2013, section 240(1)(b), in its present form, was in force. The Khanyisa application was made with a view to complying with that provision. When it was granted, all stakeholders were entitled to assume that it was validly granted. When no appeal was brought within the requisite time period, and thereafter for many months, this assumption was only strengthened and entrenched. This is the basis on which our law proceeds.

17.3 ACWA has explained, in correspondence to the Minister (annexed as **ACWAI** to this submission), that, since 2013, it has been developing the Khanyisa project on the strength of the valid environmental authorisation, at significant cost. Development work is ongoing and it

²⁵ See *Njongi v MEC, Department of Welfare, Eastern Cape* 2008 (4) SA 237 (CC) at para 44-5

²⁶ See *Gqwetha v Transkei Development Corporation Ltd* 2006 (2) SA 603 (SCA) at para 22-3

²⁷ See *Gqwetha (sup ▶ a)* at para 23; *Opposition to Urban Tolling Alliance (OUTA) v SANRAL* 2013 JCR 2297 (SCA)

has entered into a material agreement in terms of which the necessary measures to commence the authorised activities have begun.

17.4 In elaboration of what was said in the correspondence, it must be emphasised that ACWA has acted in reliance on the validity of the environmental authorisation:

17.4.1 in terms of the bidding process, there are two important phases. First, there is the identification of the preferred bidders, Secondly, there is commercial negotiation leading to financial close. Once financial close is reached, a power purchase agreement ("PPA") is concluded.

17.4.2 In order to make the necessary arrangements to reach the point of financial close, ACWA has spent approximately ZAR28 million thus far and has committed a further ZAR32 million. This money has been spent and/or committed in reliance on the validity of the environmental authorisation. The arrangements to reach financial close have involved the conclusion of various contracts with Engineering, Procurement and Construction ("EPG") Contractors, Operations & Maintenance Contractors and suppliers, who have also incurred costs in fulfilment of the agreements. These costs are not included in the above figures.

17.4.3 In preparation for the signing of the PPA, ACWA has entered into an LNTP (limited notice to proceed) agreement with its

EPC Contractor in terms of which it has committed a further US\$10 million and under which:

17.4.3.1 detailed engineering for the project has been largely completed;

17.4.3.2 the EPC Contractor has been mobilized to undertake site geotech investigations which are imminently to commence; and

17.4.3.3 other critical activities that are required to ensure delivery of the project will soon begin.

17.4.4 Critical activities are necessary to be undertaken before the construction on the project commences. This includes the relocation of a road which is necessary to prepare the site for construction of the power station once the power purchase agreement has *been* signed.

17.4.5 The risk that ACWA Power is seeking to manage by acting as outlined above and prior to the power purchase agreement being signed, is that if the above activities do not take place at this stage, it may result in the Project not being ready for completion in accordance with the time periods contemplated for preferred bidders to meet their obligations.

17.5 Groundwork argues, in rejecting the notion of prejudice to ACWA, that it is a normal part of the process of applying for regulatory approval that

costs should be incurred "on risk". However, Groundwork overlooks the trite principles of law described in paragraphs 17.1 and 17.2 above. It is a "normal part of the regulatory process of applying for regulatory approval that decisions are presumed to be valid unless challenged and are to be challenged promptly. That is, after all, the whole point of the certainty principle acknowledged by our law and summarised in paragraphs 17.1 and 17.2 above. It should furthermore be emphasised, as explained above, that the nature of the bidding process requires preferred bidders to incur substantial expenses in order to bid and once declared preferred bidder, to ready themselves for commercial deal and the conclusion of a PPA. This makes the timely challenge of administrative decisions, on which the preferred bidder is entitled to rely, all the more important.

17.6 It is therefore simply not open to Groundwork to delay for, on the best interpretation for it, two years in bringing its appeal and then dismiss ACWA's prejudice as being a normal part of the process.²⁸

17.7 It should, in any event, again be emphasised that it is not necessary for ACWA to show actual prejudice when resisting the condonation application. As shown above, the law does not countenance undue delay, even where no actual prejudice has been established.

See, generally, the judgment in *Arandis Power (Pty) Ltd v President of the Republic of Namibia* 2016 JOR 1315 (Nm). In that case, the court expressly rejected the argument that preparatory work was done "on risk" on facts very similar to those in the present case (see paras 27 to 29).

Changed circumstances inadmissible

18 Groundwork relies on alleged changed circumstances, since the time when the environmental authorisation was first granted, to justify its attempt to appeal now. It argues that changed circumstances justify the granting of condonation.

19 The question, therefore, is whether "changed circumstances" may be considered by the Minister when deciding whether to grant condonation. This, in turn, requires a consideration of whether, when deciding the appeal itself, the Minister will be entitled to take changed circumstances into account.

20 The questions summarised in paragraph 19 above are interpretive questions. They require an interpretation of the 2010 EIA Regulations, and in particular the provisions dealing with appeals, to determine whether changed circumstances may be taken into account on appeal.

21 The proper approach to interpretation is to look at the plain meaning of the document (in this case the 2010 EIA Regulations) understood in the context of the document as a whole,²⁹ It is submitted that, applying this approach, changed circumstances cannot be taken into account by the Minister in deciding an appeal. They are, therefore, irrelevant when it comes to consider whether condonation should be granted:

Natal Joint Municipal Pension Fund v Endumeni Municipality 2012 (4) SA 593 (SCA) at pars 18; See also Bothma-Batho Transport (Edrns) Bpk v S Bothma & Seun Transport (Edens) Bpk 2014 (2) SA 494 (SCA) at paras 11-12

21.1 It is trite that an appeal is directed at the correctness of the appealed decision at the time that it was taken.³⁰ Therefore, one would have expected the 2010 DA Regulations to permit the Minister, expressly, to take account of changed circumstances when deciding an appeal if that was the intention of the drafters. There is no such permission.

21.2 Indeed, the role played by changed circumstances *counts against* condonation being granted:

21.2.1 The 2010 EIA Regulations require a notice of intention to appeal to be filed within 20 days of the appealed decision being made. The regulations then contemplate the following timetable for the further conduct of the appeal:

21.2.1.1 The appeal itself must be filed within 30 further days of the filing of the notice of Intention to appeal.³¹ That takes the time period to a total of 50 days.

21.2.1.2 The respondents are then afforded a 30-day period in which to file an answering statement.³² That takes the time-period to a total of 80 days.

³⁰ See the discussion in *National Industrial Council for the Iron, Steel, Engineering & Metallurgical Industry v Photocircuit SA (Pty) Ltd* 1993 (2) SA 245 (C) at 248J-250E

³¹ Regulation 82(1) of the 2010 EIA Regulations

³² Regulation 63(1) of the 2010 EIA Regulations

21.2.1.3 The Minister must make a decision within a further 90 days of receiving all of the relevant submissions and information.³³ Therefore, unless condonation is granted along the way, the full appeal is meant to be finalised within 170 days, less than six months.

21.2.2 The regulations therefore contemplate a speedy process to resolve appeals. While it is true that condonation for the late filing of appeals (and further documents relevant to the appeal) may be granted, this does not detract from the fact that the Regulations envisage the prompt finalisation of appeals. This demonstrates that, as an interpretive matter, it was never intended for appeal processes to remain open indefinitely, constantly taking account of changed circumstances.

21.2.3 The point is this: if changed circumstances could be taken into account for the purpose of granting condonation, every condonation application (no matter how late) would have to be granted. The longer the delay, the greater the likelihood of changed circumstances. On Groundwork's approach, any change in circumstances would warrant the reopening of the process, even years later: the very antithesis of the certainty principle described above.

³³ Regulation 66(2) of the 2010 EIA Regulations

21.3 Lastly, the principles of interpretation mentioned in paragraph 20 above require the 2010 EIA Regulations, as a whole, to be considered when determining the scope of the Minister's appeal powers.

21.3.1 In this regard it is highly relevant that, in regulation 38(2)(b), the Minister (or her delegate) has the express power to amend an environmental authorisation on his or her own initiative.

21.3.2 Regulation 43(a) of the 2010 EIA Regulations provides that one of the bases on which the Minister may amend an authorisation is to prevent deterioration, or further deterioration, of the environment".

21.3.3 Therefore, the regulations themselves envisage a specific vehicle for the type of changed considerations relied upon by Groundwork to be taken into account by the Minister, and to form the basis of future amendments to the environmental authorisation.

22 The discussion above demonstrates that Groundwork is wrong when it says that changed circumstances suggest that condonation should be granted now. They also demonstrate that Groundwork is wrong when it argues that, because of the long lifespan of Khanyisa, a speculative assessment of climate change must be conducted now. The regulations have a built-in mechanism to ensure that, should any deterioration be detected or anticipated, the Department has the power to amend (or even suspend — see regulation 47(1)(b)) the environmental authorisation granted in respect of Khanyisa.

CONCLUSION

23 ACWA submits that Groundwork has provided no basis for the Minister to grant condonation. Its application is so late, and its explanation so indefensible, that even if the appeal itself had the strongest of merits (which is denied) it would not justify the granting of condonation.

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RE: NOTICE OF INTENTION TO APPEAL AGAINST THE INTEGRATED ENVIRONMENTAL AUTHORISATION ISSUED IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND 11-11.: ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2010 FOR THE ESTABLISHMENT OF A 6001101W COAL-FIRED POWER STATION AND ASSOCIATED INFRASTRUCTURE — IPP IMA.NXISA POWER STATION NEAR EMALAHLENT, MPUMULANGA PROVINCE

We represent ACWA raver Khanyisa Thermal Power Station (RF) (Pty) Limited ("our client") which intends constructing and operating the coal-fired Khanyisa Power Plant with a capacity of 306MW (the "Project").

We have been sent a copy of the letter sent to, you by the Centre for Environmental Rights ("CER") on 29 March 2017 in which it provides confirmation of 44 client ground works

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intention to appeal the environmental authorisation granted to our client in 2013 (the "Environmental Authorisation"). By way of background, we confirm that the Environmental Authorisation for the Project was initially granted to Anglo Operations but it has since been transferred to our client which is now the holder of the Environmental Authorisation which is set to be the subject of groundWork's appeal.

We note in the penultimate paragraph of the CER's letter that it has requested that the Department provide it with an extension for the late filing of its notification of intention to appeal in terms of regulation 60(4) of the 2010 Regulations.

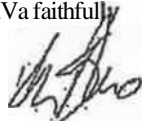
It is our Client's submission that the Minister should decline to extend the period envisaged by regulation 60(1) for, among others, the following reasons:

1. It is a well-accepted principle that the law is objectively ascertainable. Judges do not make law but simply interpret the law as determined by the legislature. Section 24(1) of NEMA, which is the provision that formed the basis of the decision in *Earthlife Africa v Minister of Environmental Affairs*, has been in force since 29 January 1999; when NEMA first came into force. Assuming (as argued by the CER on behalf of groundWork, but denied by our Client) that the *Earthlife* judgment correctly interpreted section 24(1) of NEMA, from inception (in 1999), required climate change to be taken into account when environmental authorisations are considered. It is therefore not open to a litigant such as groundWork to bring an appeal at this late stage. Rather, it ought to have brought an appeal at the time that the Environmental Authorisation was granted. The sole basis for seeking condonation given by the CER is that the *Earthlife* judgment was recently handed down. Since this 'groundWork' is bad in law, condonation cannot be granted.
2. The recent supreme Court of Appeal decision in *Opposition to Urban Tolling Alliance v The South African National Roads Agency Ltd and Others (90/2013)* [2013] ZASCA 148; [2013] 4 All SA 639 (SCA) (9 October 2013) ("the *OUTA* judgment") has confirmed that holders of authorisations such as that held by our Client are entitled to act and rely on the principle of legal certainty. Administrative law proceeds on the premise that decisions such as our client's Environmental Authorisation are valid and binding. The *OUTA* judgment placed great emphasis on this principle when holding that, ordinarily, litigants should not be permitted to attack administrative decisions (whether by review or by internal appeal) when they have delayed unreasonably in doing so. To provide otherwise, and allow an appeal at this late stage, would simply erode that principle.

Since 2013, our client has been developing the Project on the strength of a valid Environmental Authorisation, at significant cost. Development Work is ongoing and our client has entered into a material agreement in terms of which the necessary measures to implement the authorised activities have begun. Any appeal at this late stage will clearly result in significant prejudice to our client, which is the very circumstance that motivated the Supreme Court of Appeal's decision in the *OUTA* judgment:

For the Leaves given above, there is no lawful *basis* on which the Minister may be expected to extend the 20-day period envisaged by regulation 60(1) of the 2010 Regulations on the facts of this case, it is accordingly our respectful submission that the Minister ought simply to refuse the request and decline to accept the notice of intention to appeal. The implication of this would be that the appeal may be lodged by the respondent in due course. This is because it is a jurisdictional requirement to lodge an appeal that a valid notice, of intention to appeal has first been lodged.

Yours faithfully,



Fasken Martineau



**MINISTER
ENVIRONMENTAL AFFAIRS
REPUBLIC OF SOUTH AFRICA**

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Centre for Environmental Rights
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**REQUEST FOR CONDONATION FOR THE LATE FILING OF THE NOTICE OF INTENTION TO
APPEAL AGAINST THE INTEGRATED ENVIRONMENTAL AUTHORISATION ISSUED FOR
THE ESTABLISHMENT OF THE 600MW IPP KHANYISA COAL-FIRED POWER STATION AND
ASSOCIATED INFRASTRUCTURE, NEAR EMALAHLENI, MPUMALANGA PROVINCE**

The Minister of Environmental Affairs, Mrs B E E Molewa, *has* considered the request for condonation to submit an appeal against the decision of the Deputy Director General: Legal, Authorisations, Compliance and Enforcement to authorise the establishment of the 600MW IPP Khanyisa Coal-Fired Power Station near Emalahleni, Mpumalanga Province.

After evaluating the request for condonation and relevant information submitted to her, the Minister has reached a decision, a copy of which is attached hereto.

MINISTRY OF ENVIRONMENTAL AFFAIRS
DATE: 2014/01/14



**MINISTER
ENVIRONMENTAL AFFAIRS
REPUBLIC OF SOUTH AFRICA**

Reference: LSA 162101

CONDONATION DECISION

REQUEST FOR CONDONATION FOR THE LATE FILING OF THE NOTICE OF INTENTION TO APPEAL AGAINST THE INTEGRATED ENVIRONMENTAL AUTHORISATION ISSUED FOR THE ESTABLISHMENT OF THE 600MW IPP KHANYISA COAL-FIRED POWER STATION AND ASSOCIATED INFRASTRUCTURE, NEAR EMALAHLENI, MPUMALANGA PROVINCE

1. INTRODUCTION

In terms of regulation 36 (1) of the Environmental Impact Assessment Regulations, 2010, published by Government Notice (GN) No. R. 543 of 18 June 2010 (2010 EIA Regulations), regarding activities identified under section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), the Deputy Director-General: Legal, Authorisations, Compliance and Enforcement (DDG: LACE) of the Department of Environmental Affairs (the Department) authorised ACWA Power Khanyisa Thermal Power Station RF (Pty) Ltd (the applicant), on 31 October 2013, to proceed with the construction of the 600 MW Khanyisa Coal Fired Power Station in Emalahleni, in the Mournelenge Province.

2. BACKGROUND

2.1 The applicant applied for environmental authorisation (EA) for the aforementioned coal-fired power station and associated infrastructure on 29 October 2010.

2.2 The EA for the abovementioned application was issued on 31 October 2013, following which the applicant applied for and was granted the following amendments:

2.2.1 An increase in the permissible capacity of the power station from 450MW to 600MW and to make provision for road realignment, which was granted on 28 July 2015;

2.2.2 Road realignment, which was granted on 25 February 2016;

2.2.3 Change of the name of the applicant and the name of the property, which was granted on 2 February 2017;

2.2.4 The date by which kinetic leach testing from the plant must be conducted, which was granted on 3 April 2017.

2.3 No appeals were lodged against the EA issued by the Department within the prescribed time period for the EA or any of the amendments thereto. However, on 29 March 2017, approximately 3 years and 4 months outside the prescribed timeframes, the Centre for Environmental Rights on behalf of GroundWork (the appellant) lodged a notice of intention to appeal, followed by a request for condonation for the late filing thereof on 18 April 2017.

2.4 Taking into consideration and make a decision on the aforementioned condonation application. Should condonation be granted, the appellant will be allowed to file its grounds of appeal.

2.5 The major grounds of appeal follows.

2.5.1 The significance of the Earthlife Africa Johannesburg v Minister of Environmental Affairs & Others (Thabametsi) judgment for the appeal;

2.5.2 The changing circumstances warrants the reconsideration of the EA on appeal;

2.5.3 There is good cause shown under Regulation 60(4) of the 2010 E1A Regulations.

3 CONDONATION

3.1 In terms of section 47C of NEMA, read together with Regulation 62(2) of the 2010 EIA Regulations, the appellant lodged a request for condonation on 18 April 2017, for the late filing of its notice of intention to appeal against the EA issued to the applicant on 31 October 2013.

3.2 Section 47C of NEMA provides as follows, *"The Minister or an MEC may extend, or condone a failure by a person to comply with, a period in terms of this Act or a specific environmental management Act, except a period that binds the Minister or MEC,"*

3.3 Regulation 62(2) of the EIA Regulations further provides that: *"The Minister, MEC, Minister of Mineral Resources or designated organ of state, as the case may be, may, in writing, on good cause extend the period within which an appeal must be submitted."*

3.4 In terms of Regulation 62(1) of the 2010 EIA Regulations, the notice of intention to appeal was lodged on 20 November 2013, meaning that it was lodged approximately 3 years and 4 months outside of the prescribed timeframes.

3.5 The applicant was thereafter invited to submit a response to the aforementioned request for condonation, which it duly did on 16 May 2017.

3.6 In reaching my decision on the application for condonation for the late filing of the aforementioned notice of intention to appeal, I have taken the following into consideration:

3.6.1 Material information contained in the project file (12/12/20/2067);

3.6.2 The grounds for requesting condonation submitted by the appellant on 18 April 2017; 3.6.3

The response to the condonation application submitted by the applicant on 16 May 2017; 3.6.4

Applicable case law, as well as the Appeals Guideline of the Department.

3.7 The grounds for requesting condonation and the responses thereto are as follows:

- 3.7.1 The appellant contends that the Thabametsi judgment, which was handed down by the North Gauteng High Court on 8 March 2017, confirmed for the first time in South African law that a comprehensive climate change impact assessment must be conducted and considered before granting an EA to a new coal-fired power station. The appellant therefore contends that the EA issued to the appellant was improper and unlawful as it was granted in the absence of a comprehensive climate change impact assessment.
- 3.7.2 The appellant further contends that whilst the applicant was announced as one of two preferred bidders by the Department of Energy, it has not yet reached financial close and is still in the process of applying for various licences and outstanding environmental approvals. The appellant contends, therefore, that the applicant has not yet commenced construction and will not be in a position to do so until it has received all the necessary licences and approvals and has the necessary funding,
- 3.3 The appellant contends, furthermore, that there are changed circumstances that warrant the reconsideration of the EA on appeal. In this regard, the appellant submits that since the EA was issued in 2013, the circumstances around air quality impacts, international climate change commitments and water impacts have changed substantially. It is therefore the appellants contention that public interest dictates that these changes circumstances be considered on appeal, particularly in light of the fact that the applicant's coal-fired power station will be operational for at least 40 years.
- 3.7.4 The appellant contends that good cause exists for me to grant an extension under Regulation 60(4) of the 2010 EIA Regulations. Good cause, the appellant contends, involves a value judgment that considers each case on its merits in order to achieve a just and equitable result in particular circumstances, In this regard, the appellant contends that taking into consideration the nature and importance of the issues, the prospects of success on appeal, the explanation for the late filing of the appeal in the context of the Thabametsi judgement, the fact that no material prejudice will be suffered by the applicant in the event that condonation is granted, as well as ensuring consistence and fair treatment between the applicant and Thabametsi (the latter which has now been directed to conduct a comprehensive climate change assessment), it has satisfied the criteria for good cause.

- 3.7.5 In response to the contentions by the appellant, the applicant contends that the case for condonation is so deficient that it should be refused without engaging the merits of the appeal. The applicant contends, furthermore, that the delay by the appellant in lodging its appeal is well in excess of the appeal period prescribed in the 2010 EIA Regulations and that the delay by the appellant is not to be reckoned in days or even months, but in years,
- 3.7.6 The applicant contends, furthermore, that despite the fact that the appellant accepts that its delay in submitting a notice of intention to appeal has been lengthy, it seeks to muddy the waters by referring to amendments to the EA, which the applicant submits, has no relevance to the late submission of its appeal.
- 3.7.7 The applicant further contends that section 240 of NEMA came into effect on 1 May 2009, which included, since inception, the obligation to take account of *any pollution, environmental impacts or environmental degradation likely to be caused if the application is approved or refused*. The applicant submits, therefore, that the contentions by the appellant are indefensible in law. Judges, the applicant submits, do not make law but instead interpret law. Furthermore, the applicant submits that it is well accepted in our law that the validity and meaning of statutes are to be determined at enactment and not when an interpretive question comes before court. Consequently, the applicant submits that even if the court in Thabametsi was correct, the court did not make law or change the legal position but simply informed the parties of the correct interpretation of section 240(1)(b) of NEMA.
- 3.7.8 The applicant submits that there is a good reason why the law adopts this stance, as the unavoidable consequence of the approach proposed by the appellant is that from the moment the Thabametsi judgment was handed down, every EA granted since section 240 came into force would be vulnerable to being set aside, even years later.
- 3.7.9 The applicant submits, furthermore, that there was no legal impediment that prevented the appellant from filing its notice of intention to appeal within 20 days of the decision or at the very least within 20 days of becoming aware of the decision but that it instead waited almost two more years before doing so.

- 3.7.10 The applicant submits that there is another related reason why our law does not accept the approach proposed by the appellant, which is that of legal certainty. The law, the applicant submits, assumes administrative decisions to be valid and considers citizens to be entitled to act on the validity of such decisions.
- 3.7.11 The applicant submits that since no appeal was brought against the project within the prescribed time period, it continued to develop the project on the strength of a valid EA. The applicant submits, furthermore, that in order to reach financial close, it has spent approximately R28 million rand and has committed a further R32 million. The applicant submits that based on the validity of the EA, it has also concluded various contracts with engineering, procurement and construction contractors, operations and maintenance contractors and suppliers.
- 3.7.12 The applicant furthermore rejects the contentions made by the appellant in respect of changed circumstances as a justification for the late filing of its notice of intention to appeal.
- 3.7.13 The applicant concludes, therefore, that the appellant has provided no basis for its condonation application and submits that the application is so late, and its explanation is so indefensible, that even if the appeal itself had the strongest of merits, which the applicant denies, it would not justify the granting of condonation.

4. DECISION

4.1 In arriving at my decision on the aforementioned condonation application, it should be noted that I have not responded to each **and** every statement set out by the appellant and applicant, and where a particular statement is not directly addressed, the absence of any response should not be interpreted to mean that I agree with or abide by the statement made.

4.2 The reasons for my decision are as follows:

- 4.2.1 In terms of section 47C of NEMA, as well as Regulation 62 (2) of the 2010 EIA Regulations, I have the legal authority to grant an extension or condonation for the submission of an appeal which is out of time.
- 4.2.2 In evaluating the above contentions by the appellant, as well as the applicants responses thereto, I note that the appeal was submitted approximately 3 years and 4 months outside of the prescribed timeframes. However, I am mindful that when adjudicating on matters of condonation, lateness is not the only test.
- 4.2.3 In a long line of cases in respect of extensions of statutory time periods, the courts have held that in considering whether good cause is shown to extend a time period, the following factors must be taken into account the degree of lateness, the explanation thereof, whether or not factors outside of the control of the requesting party have played a role, potential prejudice in granting or refusing the request, whether it is in the interests of justice to grant or refuse the request the prospects of success on the merits and the importance of the case. The courts have held further that although these factors are interrelated, they are not individually decisive and must be weighed against each other,
- 4.2.4 In evaluating the submissions made by both the appellant and the applicant in respect of the granting of condonation for the late filing of the notice of intention to appeal by the appellant, I have considered the issues with reference to applicable case law, as well as the *Guideline on the Administration of Appeals*, which sets out the factors that must be considered in deciding whether or not to grant condonation for the late filing of an appeal.
- 4.2.5 In reviewing the appellant's reasons for delay, I am not satisfied that the appellant has proffered a sufficient explanation for the lateness of its appeal. The appellant merely avers that it was not notified of the project, and that it only became aware of the granting of the EA in June 2015. However, even if I were to consider the date on which the appellant became aware of the EA as the effective date of the EA for purposes of the current condonation application, the application will still have been made almost two years after becoming aware of the existence of the EA and the status of the project.

4.2.6 Furthermore, the Thabametsi judgment, as the applicant correctly points out, does not make any new law but instead simply interprets section 240 of NEMA in the context of coal-fired power stations. However, whilst the appellant in the Thabametsi case elected to file an appeal timeously, the appellant in this case has not done so.

4.2.7 Accordingly, fairness and legal certainty dictate that given the substantial degree of lateness in the filing of a notice of intention to appeal, coupled with the unconvincing nature of the reasons for such delay, there can be no justification for the grant of condonation to the appellant

4.2.8 I have also taken note of the fact that the applicant has indicated that it submitted correspondence to the Department on 25 May 2017 to notify the relevant officials of its intention to commence with construction activities for the authorised coal-fired power station on 12 June 2017. Considering that the applicant has spent approximately R28 million rand and committed a further R32 million to the project on the strength of a valid EA, there is likely to be substantial prejudice suffered by the applicant should an internal appeal be allowed to proceed at this stage.

4.2.9 Therefore, having evaluated the reasons advanced by the appellant in support of its application for condonation and the response thereto by the applicant, I am of the view that the interests of justice merit a refusal of the granting of condonation to the appellant for the late submission of its appeal.

4.2.10 The application for condonation for the late filing of the notice of intention to appeal by the appellant is accordingly denied.



DR B E E •LEWA, MP

MINISTER OF ENVIRONMENTAL AFFAIRS

DATE:



(

The Honourable Ms Edna Molewa
The Minister of Environmental Affairs
By email: minister@environment.gov.za

For attention: Z Hassam
Director: Appeals and Legal Review, Department of Environmental Affairs
By email: appealsdirector@environment.gov.za

Sabelo Malaza
Chief Director: Integrated Environmental Authorisations
Department of Environmental Affairs
By email: qlaza@environment.gov.za

Our ref: CER/54.1/RH NL
29 June 2017

URGENT

Dear Sirs

ACWA POWER KHANYISA THERMAL POWER STATION RF (PTY) LIMITED — KHANYISA IPP POWER STATION

1. We refer to our client, groundWork's request for condonation for the filing of an appeal in terms of the National Environmental Management Act, 1998 (NEMA) of the environmental authorisation for the above project ("Khanyisa") proposed by ACWA Power Khanyisa Thermal Power Station ("ACWA Power") submitted to the Minister of Environmental Affairs on 18 April 2017 and to the Minister's decision thereon of 20 June 2017, in respect of which our client's rights are reserved.
2. We note that paragraph 4.2.8 of the decision states that: "... *the applicant has indicated that it submitted correspondence to the Department on 25 May 2017 to notify the relevant officials of its intention to commence with construction activities for the authorised coal-fired power station on 12 June 2017.*"
3. Kindly provide us with a copy of the 25 May 2017 correspondence, referred to above.
4. As far as we are aware, Khanyisa has not yet reached commercial or financial close in terms of the coal baseload independent power producer procurement programme (CBIPPPP) request for proposals (RFP) requirements, in that it has not yet obtained, *inter alia*: a water use licence or a licence to generate electricity from the National Energy Regulator of South Africa (VERSA).

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5. Our client therefore disputes that ACWA Power is entitled to commence, with the construction of the Khanyisa power station. We place on record that any commencement of construction before the requisite authorisations and approvals have been obtained, would be unlawful, and will be stringently opposed by our client.
6. We also place on record that the validity of Khanyisa's atmospheric emission licence and environmental authorisation are disputed by our client, and our client's rights in this regard are fully reserved.
7. We have requested that ACWA Power urgently furnish our client with an undertaking that it will not commence any construction or take any steps to proceed with the development of the Khanyisa power station until such time as all requisite authorisations are obtained and the necessary requirements under the CBIPPPP have been met.
8. We await your response.

Yours faithfully

CENTRE FOR ENVIRONMENTAL RIGHTS



per:

Nicole Loser

Attorney

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Rakhee Rakhee Boora
Partner

Fasken Martineau

By [email: rbhooa@fasken.com](mailto:rbhooa@fasken.com)

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The Honourable Ms Edna Molewa

The Minister of Environmental Affairs

By [email: minister@environment.gov.za](mailto:minister@environment.gov.za)

For attention: Z Hassam

Director: Appeals and Legal Review, Department of Environmental Affairs

By [email: appealsdirector@environment.gov.za](mailto:appealsdirector@environment.gov.za)

Our ref: CER/54.1/RH **NL**
29 June 2017

URGENT

Dear Sir

ACWA POWER KHANYISA THERMAL POWER STATION RF (PTY) LIMITED

1. We refer to our client, groundwork's request for condonation for the filing of an appeal in terms of the National Environmental Management Act, 1998 (NEMA) of the environmental authorisation for the above project ("Khanyisa") submitted to the Minister of Environmental Affairs on 18 April 2017 and to the Minister's decision thereon of 20 June 2017, in respect of which our client's rights are reserved.
2. We note that paragraph 4.2.8 of the Minister's decision states that: *the applicant has indicated that it submitted correspondence to the Department on 25 May 2017 to notify the relevant officials of its intention to commence with construction activities for the authorised coal-fired power station on 12 June 2017.*"
3. As far as we are aware, Khanyisa has not yet reached commercial or financial close in terms of the coal baseload independent power producer procurement programme (**CBIPPPP**) request for proposals (**RFP**) requirements, in that it has not yet obtained, *inter alio*: a water use licence or a licence to generate electricity from the National Energy Regulator of South Africa (NERSA). Kindly also provide us with a copy of the 25 May 2017 correspondence.

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4. We place on record that the validity of Khanyisa's atmospheric emission licence and environmental authorisation are disputed by our client, and our client's rights in this regard are fully reserved:
5. Kindly advise, as a matter of urgency, whether your client has commenced or intends to commence construction of the Khanyisa power station before it has obtained all necessary permissions and licences and before reaching commercial and financial close? We place on record that commencing with the relevant activities, including construction, without the requisite authorisations and approvals in place would be unlawful.
6. We also request that your client furnish our client with an undertaking that it will not commence any construction or take any steps to proceed with the development of the Khanyisa power plant until such time as all requisite authorisations are obtained and the necessary requirements under the CBIPPPP have been met.
7. We await your urgent response.

Yours faithfully
CENTRE FOR ENVIRONMENTAL RIGHTS

4,7

per:

Nicole Loser
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Copied to: The Honourable Ms Edna Molewa
The Minister of Environmental Affairs
minister@environment.gov.za

Copied to: Z Hassam
Director: Appeals and Legal Review, Department of
Environmental Affairs
appeafsdirectorate.environment.gov.za

From: Rakhee Bhoora/Lara Bezuidenhoudt/Justine Sweet/300231.00003/
Your Ref: CER/54.1/RH NL

Date: 24 July 2017

Subject: **ACWA POWER KHANYISA THERMAL POWER
STATION RF (PTY) LIMITED**

Dear Madam

1. We refer to your letter of 29 June 2017 and our letters dated 30 June 2017 and 18 July 2017 respectively.
2. We have now had an opportunity to take instructions from our client and confirm as follows:
 - 2.1 Our client denies that it has conducted any activities unlawfully.
 - 2.2 You have asked us to provide you with a copy of our client's letter to the Department of 25 May 2017. Our client is not obliged to give you a copy of this letter and therefore declines to do so.
 - 2.3 Our client confirms that any activities embarked upon by our client in anticipation of reaching financial close are being conducted lawfully and within the parameters of the applicable regulatory framework.
3. We trust that the above addresses your concerns.
4. Allegations not dealt with in your letter are denied.

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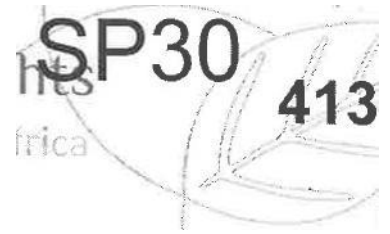
Vancouver Calgary Toronto Ottawa Montreal Quebec City London Paris Johannesburg

5. Our client's rights are reserved.

Yours /fai

/ 4

Fasken mean
(3061124v1)



Rakhee Bhoora

Partner

Fasken Martineau

By [email: rbhoora@fasken.com](mailto:rbhoora@fasken.com)

Copied to:

Prabashen Govender

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By [email: Pgovender@acvpowercorn](mailto:Pgovender@acvpowercorn)

The Honourable Ms Edna Molewa

The Minister of Environmental Affairs

By email: ministertMenvironment.gov.za

For attention: Z Hassam

Director: Appeals and Legal Review, Department of Environmental Affairs

By [email: appealsdirector@environment.gov.za](mailto:appealsdirector@environment.gov.za)

Our ref: CER/54.1/RH NL

31 July 2017

URGENT

Dear Mr Bhoora

ACWA POWER KHANYISA THERMAL POWER STATION RF (PTY) LIMITED: PROJECT COMMENCEMENT

1. We address you on behalf of our client groundWork. We refer to our letter dated 29 June 2017, as well as your response thereto on 24 July 2017.
2. On 29 June 2017, we requested confirmation as to whether or not your client has commenced or intends to commence construction of the Khanyisa power station before it has obtained all necessary permissions and licences and before reaching commercial and financial close. We further requested a copy of your letter to the Department of Environmental Affairs (DEA) dated 25 May 2017, in which your client apparently notified the relevant officials of its intention to commence with construction activities for the power station on 12 June 2017.
3. We note from your letter dated 24 July 2017, that you did not respond to our request to provide us with confirmation as to whether your client intended to commence or has commenced construction, but merely averred that any activities embarked on by your client are being conducted lawfully. We also note that you have refused to provide us with your client's letter to the DEA dated 25 May 2017.

4. We are advised by our client that it appears that drilling has commenced on the site of the proposed Khanyisa, Project. However, our client does not know the exact nature, extent, or purpose of this drilling, or whether other activities have commenced on this site. We again request that you provide us with further information about the current and planned activities on the site.
5. We point out that your client has not yet obtained all of the requisite legal authorisations in order to be able to operate a coal-fired power station, including the water use licence (WUL) and a licence to generate electricity from the National Energy Regulator of South Africa (NERSA), which are also required to reach commercial and financial close in terms of the coal baseload independent power producer procurement programme (CBIPPPP) requirements. As you are aware, our client has also **disputed the lawfulness of your** atmospheric emission licence (AEL).
6. We place on record that your client has acted unlawfully to the extent that it has commenced any activities that require authorisations that your client has not yet obtained. In the circumstances, we are instructed to request that your client furnish us with an undertaking that it has not and **will** not engage in any activities on the site for which it has not yet received authorisation.
7. Furthermore, we are instructed by our client to prepare a review application against the environmental authorisation, which will be launched within the next month.
8. In light of this pending review application, we emphasise that any steps taken by your client to commence activities on the site, in terms of the environmental authorisation, and any expenses it incurs are entirely at its own risk.
9. All our client's rights are reserved.
10. We await your urgent response.

Yours sincerely

CENTRE FOR ENVIRONMENTAL RIGHTS



per:

Robyn Hugo

Attorney and Programme Head: Pollution & Climate Change

Direct [email: rhugo@cer.org.za](mailto:rhugo@cer.org.za)

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The Minister of Environmental Affairs
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Copied to: Z Hassam
Director: Appeals and Legal Review, Department of
Environmental Affairs
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From: Rakhee Bhoora/Lara Bezuidenhoudt/300231.00003
Your Ref: CER/54.1/RH NL

Date: 21 August 2017

Subject: ACWA POWER KHANYISA THERMAL POWER
STATION RF (PTY) LIMITED

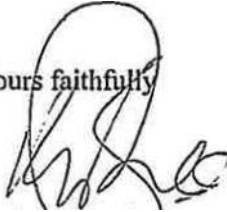
Dear Madam

1. We refer to your email dated 31 July 2017. The content thereof appears to be no different to that which you have already set out in your letter dated 29 June 2017.
2. That said, our client has already responded to and dealt with the subject matter of your letter under reply on 24 July 2017 and sees no purpose in repeatedly traversing matter to which you already have a response.
3. That being the case, our client has no wish to engage with you and litigate by way of correspondence on this subject matter.

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Vancouver Calgary Toronto Ottawa Montreal Quebec City London Paris Johannesburg

4. Our client's rights are reserved.

Yours faithfully


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**IN THE HIGH COURT OF SOUTH AFRICA
GAUTENG DIVISION, PRETORIA**

Case number: 65662116

In the **matter between:**

EARTHLIFE AFRICA JOHANNESBURG

Applicant

and

THE MINISTER OF ENVIRONMENTAL AFFAIRS

First respondent

**CHIEF DIRECTOR: INTEGRATED ENVIRONMENTAL
AUTHORISATIONS, DEPARTMENT OF
ENVIRONMENTAL AFFAIRS**

Second respondent

**THE DIRECTOR: APPEALS AND LEGAL REVIEW,
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**

Third respondent

THASAMETSI POWER PROJECT (PTY) LTD

Fourth respondent

THABAMETSI POWER COMPANY (PTY) LTD

Fifth respondent

FIRST TO THIRD RESPONDENTS' ANSWERING AFFIDAVIT

I, the undersigned:

ZIYAAD HASSAM

do hereby state under oath as follows:

1. I am the Director of Appeals and Legal Review for the Department of Environmental Affairs. I have been cited as the third respondent in this matter



20, I address each of these issues in turn.

l) No legal requirement that a climate change IA be conducted

21. There is no provision in South African law requiring that a climate change impact assessment must be conducted as part of the EIA process. Nor are *there* presently any guidelines or standards that define GHG emission thresholds.

22. Whilst the Department is in the process of developing and implementing a comprehensive mitigation system (which will amongst other things, include emission reduction goals and targets), there are presently no sanctions within *the* legal framework for companies that do not reduce their greenhouse gas emissions.

23. In the absence of emission thresholds, it is premature to include a requirement in the EIA process making it mandatory for companies to consider climate change impacts. At present, there is nothing against which such impacts can be assessed. The applicants and decision-makers will have no way of detennining whether the climate change impacts of a particular project fall within an acceptable range.

ii) It is lawful to grant an environmental authorisation in the absence of a Ornate change IA

24. Earthlife contends that the decision to grant Thabametsi an environmental authorisation in the absence of a detailed climate change IA was *ultra vices* and unlawful.

Handwritten initials 'ZH' and a signature 'Hoff' with a flourish below it.

146.2. The decision to grant the environmental authorisation to Thabametsi in the absence of a full climate change IA is compatible with South Africa's domestic policies, guidelines and regulations;

146.3. The decision to grant the environmental authorisation to Thabametsi in the absence of a climate change IA is compatible with South Africa's international law obligations.

147. The allegations made in these paragraphs do not refute these contentions.

148. Save as aforesaid, I deny the allegations in these paragraphs to the extent that they are inconsistent with what I have said above.

AD • PARAGRAPH 48

149_ I deny that Earthlife has made out a case for the review and setting aside of the decisions made by the Chief Director and the Minister.

WHEREFORE the first to third respondents pray that this application be dismissed, with each party to bear its own costs.



ZIYAAD HASSAM

Signed and sworn to before me at (4Pr -1-0" /4 on this the 11 111 day of DECEMBER 2016, the deponent having acknowledged in my presence that he/she

knows and understands the contents of this affidavit, the provisions of Government Gazette R1478 of 11 July 1980, as amended by doventmtild Gettette 8774 of 20 April 1982, concerning the taking of the oath, having been corn plied with,

A handwritten signature in black ink, appearing to read 'Arichelle Duplessis', written in a cursive style.

ARICHELLE DUPLESSIS
LEVEL 1, INS \$ai O SQUARE
VIA WATERFROK CAPE TOWN, S001
CONNISSONER O OATHS
PRACTISING ATTORNEY R.S.A

IN THE HIGH COURT OF SOUTH AFRICA
GAUTENG DIVISION, PRETORIA

Case number. **65662116**

In the matter between:

EARTHLIFE AFRICA JOHANNESBURG

Applicant

and

THE MINISTER OF ENVIRONMENTAL AFFAIRS

First respondent

**CHIEF DIRECTOR: INTEGRATED ENVIRONMENTAL
AUTHORISATIONS, DEPARTMENT OF
ENVIRONMENTAL AFFAIRS**

Second respondent

**THE DIRECTOR: APPEALS AND LEGAL REVIEW,
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**

Third respondent

THABAMETSI POWER PROJECT (PTY) LTD

Fourth respondent

THABAMETSI POWER COMPANY (PTY) LTD

Fifth respondent

CONFIRMATORY AFFIDAVIT

I, the undersigned:

BOMO EDITH EDNA MOLEWA

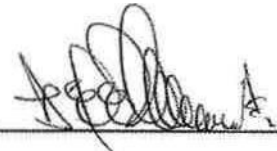
do hereby make oath and state that:

1. I am an adult woman and the Minister of the Department of Environmental Affairs ("the Department"). I am the first respondent in these proceedings.



b-z-- V./

- 2. Unless the context indicates otherwise, the facts contained in this affidavit are within my personal knowledge. They are, to the best of my knowledge and belief, both true and correct.
- 3. I have read the answering affidavit deposed to by Ziyaad Hassam and confirm that the contents are true and correct insofar as they pertain to me. I have authorised Mr Hassam to depose to this affidavit on my behalf as he has personal knowledge of this matter.



BOMO EDITH EDNA MOLEWA

Signed and sworn to before me at 5k .- ocA on this the 13 day of ~~12~~ DECEMBER 2016, the deponent having acknowledged in my presence that he/she know, and understands the contents of this affidavit, the provisions of Government Gazette R1478 of 11 July 1980, as amended by Government Gazette R774 of 20 April 1982, concerning the taking of the oath, having been complied with.



SUID-AFRIKAANSE POLISIEDIENS

SPEURTAK
PRNAATSAKIPMVATE BAG X537

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SILVEFITON 0127
DETECTIVE SERVICE

SOUTH AFRICAN POLICE SERVICE

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**IN THE HIGH COURT OF SOUTH AFRICA
GAUTENG DIVISION, PRETORIA**

Case number: **65662/16**

In the matter between:

EARTHLIFE AFRICA JOHANNESBURG

Applicant

and

THE MINISTER OF ENVIRONMENTAL AFFAIRS

First respondent

**CHIEF DIRECTOR: INTEGRATED
ENVIRONMENTAL AUTHORISATIONS,
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**

Second respondent

**THE DIRECTOR: APPEALS AND LEGAL REVIEW,
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**

Third respondent

THABAMETSI POWER PROJECT (PTY) LTD

Fourth respondent

THABAMETSI POWER COMPANY (PTY) LTD

Fifth respondent

CONFIRMATORY AFFIDAVIT

I, the undersigned:

MICHAEL SABELO MALAZA

do hereby make oath and state that:

1. I am an adult male and the Chief Director integrated Environmental Authorisations of the Department of Environmental Affairs ("the Department").
I am the second respondent in these proceedings.

- 2. Unless the context indicates otherwise, the facts contained in this affidavit are within my personal knowledge. They are, to the best of my knowledge and belief, both true and correct.
- 3. I have read the answering affidavit deposed to by Ziyaad Hassam and confirm that the contents are true and correct insofar as they pertain to me. I have authorised Mr Hassam to depose to this affidavit on my behalf as he has personal knowledge of this matter.

MICHAEL SABO MALAZA

Signed and sworn to before me at Threpani on this the Azire day of 12 **DECEMBER 2016**, the deponent having acknowledged in my presence that he/she knows and understands the contents of this affidavit, the provisions of Government Gazette R1478 of 11 July 1980, as amended by Government Gazette R774 of 20 April 1982, concerning the taking of the oath, having *been* complied with.

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 BUSINESS ADDRESS (STREET ADDRESS)

ENIRE
CE SERVICE

SIID-AFRIKAANSE POLISIEDIENS
 KLIENTE DIENSSENTRUM

2016-12-12

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**MINISTER
ENVIRONMENTAL AFFAIRS
REPUBLIC OF SOUTH AFRICA**

Reference: LSA 151941

APPEAL DECISION

**APPEAL AGAINST THE GRANTING OF AN INTERGRATED ENVIRONMENTAL
AUTHORISATION FOR THE PROPOSED CONSTRUCTION OF THE 1050MW
COLENZO COAL-FIRED POWER STATION AND ASSOCIATED INFRASTRUCTURE
NEAR COLENZO IN THE KWAZULU NATAL PROVINCE**

1. INTRODUCTION

In terms of Regulation 25 of the Environmental Impact Assessment Regulations, 2014, published by Government Notice (GN) No, 38282 of 4 December 2014 (2014 EIA Regulations), regarding activities identified under section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), the Chief Director: Integrated Environmental Authorisations of the Department of Environmental Affairs (the Department) authorised the the construction of the 1050MW Colenso coal-fired power station and associated infrastructure near Colenso in the KwaZulu-Natal Province.

4.7 FAILURE BY THE APPLICANT TO UNDERTAKE A CLIMATE CHANGE ASSESSMENT

Whilst the appellants' contentions in respect of the necessity to undertake a climate change impact assessment for the proposed project are noted, it must be emphasised that although South Africa has confirmed its nationally determined contribution at an international level, through its adoption of the Paris Agreement on Climate Change in December 2015, there is currently no legal basis to inform such assessments within the EIA framework.

Notwithstanding the above, the applicant will be allocated a carbon budget as soon as it becomes operational, should it obtain the requisite authorisations and be awarded preferred bidder status by the Department of Energy. This measure is one of the measures designed to reduce the country's greenhouse gas (GHG) emissions and to keep South Africa's emissions within its NDC.

Furthermore, once pollution prevention plan regulations are promulgated and GHGs are declared as priority pollutants, the applicant will be required to outline how it plans to reduce GHGs as well as to submit its annual progress reports in respect thereof, which will be evaluated by the Department on an annual basis to ensure that the country remains within its nationally determined contribution.

It is also evident from the submissions by the appellant that it is in opposition to all coal-fired power stations and intimates that all such projects should be refused on the grounds that it contributes to CO₂ emissions globally. This view is untenable and the appellant is reminded that in order for the country to meet its long term electricity demand, a mix of power generation technologies must be pursued, which includes coal-fired power stations. I must stress, however, the Department's commitment to identifying and implementing cleaner power generation technologies in the country's energy mix.

As a result of the foregoing, this ground of appeal is dismissed,



**MINISTER
ENVIRONMENTAL AFFAIRS
REPUBLIC OF SOUTH AFRICA**

Reference: LSA 149588

APPEAL DECISION

APPEAL AGAINST THE DECISION TO GRANT ENVIRONMENTAL AUTHORISATION TO KUYASA MINING (PTY) LTD ON BEHALF OF KIPOWER (PTY) LTD FOR THE CONSTRUCTION OF A 600MW INDEPENDENT POWER PLANT AND ASSOCIATED INFRASTRUCTURE FOR KIPOWER (PTV) LTD, WITHIN THE JURISDICTION OF THE VICTOR KHANYE LOCAL MUNICIPALITY, MPUMALANGA PROVINCE

INTRODUCTION

In terms of Regulation 36 (1) of the Environmental Impact Assessment Regulations, 2010, published by Government Notice (GN) No. R. 544, 545, 546 of 18 June 2010 (2010 EIA Regulations), regarding activities identified under section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as amended, and read with the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM:WA), the Chief Director: Integrated Environmental Authorisations (IEA) of the Department of Environmental Affairs (the Department) authorised Kuyasa Mining (Pty) Ltd on behalf of KiPower (Pty) Ltd (the applicant) on 21 October 2015 to proceed with the construction of a 600MW Independent Power Plant and associated infrastructure, within the jurisdiction of the Victor Khanye Local Municipality, Mpumalanga Province.

in doing so, I concur with the appellant's submission, in principle, that an EAPs responsibility in the EIA process terminates once the EA has been issued. Accordingly, it is not appropriate for an EAP to file a responding statement to an appeal on behalf of the applicant. However, I also note the contents of the applicants rebuttal, in that even if such response were submitted on a letterhead of the EAP, the technical nature of the responses required would mean that for all intents and purposes, the responding statement would, in any event, be compiled by the EAP.

I am furthermore satisfied that the mere submission of the responding statement by the EAP does not cast doubts in respect of the EAPs objectivity during the EIA process, particularly so since apart from broad conclusions in respect of the objectivity of the EAP, the appellant has failed to draw a link between the submission of a responding statement by the EAP to any bias or compromise on the objectivity in respect thereof.

Accordingly, while it is regrettable that the applicant has requested the EAP to respond directly to the appeal on its behalf, I am not satisfied that this, in itself, casts doubt as to the independence or objectivity of the EAP during the EIA process and this new ground of appeal is accordingly dismissed.

5.3 ***CLIMATE CHANGE CONSIDERATIONS***

The appellant contends that South Africa is a signatory to the United Nations Framework Convention on Climate Change and the Kyoto Protocol - international agreements which seek to address climate change and set internationally binding emission reduction targets. The appellant submits that although South Africa does not, at this stage, have any set emission reduction obligations under the Kyoto Protocol, it has undertaken to make commitments for national contributions towards GHG emission reductions for the period 2020-2030, and has also recently signed a universally binding agreement on climate change at the COP 21 in Paris during December 2015.

The appellant contends that it is therefore incumbent on the state to ensure that its actions, laws and decision-making coincide with its evident intentions to address climate change and take into account the high probability of internationally binding climate change obligations in the near future.

The appellant also contends that South Africa is already one of the world's largest contributors to global climate change, having produced around 547Mt of carbon dioxide equivalent (CO₂-eq) in 2010 (around 231.9 Mt is produced by the electricity sector alone). The project, which is the subject of this appeal, is merely one of further coal-fired power plants envisaged to be commissioned in future.

In addition, the appellant contends that national legislation recognises the need to curb GHG emissions and address climate change in that NEM:AQA requires that an AEL must specify GHG emission measurements and reporting requirements, and the 2012 Framework for Air Quality Management acknowledges that *"in view of this, specialist air quality impact assessments must consider greenhouse gas emissions as well,"*

The appellant contends that, as part of the integrated EA process envisaged by chapter 5 of NEMA and the requirement in section 240 (1) (b) (viii) of NEMA to consider relevant policy and other relevant information in deciding whether or not to grant an EA, the GHG emissions and climate change impacts of the project should have been taken into account. It is the appellant's contention that these factors were not considered adequately, or at all.

In addition, the appellant contends that the failure to consider climate change implications shows a lack of policy coherence with the national climate change response policy and a disregard for the provisions of NEM:AQA and NEMA, which require consideration of international obligations and GHG emissions. Furthermore, the appellant submits that this shows a failure to consider the anticipated and fast-approaching impacts of climate change.

In response thereto, the applicant concedes that the only unmitigated impact, from a climate change perspective, is the carbon dioxide emissions but contends that the polluter pays principle would apply via carbon taxes when such regulations are implemented in South Africa.

The applicant submits, however, that an assessment of climate change and its consequences on water resources and the potential adaptation to such climate change consequences is not feasible, particularly given the global nature of green-house gases and climate change and the conflicting research and perspectives about the effects of green-house gases and climate change.

Given the above and the fact that the legislative development in EIAs regarding climate change studies are not yet in place in order to provide guidance for purposes of individual applications, the applicant submits that there is no existing structure or parameters for an assessment methodology in this respect.

In evaluating this ground of appeal, I note that it is common cause that coal-fired power generation is part of South Africa's energy mix, as is evidenced in the country's Integrated Resource Plan produced by the DoE.

Whilst the appellants' contentions in respect of the necessity to undertake a climate change impact assessment for the proposed project are noted, it must be emphasised that although South Africa has confirmed its nationally determined contribution at an international level, through its adoption of the Paris Agreement on Climate Change in December 2015, there is currently no legal basis to inform such assessments within the EIA framework.

Notwithstanding the above, the applicant will be allocated a carbon budget as soon as it becomes operational, should it obtain the requisite authorisations and be awarded preferred bidder status by the Department of Energy. This measure is one of the measures designed to reduce the country's greenhouse gas (GHG) emissions and to keep South Africa's emissions within its NDC.

APPEAL AGAINST THE DECISION TO GRANT ENVIRONMENTAL AUTHORISATION TO KUYASA MINING (PTY) LTD ON BEHALF OF KIPOWER (PTY) LTD FOR THE CONSTRUCTION OF A 600MW INDEPENDENT POWER PLANT AND ASSOCIATED INFRASTRUCTURE FOR KIPOWER (PTY) LTD, WITHIN THE JURISDICTION OF THE VICTOR KHANYE LOCAL MUNICIPALITY, MPUMALANGA PROVINCE

Furthermore, once pollution prevention plan regulations are promulgated and GHGs are declared as priority pollutants, the applicant will be required to outline how it plans to reduce GHGs as well as to submit its annual progress reports in respect thereof, which will be evaluated by **the** Department on an annual basis to ensure that the country remains within its nationally determined contribution.

It is also evident from the submissions by the appellant that it is in opposition to all coal-fired power stations and intimates that all such projects should be refused on the grounds that it contributes to CO2 emissions globally. This view is untenable and the appellant is reminded that in order for the country to meet its long term electricity demand, a mix of power generation technologies must be pursued, which includes coal-fired power stations. I must stress, however, the Department's commitment to identifying and implementing cleaner power generation technologies in the country's energy mix.

As a result of the foregoing, this ground of appeal is dismissed.



MRS B E MOLEWA, MP

MINISTER OF ENVIRONMENTAL AFFAIRS

DATE: c)_.c) \l:‘,

**IN THE HIGH COURT OF SOUTH AFRICA
GAUTENG DIVISION, PRETORIA**

Case number:

61561/17

In the matter between:

**THE TRUSTEES FOR THE TIME BEING
OF THE GROUNDWORK TRUST**

Applicant

and

THE MINISTER OF ENVIRONMENTAL AFFAIRS

First Respondent

**CHIEF DIRECTOR: INTEGRATED
ENVIRONMENTAL AUTHORISATIONS,
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**

Second Respondent

**THE DIRECTOR: APPEALS AND LEGAL REVIEW
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**

Third Respondent

**ACWA POWER KHANYISA THERMAL
POWER STATION RF (PTY) LTD**

Fourth Respondent

AFFIDAVIT

I, the undersigned —

EUGENE KENNETH CAIRNCROSS

do hereby make oath and say that --

1. I am an adult male and a retired chemical engineer. I am Emeritus Professor of the Cape Peninsula University of Technology and a member of the expert panel of the Centre for Environmental Rights, the applicants attorneys of record_

2. Except where context indicates otherwise, the facts and circumstances set out in this affidavit fall within my personal knowledge, and are both true and correct.
3. The details of my qualification and experience are outlined in my resume, attached marked as "**EKC1**". On this basis, I confirm that my background and experience qualify me as an expert on the issue pertaining to air emissions from coal-fired power stations and technologically relevant emission factors,
4. I have read the founding affidavit deposed to by Sven Eaton Patrick Peek and confirm the submissions made therein, insofar as they relate to the circulating fluidised bed ("**CFB**") technology proposed for the Khanyisa coal-fired power station (the "**Khanyisa Project**") and its anticipated greenhouse gas ("**GHG**") emissions.
5. In this regard, I confirm the following in support of the submissions made in the founding affidavit:
 - 5,1 CFB coal-fired power plants (such as the Khanyisa Project), use limestone or dolomite to absorb sulphur dioxide ("**SO2**"), a pollutant that will be released during the combustion phase. In my experience and based on reports of the Intergovernmental Panel on Climate Change ("**MCC**"), the usage of limestone for SO2 emission control combined with the combustion conditions specific to a CFB system, result in considerably higher emissions of the GHG nitrous oxide ("**N2O**") per unit of energy in fuel (coal) burnt, compared to that of pulverised fuel boiler ("**PFB**") plants;



- 5.2 PFB is the common coal-fired power station technology in place for most of South Africa's existing coal-fired power stations. In comparison to CFB plants, PFB plants burn coal with a much smaller particle size, operate at much higher temperatures, use much shorter coal particle residence times, and do not use direct limestone addition into the combustion region for SO₂ emission control;
- 5.3 The IPCC's Guideline for National Greenhouse Gas Inventories, 2006 (the "**IPCC 2006 Guideline**"), provides internationally agreed methodologies to estimate GHG emissions. According to the IPCC Guideline, the emission factor (kilogram per terajoule (kg/TJ) energy input) for N₂O emitted from a CFB plant burning bituminous coal is 61, compared with factors of 0.5 to **1.4** for a PFB. For a Lignite Atmospheric Fluidized Bed unit, the IPCC 2006 emission factor is 71. (Table 2.6, Volume 2, IPCC Guideline). The N₂O emission factors for a CFB boiler may therefore be 41 (61/1.4) to 118 (71/0.5) times greater than of a PFB coal plant. The relevant excerpts from the IPCC 2006 Guideline are attached as Annexure "**EKC2**"; and
- 5.4 the IPCC estimates that the Global Warming Potential ("**GWP**") of N₂O is 264 to 298 times that of carbon dioxide ("**CO₂**") as outlined in **the** IPCC Climate Change: The Physical Science Basis Report attached marked as "**EKC3**".
6. Based on the above and in my expert opinion, the Khanyisa Project's operation will result in significantly higher N₂O emissions in comparison to PFB coal plant

technologies, which are prevalent in South Africa. Therefore the failure to assess the N20 emissions — when considering the GHG emissions and climate impacts of the Khanyisa Project - is a fundamental oversight, resulting in a significant underestimation of Khanyisa's GHG emissions, and a failure to properly consider the power station's climate change impacts

EUGENE KENNETH CAIRNCROSS

I certify that:

- 1, the deponent acknowledged to me that —
 - (a) he knows and understands the contents of this declaration;
 - (b) he has no objection to taking the prescribed oath;
 - (c) he considers the prescribed oath to be binding on his conscience;
- 2. the deponent thereafter uttered the words "I truly affirm that the contents of this declaration are true"; and
- 3. the deponent signed this declaration in my presence at the **ad s** set out hereunder on 07 - September 2017.

[Handwritten signature]
 Commissioner of oaths

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 COMMUNITY SERVICE CENTRE
 CLAREMONT ICP 1
 C.P.
 SOUTH AFRICAN POLICE

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SUMMARY CURRICULUM VITAE of Eugene Kenneth CAIRNCROSS

Qualifications: BSc (Chemical Engineering) (UCT) (1970).
PhD (Chemical Engineering) (UCT) (1974)

CURRENT POSITION: Retired (Emeritus) Professor, formerly of the Department of Chemical Engineering, Cape Peninsula University of Technology

CONTACT DETAILS: Land line: 021 6839831; mobile: 082 200 7056

Email: cairncrosse@nmail.com

Postal Address: 43 Cleveland Road, Claremont 7708, Cape Town, South Africa

Work history

- August 2010 to present, retired but I continue to do occasional lectures, part-time consultancy and I am engaged in an ongoing collaborative research project with the South African Medical Research Council and the South African Weather Service.
- January 1994 to July 2010: CPUT (**Senior Lecturer, Professor, Head of Department**)
- March 1989 to December 1993: AECI (Section **Manager, Projects Manager**)
- April 1981 - February 1989: Zimbabwe Phosphate Industries (Harare, Zimbabwe) (**Group Technical Manager**)
- July 1977 - April 1981: S.A. Nylon Spinners (SANS) Polymer Works (Bellville, Cape) (**Development Manager**)
- December 1974 - July 1977: Caltex Refinery (Milnerton, Cape); **Process**

Engineer Summary of work experience

industrial process engineering and management experience (1975-1993) includes basic process design, plant trouble-shooting, design of computer based control systems, plant commissioning, management of project development and project management of small to medium sized chemical plant projects. Process plant experience includes oil refining, polyester polymer manufacture, sulphuric acid, phosphoric acid, and phosphate fertiliser manufacture, the manufacture of explosives, the formulation of pesticides and insecticides, fine chemicals manufacture, and the extraction of minerals from natural brines. Project Management experience includes the development and execution of 15 small to large chemical plant projects.

During **the** period 1998 to present, private consulting activities include design and installation of an effluent water treatment system, consulting to the Department of Environment and Tourism on several projects related to the regulation and enforcement of regulations pertaining to oil refineries and consulting to the Western Cape Provincial Government in respect of the preparation of an Emission Inventory.

Recent consultancy activities includes conducting a training workshop on air quality management regulations and providing air quality specialist services to Kayad Knight Piesold (KKP) Environmental for a 2-year (2011-2012) dust monitoring project.

Research Interests

- Air Pollution Modeling, monitoring and management: emission inventories, air pollution health effects and burden of disease, visibility impacts.
- Air Pollution Management
- Water pollution monitoring (pesticides); novel sampling methods
- Environmental modelling and management
- Chemical Process Safety

Previous collaborative research linkages and projects

- University of Cape Town Department of Community Health, and the University of Michigan Department of Environmental and Occupational Health
- Development of a Dynamic Air Pollution Prediction System (DAPPS), in partnership with the CSIR-Environmentek (lead partner), the South African Weather Service, CISR-M&M and SRK Consulting.
- Member of the Scientific Review Committee (reviews research proposals) and the Review Committee (adjudicates scholarship and funding applications) of the University Of Michigan/Fogarty Program for promoting training and research in Environmental And Occupational Health In Southern Africa (1998 - 2008)
- Collaborated with the (South African) Medical Research Council (Drs D Bradshaw, R Norman) in estimating the contribution of air pollution to the overall Burden of Disease in South Africa (2005-2007). Currently engaged in a similar project, now including the South African Weather Service in the team, using the latest methods (October 2015 to the present).

Public Policy and Community Engagement

Short Course presentations:

1. Hazard Assessment and Hazard Analysis in the Chemical Industry, under the auspices of the South African Institute of Chemical Engineers (3 days);
2. Co-presenter (with Prof Stuart Batterman, University of Michigan) of a five-day course in Hazard Exposure and Risk Assessment in Major Hazard Installations;
3. Co-ordinator and participant in a course on Air Quality Management and Control (presented by Prof. Stuart Batterman).
4. Co-developed and presented (with Professor Leslie London and others) a graduate course "Environmental Health Policy", including sessions on *Environmental justice and legislative framework in South Africa, Global environmental health management and Regulatory standard setting in environmental health.* (Semester 1, 2017)

Expert witness: Provided scientific evidence, on behalf of the Macassar Community, at the Judicial Commission of inquiry into the Macassar Sulphur Fire Disaster (1996); provided scientific support to the Legal Resources Centre on a number of matters, including those pertaining to a reduction of air emissions and accident risks associated with four oil refineries in South Africa and the preparation of a legal objection to the proposed Pebble Bed Modular (Nuclear) Reactor (1996-2010); reviewed a number of Environmental Impact Assessments of proposed chemical plant installations.

Consulting to the Department of Environment and Tourism on several projects related to the regulation and enforcement of regulations pertaining to oil refineries.

Member of the Technical Committee (Air Quality) and the sub-committees (and several associated Working Groups) responsible for the drafting of the inaugural Ambient Air Quality Standards and emission standards pertaining to Listed Activities (2008-2010).

Professional bodies

Member of the National Association for Clean Air (NACA)(South Africa)

Selected Publications

1. Stuart A. Batterman, Eugene Cairncross, Yu-Li Huang, "Estimation and Evaluation of Exposures from a Large Sulfur Fire in South Africa", *Environmental Research Section A* **81**, 316333 (1999)
2. Eugene Cairncross and Stuart A. Batterman, "Comparison of the Major Hazard Risk Management Approaches of the USA, the European Union, **and** South Africa", presented at the (US) *Air & Waste Management Association 93rd Annual Conference* (June 18-22, 2000)
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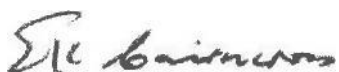


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June 2017

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CHAPTER 2

STATIONARY COMBUSTION

TABLE 2.6 12 ricrry SOURCE EMISSION FACTORS			
		Emission factors' (kgifil energy input)	
Basic technology	Configuration	CIL	1420
Liquid Fuels			
Residual Fuel Oil/Shale Oil Boilers	Normal Firing	r 08	0.3
	Timaential Fir inns	r 08	0.3
Gas/Diesel Oil Boilers	Normal Firing	0.9	0.4
	Tangential Firing	0.9	0.4
large Diesel Oil Engines >600hp (447kWi)		4	NA
Solid Fuels			
Pulverised Bituminous Combustion Boilers	Dry Bottom, wall fired	0.7	r 0.5
	Dry Bottom, tangentially fired	0.7	r 1.4
	Wel Bottom	0 9	r 14
Bituminous Spreader Stoker Boilers	With and without . . i lit re-	1	r 0 7
Bituminous Fluidised Bed Combustor	Circulating Bed	I	r 61
	Bubbling Bed	I	r 61
Bituminous Cyclone Furnace		0.2	1,6
Lignite Atmospheric Fluidised Bed		NA	r 71
Natural Gas			
Boilers		r	n I
Gas-Fired Gas Turbines >3MW		r 4	a 1
Large Dual-Fuel Engines		r 258	NA
Combined Cycle		a 1	n 3
Peat			
Peat Fluidised Bed Combustor ²	Circulating Bed	a 3	7
	Bubbling Bed	a 3	3
Biomass			
Wood/Wood Waste. Boilers ³		it 11	a
Wood Recovery Boilers		a 1	a 1
<p>Source US EPA, 2005b i;cept otherwise indicated Values were originally based on gross calorific value: they were converted to net calorific value by assuming that net calorific values were 5 per cent lower than gross calorific values for coal and oil, and 10 per cent lower for natural gas These percentage adjustments are the OECD/ILA assumptions on how to convert from gross to net calorific values.</p> <p>¹ Source. Tsupari et al, 2006.</p> <p>² Values were originally based on gross calorific value, they ware converted to net calorific: value by assuming chat net calorific value for dry wood was 20 per cent lower than the gloss calorific value (Forest Product Laboratory, 2004).</p> <p>NA, data not available,</p> <p>n indicates a new emission factor which was not present in the <i>IPCC 1996 Guidelines</i></p> <p>r indicates an emission factor that has been revised since the <i>MCC 1996 Guidelines</i></p>			

CLIMATE CHANGE 2013

The Physical Science Basis



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**WORKING GROUP I CONTRIBUTION TO THE
FIFTH ASSESSMENT REPORT OF THE
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE**



WMO



UNEP



Anthropogenic and Natural Radiative Forcing

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Table 8.7 1040/ and 01P with and without inclusion of climate-carbon feedbacks (see text for details). The reference gas is CO₂ (100%). Values are in % of the reference gas.

	Lifetime (years)		GYSIPie ¹	GIO/PeA	GTP ₁₀₀	GTP ₁₀₀₀
CO ₂	100	No climate-carbon feedback	54	28	5/	4
		With climate-carbon feedback	ee	3.1	70	17
CH ₄	12.4	No climate-carbon feedback	3710	3300	3041	201
		With climate-carbon feedback	0795	1550	1173	5.30
CFC-11	45.6	No climate-carbon feedback	0930	4W)	680a	1340
		With climate-carbon feedback	7020	5350	7080	3490
HFC-125	121.5 ¹	No climate-carbon feedback	104	205	771	234
		With climate-carbon feedback	260	236	154	291
Perfluorocarbon (PFC)	50,000.0	No climate-carbon feedback	4000	6630	5310	1kW
		With climate-carbon feedback	4950	7350	5405	8560

Notes:

1. Uncertainty ranges are given in parentheses. Climate-carbon feedbacks are large, comparable in magnitude to the radiative forcing of the reference gas.

2. Perfluorocarbon (PFC) is used in the climate-carbon feedback of 111Eirks.

3. The values are for a 100-year time horizon. Values for a 1000-year time horizon are given in parentheses. Values are for a 100-year time horizon.

and GTP. For the more long-lived gases the GWP₁₀₀ values increase by 10 to 2%, while for GTP₁₀₀ the increase is 20 to 30%. Table B.A.1 gives metric values including the climate-carbon feedback for CO₂ only, while Supplementary Material Table B.Sival 6 gives values for all halocarbons that include the climate-carbon feedback. Though uncertainties in the carbon cycle are substantial, it is likely that including the climate-carbon feedback for non-CO₂ gases as well as for CO₂ provides a better estimate of the metric value than including it only for CO₂.

Emission metrics can be estimated based on a constant or variable background climate and this influences both the adjustment times and the concentration-forcing-temperature relationships. Thus, all metric values will need updating due to changing atmospheric conditions as well as improved input data. In AR5 we define the metric values with respect to a constant present-day condition of concentrations and climate. However, under non-constant background, Collins et al. (2013) found decreasing CO₂ AGWP₁₀₀ for increasing background levels (up to 23% for RCP8.5). This means that GWP for all non-CO₂ gases (except CH₄ and N₂O) would increase by roughly the same magnitude. Reisinger et al. (2011) found a reduction in AGWP for CO₂ of 36% for RCP8.5 from 2000 to 2100 and that the CH₄ radiative efficiency and AGWP also decrease with increasing CH₄ concentration. Accounting for both effects, the OWP₁₀₀ for CH₄ would increase by 10 to 20% under low and mid-range RCPs by 2100, but would decrease by up to 10% by mid-century under the highest RCP. While these studies have focused on the background levels of OFGs, the same issues apply for temperature. Olivia et al. (2012) find different temperature IIFs depending on the background climate (and experimental set up).

User related choices (see Box RA) such as the time horizon can greatly affect the numerical values obtained for CO₂ equivalents. For a change in time horizon from 20 to 100 years, the GWP for C1-1,1 decreases by a factor of approximately 3 and its GTP by more than a factor of 10. Short-lived species are most sensitive to this choice. Some approaches have removed the time horizon from the metrics (e.g., Boucher, 2012), but discounting is usually introduced which means that a discount rate

r (for the weighting function e^{-rt}) must be chosen instead. The choice of discount rate is also value based (see VeCill, (haute, 3).

For NTCFs the metric values also depend on the location and timing of emission and whether regional or global metrics are used for these gases is also a choice for the users. Metrics are usually calculated for pulses, but some studies also give metric values that assume constant emissions over the full time horizon (e.g., Shine et al., 2005a; Jacobson, 2010). It is important to be aware of the idealized assumption about constant future emissions (or change in emissions) of the compound being considered if metrics for sustained emissions are used.

8.7.1.5 New Metric Concepts

New metric concepts have been developed both to modify physical metrics to address shortcomings as well as to replace them with metrics that account for economic dimensions of problems to which metrics are applied. Modifications to physical metrics have been proposed to better represent CO₂ emissions from bioenergy, regional patterns of response, and for peak temperature limits.

Emissions of CO₂ from the combustion of biomass for energy in national emission inventories are currently assumed to have no net RE, based on the assumption that these emissions are compensated by biomass regrowth (IPCC, 1996). However, there is a time lag between combustion and regrowth, and while the CO₂ is resident in the atmosphere it leads to an additional RF. Modifications of the GWP and OW for bioenergy (GWP₁₀₀, GTP₁₀₀) have been developed (Cherubini et al., 2011; Cherubini et al., 2012). The GWP₁₀₀ give values generally between zero (current default for bioenergy) and one (current for fossil fuel emissions) (Cherubini et al., 2011), and negative values are possible for GTP₁₀₀ due to the fast time scale of atmospheric-ocean CO₂ exchange relative to the growth cycle of biomass (Cherubini et al., 2012). (Mk. and GTP₁₀₀ have been used in only a few applications, and more research is needed to assess their robustness and applicability. Metrics for biogeophysical effects, such as albedo changes, have been proposed (Betts, 2000; Rotenberg and Yakir, 2010), but as for NTCFs regional variations

IN THE HIGH COURT OF SOUTH AFRICA
GAUTENG DIVISION, PRETORIA

Case number: G I S (10 11

In the matter between.

**THE TRUSTEES FOR THE TIME BEING
OF THE GROUNDWORK TRUST**

Applicant

and

THE MINISTER OF ENVIRONMENTAL AFFAIRS

First Respondent

**CHIEF DIRECTOR: INTEGRATED
ENVIRONMENTAL AUTHORISATIONS,
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**

Second Respondent

**THE DIRECTOR: APPEALS AND LEGAL REVIEW
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**

Third Respondent

**ACWA POWER KHANYISA THERMAL
POWER STATION RF (PTY) LTD**

Fourth Respondent

CONFIRMATORY AFFIDAVIT

I, the undersigned —

NICOLE LOSER

do hereby make oath and say that —

1. I am an adult female attorney at the Centre for Environmental Rights, and am one of the attorneys of record for the above matter.
2. The facts and circumstances set out in this affidavit fall within my personal knowledge, except where the context indicates otherwise, and are true.



3. I have read the founding affidavit deposed to by Sven Eaton Patrick Peek and confirm the correctness of the facts insofar as they relate to me.


4. In particular, I confirm the facts pertaining to the telephone conversation I had with Anne-Mari White of Aurecon on or around 26 June 2017, and confirm that she advised that to her knowledge, construction of the proposed Khanyisa coal-fired power station had not yet commenced.



NICOLE LOSER

I certify that:

1. the deponent acknowledged to me that —
 - (a) she knows and understands the contents of this declaration;
 - (b) she has no objection to taking the prescribed oath;
 - (c) she considers the prescribed oath to be binding on her conscience;
2. the deponent thereafter uttered the words "I truly affirm that the contents of this declaration are true"; and
3. the deponent signed this declaration in my presence at the address set out hereunder on ⁻⁷⁻C August 2017.



C
ommissioner of Oaths

Name: PHILA NKOSINATHI SIKHULU ZULU
Commissioner of Oaths
Attorney R.S.A.
Address: 3rd Floor, MontClare Place
Cnr Main Road & Campground Road
Claremont, 7708
Capacity:

**IN THE HIGH COURT OF SOUTH AFRICA
GAUTENG DIVISION, PRETORIA**

Case number:

61561/17

in the matter between:

**THE TRUSTEES FOR THE TIME BEING
OF THE GROUNDWORK TRUST**

Applicant

and

THE MINISTER OF ENVIRONMENTAL AFFAIRS

First Respondent

CHIEF DIRECTOR: INTEGRATED
ENVIRONMENTAL AUTHORISATIONS,
DEPARTMENT OF **ENVIRONMENTAL AFFAIRS**

Second Respondent

THE DIRECTOR: APPEALS AND LEGAL REVIEW
DEPARTMENT OF ENVIRONMENTAL AFFAIRS

Third Respondent

ACWA POWER KHANYISA **THERMAL**
POWER STATION RF (PTY) LTD

Fourth Respondent

CONFIRMATORY AFFIDAVIT

I, the undersigned —

THOMAS MNGUNI

do hereby make oath and say that —

1. I am an adult male working for the groundV\ork Trust as a community activist.
2. The facts and circumstances set out in this affidavit fall within my personal knowledge, except where the context indicates otherwise, and are true.

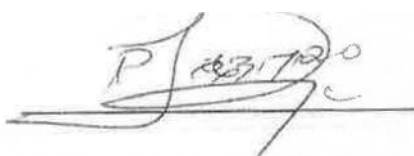
3. I have read the founding affidavit deposed to by Sven Eaton Patrick Peek and confirm the correctness of the facts insofar as they relate to me. in particular I confirm the facts in respect of the visit to the site of the proposed Khanyisa coal-fired power station project on 25 July 2017.



THOMAS MNGUNI

I certify that:

1. the deponent acknowledged to me that —
 - (a) he knows and understands the contents of this declaration;
 - (b) he has no objection to taking the prescribed oath;
 - (c) he considers the prescribed oath to be binding on his conscience;
2. the deponent thereafter uttered the words "I truly affirm that the contents of this declaration are true"; and
3. the deponent signed this declaration in my presence at the address set out hereunder on.3 / of CI`-IS 2017.



Commissioner of Oaths

Name:

K. M. M. M.

Address:

N. (Do)

Capacity:

W/O



CASE NO:

/-7

In the matter
between:

REGISTRAR OF THE HIGH COURT OF
SOUTH AFRICA GAUTENG DIVISION, PRETORIA
PRIVATE BAG 11110 P.O. BOX 11110
11110

THE TRUSTEES FOR THE
TIME BEING 2017 09 05 OF
THE GROUNDWORK TRUS¹¹

Applicant

and

T. G. MALELE
REGISTRAR
As c i e w
GRIFFIER VAN DIE HDV HOF VAN
SUID AFRIKA GAUTENG AF DEUR. PPETOK'A

First Respondent

THE MINISTER OF ENVIRONMENTAL AFFAIRS

CHIEF DIRECTOR: INTEGRATED
ENVIRONMENTAL AUTHORISATIONS,
DEPARTMENT OF ENVIRONMENTAL AFFAIRS

Second Respondent

THE DIRECTOR: APPEALS AND LEGAL REVIEW
DEPARTMENT OF ENVIRONMENTAL AFFAIRS

Third Respondent

ACWA POWER KHANYISA THERMAL
POWER STATION RF (PTY) LTD

Fourth Respondent

APPLICANT'S RULE 16A NOTICE

KINDLY TAKE NOTICE that:

- 1 the applicant seeks to operate a 600MW independent coal-fired power station with associated infrastructure near eMalahleni in Mpumalanga, South Africa (the "**Khanyisa Project**"); and
- 2 the Khanyisa Project will fall within the water-stressed Upper Olifants Catchment Water Management Area.

KINDLY TAKE NOTICE FURTHER that this application raises the following constitutional issues:

- 1 Whether the following decisions are unlawful and invalid under the Promotion of Administrative Justice Act 3 of 2000, alternatively, section 1(c) of the Constitution:
 - 1.1 the decision of the second respondent, dated 31 October 2013 and with reference number 12/1²/₂₀/2067, granting the fourth respondent the environmental authorisation for the Khanyisa Project; and
 - 1.2 the decision of the first respondent, dated 20 June 2017 and with reference number LSA 162101, refusing the applicant's application to extend the period for filing its notice of intention to appeal against the environmental authorisation in terms of regulation 60(4) of the 2010 Environmental Impact Assessment Regulations, GNR 543 in *Government Gazette* No 33306 of 18 June 2010 ("**2010 EIA Regulations**").
- 2 Whether section 240(1) of the National Environmental Management Act 107 of 1998 ("**NEMA**") and the relevant provisions of the 2010 EIA Regulations, interpreted in light of section 24 of the Constitution, required the first and second respondents to consider a climate change impact assessment before deciding on the fourth respondent's application for environmental authorisation.
- 3 Whether regulation 60(4) of the 2010 EIA Regulations, read in light of section 24 of the Constitution, required the first respondent to pay due regard to the potential

climate change impacts of the Khanyisa Project in determining whether there was "*good cause*" to extend the period for filing a notice of intention to appeal.

TAKE NOTICE FURTHER that any interested party may, with the written consent of all parties to these proceedings, given not later than 20 days after the filing of this notice, be admitted as *amicus curiae*, upon such terms and conditions as may be agreed upon in writing by the parties.

TAKE NOTICE FURTHER that the written consent referred to above shall be lodged with the registrar of the above Honourable Court within five days of it having been granted and the *amicus curiae* shall comply with the times agreed upon for the lodging of written argument.

TAKE NOTICE FURTHER that the terms and conditions agreed upon may be amended by the Court.

TAKE NOTICE FURTHER that if the interested party is unable to obtain written consent from the other parties, he or she may, within five days of the expiry of the 20 day period referred to above, apply to this Court to be admitted as an *amicus curiae* in these proceedings. Such application shall-

- (a) briefly describe the interest of the *amicus curiae* in these proceedings;
- (b) clearly and succinctly set out the submissions which shall be advanced by the *amicus curiae* in the proceedings, the relevance thereof to these proceedings,

and his or her reasons for believing that the submissions will assist the Court and are different from the submissions of the other parties; and

(c) be served upon all parties to the proceedings.

TAKE NOTICE FURTHER that any party to the proceedings who wishes to oppose an application to be admitted as an *amicus curiae* shall file an answering affidavit within five days of service of the application upon such party. The answering affidavit shall clearly and succinctly set out the grounds of such opposition.

KINDLY PLACE A COPY OF THIS NOTICE ON THE NOTICE BOARD

DATED at **PRETORIA** on this the an day of September 2017.

**CENTRE FOJR
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Kruyshaar/CER

**TO: THE REGISTRAR OF THE ABOVE COURT
PRETORIA**

AND TO: THE MINISTER OF ENVIRONMENTAL AFFAIRS
First Respondent
Environment House
473 Steve Biko Road
Arcadia
Pretoria

**AND TO: CHIEF DIRECTOR: INTEGRATED
ENVIRONMENTAL AUTHORISATIONS
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**
Second Respondent
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473 Steve Biko Road
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**AND TO: THE DIRECTOR: APPEALS AND LEGAL REVIEW
DEPARTMENT OF ENVIRONMENTAL AFFAIRS**
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