



Appeal in terms of section 43 of the National Environmental Management Act, 107 of 1998 (“NEMA”), against the environmental authorisation granted to Karpowership SA Pty Ltd for the proposed development of gas to power via powership project at the port of Saldanha within the Saldanha Bay Local Municipality in the Western Cape Province, South Africa

INTRODUCTION

1. This is an appeal against the decision (dated 14 November 2023) of the Chief Director-Integrated Environmental Authorisation in the Department of Forestry, Fisheries and the Environment (“**Chief Director**”) (“**the Department**” or “**DFFE**”) to grant an environmental authorisation to Karpowership SA (Pty) Ltd (“**Karpowership**”) for the development of a gas to power via powership project at the port of Saldanha within the Saldanha Bay Local Municipality in the Western Cape Province, South Africa (“**the project**” or “**the Powership**”).
2. This appeal is filed by Natural Justice (**NJ**) and the Green Connection (**GC**), referred to as the First and Second Appellants respectively.
 - 2.1. Natural Justice: Lawyers for Communities and the Environment, is a non-profit organisation specialising in environmental and human rights law in Africa – with a focus on the pursuit of social and environmental justice for local and indigenous communities. Natural Justice offers direct support to local and indigenous

communities impacted by the ever-increasing demand for land and resources, through legal empowerment.

- 2.2. Green Connection is a non-profit company, that believes that economic growth and development, improvement of socio-economic status and conservation of natural resources can occur only in a commonly understood framework of sustainable development. It aims to provide practical support to both the government and non-governmental / civil society sectors which are an integral part of sustainable development.
3. This appeal is also supported and joined by groundWork and the South Durban Community Environmental Alliance (“SDCEA”).
 - 3.1. groundWork is an environmental justice and non-profit organisation that works with South and Southern African communities on environmental justice and human rights issues focusing on coal, climate and energy justice, waste and environmental health.
 - 3.2. SDCEA is a non-profit environmental justice alliance comprised of numerous grassroots organisations in South Durban and KwaZulu-Natal. SDCEA works on issues around environmental justice and sustainable development, and collectively, strives to realise clean air, water and soil and for the alleviation of environmental racism and poverty. The SDCEA has for the last two decades participated in forums for the improvement of environmental management in KZN and in particular, in the industrial areas south of Durban.
4. Collectively, Natural Justice, The Green Connection, groundWork and SDCEA are referred to as “**the Appellants**”.
5. The Appellants have legal standing to bring the appeal not only in terms of section 43 of the National Environmental Management Act, 107 of 1998 (“NEMA”), but also in terms of section 32 of NEMA.
6. We place on record that we dispute the legality of the environmental impact assessment (“EIA”) process commencing in 2022, which has led to the granting of the environmental authorisation which is the subject of this appeal (“**the second EIA process**”). The Department has allowed Karpowership to ‘fix’ its errors even where there have been

clear violations of due process which cannot be remedied after the fact. This process has inevitably placed a burden on the public, NGOs and marginalised communities, such as the small-scale fishing communities of the West Coast, who have had to continually make submissions on the same project. Further, the DFFE is setting a dangerous precedent by allowing an applicant to continually amend its applications where there is a clear legal framework in place for what is required when applying for an EA. This significantly undermined the purpose of public participation and meaningful engagement and instead relegates it to a checkbox exercise.

7. The Appellants' filing of this appeal should not in any way be construed as admission or acceptance of the legality of this, the second EIA process, and the Appellants' rights are reserved in this regard.

BRIEF BACKGROUND

8. A number of events in relation to Karpowership's EA have preceded this environmental authorisation and appeal process, including an initial environmental impact assessment process which culminated in the Department's refusal to grant Karpowership an EA in June 2021 and an appeal decision by the Minister of August 2022, which upheld that refusal ("**the first EIA process**"). For the sake of brevity, we do not address that detailed background in this appeal. The Appeal Authority is well acquainted with the history of this matter, and the Appellants would be happy to provide any further detail if requested.
9. In December 2022 the First and Second Appellants submitted comprehensive comments ("**the December 2022 comments**") on a draft environmental impact report ("**DEIR**") prepared as part of the second EIA process in respect of Karpowership's environmental authorisation application. In September 2023, the First and Second Appellants submitted further comments on an updated DEIR ("**the September 2023 comments**"). The December 2022, and September 2023 comments are relevant to, and must be read into this appeal.
10. As mentioned above, the Chief Director granted the project environmental authorisation on 14 November 2023 and the Appellants received notice of the decision on the same day. To arrive at this decision, the Chief Directorate states that the FEIR

contained “*sufficient assessment of the key identified issues and impacts,*” and therefore, “*the authorised activities will not conflict with the general objectives of ... Chapter 5 of the National Environmental Management Act, 1998.*”¹ The Chief Director states that the following information was considered in arriving at the said decision:

- 10.1. The listed activities as applied for in the application form received on 19 September 2023,
 - 10.2. The information contained in the Final EIAr dated September 2023,
 - 10.3. The comments received from interested and affected parties as included in the final EIAr dated September 2023,
 - 10.4. Mitigation measures as proposed in the Final EIAr and EMPr dated September 2023, and
 - 10.5. The specialist studies contained in the Final EIAr.
11. The historic documents and processes that are relevant for this appeal, and referred to herein are the following:
- 11.1. Some of the impact assessments of the first EIA including the climate impact assessment, and public participation records;
 - 11.2. The decision of the Chief Director dated 23 June 2021 refusing the environmental authorisation for the Karpowership project (“**the 2021 EA refusal**”)
 - 11.3. The Minister of Environment, Forestry and Fisheries’ Decision of 1 August 2022 upholding the refusal of Karpowership’s environmental authorisation for Saldanha; (“**Minister’s August 2022 appeal decision**”);
 - 11.4. The draft environmental impact report of December 2022 (“**DEIR**”);
 - 11.5. The revised DEIR of August 2023 (“**revised DEIR**”);
 - 11.6. The December 2022 comments on the DEIR referred to above;
 - 11.7. The September 2022 comments referred to above on a revised DEIR;

¹ EA at Annexure 1, Section 2

11.8. The final environmental impact report including appendices (“**the FEIR**”); and

11.9. The environmental authorisation granted on 14 November 2023 (“**the EA**”).

RELEVANT LEGAL REQUIREMENTS

12. The legal requirements that apply to EIAs and decisions to grant environmental authorisations can be found in NEMA and the Environmental Impact Assessment Regulations, 2014² (“**EIA Regulations**”).

13. NEMA sets out the general objective of integrated environmental management as being to inter alia: “(b) *identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management set out in section 2.*”³

14. NEMA and the EIA Regulations stipulate some of the following specific requirements for EIAs:

14.1. The EIA Regulations require that “*An environmental impact assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include: “... (h) a full description of the process followed to reach the proposed development footprint within the approved site, as contemplated in the accepted scoping report, including ... — (v) the impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts ...”; and “(j) an assessment of each identified potentially significant impact and risk, including— ... cumulative impacts [and] ... (ii) the nature, significance and consequences of the impact and risk*”⁴

14.2. Section 2 of Appendix 3 to the EIA Regulations states that the objective of the EIA process is to “*describe the need and desirability of the proposed activity, including*

² As amended and published in GoN 706, GG 41766, 13 July 2018.

³ S23(2)(b), NEMA.

⁴ S3(1)(h)(v) and (j)(ii), Appendix 3 to the EIA Regulations, 2014.

the need and desirability of the activity in the context of the development footprint on the approved site as contemplated in the accepted scoping report”.

- 14.3. Under NEMA, an environmental impact assessment must also include an *“investigation of mitigation measures to keep adverse consequences or impacts to a minimum.”*⁵
- 14.4. NEMA and the EIA Regulations also require consideration of cumulative impacts of activities.⁶ “Cumulative impacts”, under the EIA Regulations, means *“past, current and **reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity**, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities”* (emphasis added).
- 14.5. Section 24(4)(b)(i) of NEMA states that an EIA must include an *“investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity [also known as the no-go option]”*.
15. Chapter 6 of the EIA Regulations stipulates the processes and requirements for public participation. It sets out the requirements for giving notice to interested and affected parties, which include requirements for advertisements and affixing notices,⁷ including *“using reasonable alternative methods”*, in instances where a person is desirous of but unable to participate in the process due to illiteracy, disability or any other disadvantage.⁸ The person conducting the public participation process *“must ensure that— ... (b) participation by potential or registered interested and affected parties is facilitated in such a manner that all potential or registered interested and affected*

⁵ NEMA Section 24(4)(b).

⁶ Appendix 3 , section 2(c).

⁷ S41, EIA Regulations.

⁸ S41(2)(e), EIA Regulations.

*parties are provided with a reasonable opportunity to comment on the application or proposed application”.*⁹

16. NEMA and the EIA Regulations place the following obligations on decision-makers in considering EIAs and granting environmental authorisations:

16.1. The competent authority must take into account *“all relevant factors”*¹⁰ in considering an application for environmental authorisation, which may include *“any pollution, environmental impacts or environmental degradation likely to be caused if the application is approved or refused”*.¹¹

16.2. Section 24O of NEMA also requires that the competent authority consider *“where appropriate, any feasible and reasonable alternatives to the activity which is the subject of the application and any feasible and reasonable modifications or changes to the activity that may minimise harm to the environment”*.¹²

16.3. Section 2 of NEMA contains national environmental management principles that apply throughout the Republic to the actions of all organs of state that may significantly affect the environment. Section 2 NEMA requires, for example that *“a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge.”*¹³

17. Under the Promotion of Administrative Justice Act, 2000 (**“PAJA”**), a court may judicially review the grant of an environmental authorisation if the action was taken because *“relevant considerations were not considered”*, if the action was taken arbitrarily and capriciously, if the action is not rationally connected to the information before the administrator, or if the action is otherwise unconstitutional or unlawful, among other provisions.¹⁴

18. Lastly, all decisions and actions must be guided by the Constitution of the Republic of South Africa, 1996 (**“the Constitution”**). Section 7(2) of the Constitution makes it clear

⁹ S41(6), EIA Regulations.

¹⁰ S24O(1)(b), NEMA.

¹¹ S24O(1)(b)(i), NEMA.

¹² S24O(1)(b)(iv), NEMA.

¹³ S2(2)(2)(vii), NEMA.

¹⁴ PAJA at Section 6.

that the state bears an obligation to respect, protect, promote and fulfil the rights contained in the Bill of Rights. This requires that its actions must be reasonable and effective, assessed both in light of our own Constitution but also in terms of international law. Section 24 of the Constitution provides essential context for this appeal. It provides that:

“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.”

GROUND OF APPEAL

19. The Appellants submit this appeal on the following grounds:

- 19.1. First Ground of Appeal: Inadequate Consideration of Impacts on the Marine Environment;
- 19.2. Second Ground of Appeal: Inadequate Consideration of Major Hazard Installation Impacts
- 19.3. Third Ground of Appeal: Inadequate Consideration of Climate Change Impacts;
- 19.4. Fourth Ground of Appeal: Inadequate Consideration of Need and Desirability;
- 19.5. Fifth Ground of Appeal: Inadequate Consideration of Alternatives Including the No Go Option;
- 19.6. Sixth Ground of Appeal: Inadequate Consideration of Socio-Economic Impacts;
- 19.7. Seventh Ground of Appeal: Inadequate Consideration of Cultural and Heritage Impacts;
- 19.8. Eighth Ground of Appeal: Inadequate Public Participation;
- 19.9. Ninth Ground of Appeal: Inadequate Consideration of Air Pollution and Health;
- 19.10. Tenth Ground of Appeal: The EA Conditions and Requirements are Irregular and Unlawful;

19.11. Eleventh Ground of Appeal: The Comments and Responses Report Has Not Been Made Available to the Public; and

19.12. Twelfth Ground of Appeal: Failure to Consider the Requirements of the National Environmental Management: Integrated Coastal Management Act.

FIRST GROUND OF APPEAL: INADEQUATE CONSIDERATION OF IMPACTS ON THE MARINE ENVIRONMENT

20. The FEIR contained several fundamental flaws in its analysis that resulted in the underestimation or exclusion of many of the project's significant impacts on the marine environment.

21. Specifically, the FEIR did not adequately assess how the proposed project will result in harmful effects on local ecosystems through increased underwater noise, cooling water intake and discharges, and destruction of benthic habitats. Additionally, the measures proposed in the FEIR and EMPr are insufficient to mitigate the project's significant impacts. As a result, the Competent Authority issued an environmental authorisation in reliance on an unlawful FEIR and without considering all relevant impacts. This decision will result in significant, unacceptable harm to the marine environment, and therefore was unreasonable and arbitrary and capricious in light of available evidence.

The Powership project will result in irreversible harm to the Saldanha Bay Marine Environment

22. Saldanha Bay is one of South Africa's most unique and ecologically important marine ecosystems. The Bay and interconnected Langebaan Lagoon estuary make up *"the largest body of wave sheltered water on the South African coast,"* and host *"ecologically important intertidal mud and sand flats used for foraging by seabirds and [as] an important nursery area for many marine fish and invertebrate species."*¹⁵ The Bay is located within the west coast Benguela upwelling ecosystem, which has been described as *"one of the most productive marine ecosystems in the world."*¹⁶ Because of its unique ecology, the Bay supports a variety of ecosystem services, including productive commercial and recreational fisheries, ecotourism, and mariculture operations. In

¹⁵ Appendix B4 at p. 7

¹⁶ *Id.*

recognition of the Bay's ecological importance, it was incorporated into the West Coast National Park Marine Protected Area (MPA) Network, and the Langebaan Lagoon has been declared an internationally recognised RAMSAR site.¹⁷

23. Saldanha Bay is also one of South Africa's most vulnerable marine ecosystems. According to the 2018 National Biodiversity Assessment, the *"highest cumulative pressure [on a marine ecosystem in South Africa] occurs in Saldanha Bay."*¹⁸ For this reason, *"all [future] developments within the area ... have the potential to negatively impact [] ecosystem health."*¹⁹ In fact, the Bay may be rapidly approaching a threshold at which it is uninhabitable for many species. The FEIR's Marine Ecology Report states:

*"Given the major developments described, the marine space in Saldanha Bay is already limited in terms of space. The addition to the proposed Powership development further reduces the space available to marine organisms that use the environment of Saldanha Bay. Considering this it is reasonable to assume that a threshold will exist where an exceedance of which (in terms of disturbance space) will have substantial negative effects on the marine environment as a whole. Marine organisms will be displaced to elsewhere in the Bay until a lack of available habitat causes significant spatial changes to their distribution i.e., vacation of the Bay entirely."*²⁰

24. The Bay and Langebaan Lagoon together are roughly 57 km².²¹ According to the FEIR, the Powership will "reduce available marine space within the Bay by 4.55 km²,"²² or roughly 10%. It is not clear if these are direct impacts of the powership, or if the 10% includes indirect impacts. Indirect impacts could reduce habitat even further. Given the already degraded state of the Bay, the proposed project will substantially reduce the area of suitable habitat available to species.
25. The further degradation of Saldanha Bay's marine environment will result in irreparable harm to marine organisms, particularly populations of vulnerable species which depend on the Bay. Saldanha Bay is home to several species whose populations have declined

¹⁷ *Id.*

¹⁸ 2018 national Biodiversity Assessment Synthesis Report at p. 136.

¹⁹ 2022 State of the Bay at p. iii.

²⁰ Appendix B4 at p. 100.

²¹ Appendix B4 at p. 7.

²² Appendix B4 at p. 100.

to such an extent that they are now internationally protected. These species include the white stumpnose fish, elf fish, and smooth hound shark (classified by the IUCN as Vulnerable),²³ the Heaviside's dolphin (classified by the IUCN as Near Threatened), and the African penguin, Cape cormorant, bank cormorant, and Cape gannet (listed as Endangered).²⁴ Even small reductions in the populations of these species will inhibit their future recovery and increase the risk that they are permanently lost to extinction.

26. Impacts to seabird species are of particular concern. According to the Marine Ecology Report, the islands of Saldanha Bay support important breeding colonies for the Endangered Bank cormorants, Cape cormorants, Cape gannets, and African penguins.²⁵ Populations of all these seabird species have declined due to increased human disturbance and reductions in the availability of their principal prey species.²⁶ For example, the African penguin population has declined to 0.14% of its historical levels, and there were only 190 breeding pairs left in Saldanha Bay in 2021.²⁷ The Marcus Island MPA, located approximately 5 km from the proposed FSRU location, hosts a breeding population of African penguins that utilise the environment near the Powership and FSRU for foraging.²⁸ Once penguins start breeding at an island, they will not breed anywhere else.²⁹ Therefore, the penguins of Marcus Island will not be able to escape the Powership's impacts on the local ecosystem.
27. Further impacts on the Bay could also trigger the collapse of local fisheries. There is a long history of fishing in Saldanha Bay, and local fisheries contribute significantly to tourism and the regional economy.³⁰ The white stumpnose is one of the "*most important species in the fisheries in Saldanha*," and is frequently targeted by both recreational and commercial fishers.³¹ However, fish diversity in Saldanha's Big Bay has declined significantly in recent years and "*is considered to be in poor condition*" due in

²³ Appendix B4 at p. 30.

²⁴ Appendix B4 at p. 27.

²⁵ Appendix B4 at p. 26.

²⁶ Appendix B4 at p. 27.

²⁷ Appendix B4 at p. 27.

²⁸ Appendix B4 at p. 31.

²⁹ Appendix B4 at p. 28.

³⁰ Appendix B4 at p. 31.

³¹ Appendix B4 at p. 31.

part to a decrease in quality habitat for juvenile fish in the area.³² The health of the white stumpnose population is especially precarious after it experienced a collapse in 2019, and stringent conservation measures are necessary to promote its recovery.

28. Given the vulnerable state of Saldanha Bay, any proposed future development should be carefully scrutinised to avoid pushing an already overburdened ecosystem to its breaking point. However, as further discussed below, the Competent Authority approved the proposed project despite major gaps in the FEIR and despite evidence that the Powership will significantly harm the marine environment, including ecosystems and species that are under severe stress from existing pressures. Therefore, the Authority's decision was unreasonable and in conflict with the general objectives of NEMA and ICMA.

Failure to fully evaluate the impacts of underwater noise on the marine ecosystem

29. Because of several flaws in its approach, the FEIR relied on by the Competent Authority does not adequately identify and assess the risks to marine species and ecosystems by project noise. Specifically, and as explained below, the FEIR fails to evaluate the chronic impacts of project noise, relies on a flawed assessment of baseline noise, and proposes insufficient mitigation measures. The Competent Authority's decision to issue an environmental authorisation based on this incomplete and inadequate record violates PAJA because it was taken without considering all relevant impacts, it was in contravention of NEMA and its implementing regulations, including the principle of precaution, and it was arbitrary and capricious.

Failure to Consider Motion and Substrate Vibration

30. The FEIR, relying on Popper et al. (2014) concludes that *"no significant impacts on fish or marine mammals are predicted as a result of the operation of the Powership in the Port of Saldanha."*³³ However, in Dr. Popper's own opinion, *"it is impossible to reach this conclusion based on the data that was considered, which did not factor in potential risks from particle motion and substrate vibration."*³⁴

³² Appendix B4 at p. 24-25.

³³ FEIR at 270-71.

³⁴ Popper Expert Report 2023 at 3-4.

31. Dr. Popper explains, in a report attached to this appeal as **Annexure A**, that the FEIR analyses focused on sound pressure, and yet “*many (and perhaps most species [of fish]) do not detect sound pressure,*” so assumptions can no longer be made upon them.³⁵ However, “*it is now well understood that particle motion is a major issue for fishes.*”³⁶ In addition, Dr. Popper points out that substrate vibration, which was also not considered, “*is an issue of major importance.*”³⁷ Dr. Popper explains that the science has evolved and that “*we need to incorporate [these learnings] into our thinking and into the actions we take, even if detailed knowledge is available.*”³⁸

Misleading analysis of underwater noise impacts on fish behaviour

32. The MER relies upon Popper et al. (2014) in Table 4-12 to demonstrate the behavioural impacts of underwater noise on fishes at differing distances from the source sound, specifically in the near-field (tens of metres), intermediate-field (hundreds of metres), or far-field (thousands of metres). Dr. Popper himself explains in his expert report (“**Popper Expert Report 2023**”), attached here as Annexure A, that Table 4-12 is “highly misleading” in that it misquotes Popper et al. and erroneously utilizes the distances in its analysis.³⁹ According to Dr. Popper, the distances in the paper were meant as the “basis for discussion” and are not absolute.⁴⁰ In fact they are “highly variable” and would fluctuate depending on factors such as species, age of animals, habitat use, etc.⁴¹
33. Dr. Popper further explains that the tentative distances to understand fish behaviour in relation to noise used in the Popper et al. (2014) “*were based on sound pressure and not particle motion.*”⁴² This is significant because the most recent science makes clear that particle motion is a more relevant analysis as “*most all recent studies of fish hearing make clear that all fishes detect particle motion, and far fewer can also detect sound pressure. Thus setting the behavioral criteria as on sound pressure must be rethought.*”⁴³

³⁵ Popper Expert Report 2023 at 3.

³⁶ Popper Expert Report 2023 at 3.

³⁷ Popper Expert Report 2023 at 3.

³⁸ Popper Expert Report 2023 at 1.

³⁹ Popper Expert Report 2023 at 2.

⁴⁰ Popper Expert Report 2023 at 2.

⁴¹ Popper Expert Report 2023 at 2.

⁴² Popper Expert Report 2023 at 3.

⁴³ Popper Expert Report 2023 at 3.

Given these factors, Dr. Popper concludes that *“the legend in table 4-12 of Appendix B4 are misleading.”*⁴⁴

Failure to consider chronic noise impacts

34. The MER and FEIR recognizes that *“[e]xposure to noise for a long period of time, such as is expected of the Powership operations, may cause chronic effects [to marine wildlife], including developmental deficiencies and physiological stress.”*⁴⁵ These chronic impacts can result in individual and population-level consequences, by impacting important life functions such as *“health and fitness, foraging efficiency, avoidance of predation, swimming energetics, and reproductive behaviour.”*⁴⁶ Despite this, the FEIR fails to address the effects of chronic underwater noise created by the powership by (1) not analysing chronic noise impacts, (2) restricting its analysis on marine species to hearing loss, and (3) wrongfully dismissing the significance of chronic impacts based on the presence of noise from other vessels. Each of these significant flaws is discussed further below.
35. The FEIR bases its conclusion that *“[a]ny risk to marine mammals or fish will be negligible”*⁴⁷ on the Underwater Noise Assessment’s findings that calculated noise levels will not reach thresholds for *“temporary threshold shift” (TTS)*.⁴⁸ TTS is where a *“temporary reduction in hearing sensitivity may occur.”*⁴⁹ As Dr. Michelle Fournet explained in her report commenting on the DEIR, attached as **Annexure B**, by relying on TTS, the FEIR (which has not changed its analysis from the DEIR) utilizes guidelines intended to examine effects related to discrete exposure to noise and not to chronic noise exposure.⁵⁰ Additionally, Dr. Arthur Popper, one of the authors of the underlying study relied upon in the FEIR to reach its conclusion, and Dr. Heidi Weiskel in their report commenting on the DEIR, **Annexure C** also dismiss the FEIR’s reliance on TTS as *“totally irrelevant,”* while maintaining that there remain *“very substantial issues with regard to*

⁴⁴ Popper Expert Report 2023 at 3.

⁴⁵ Appendix B4 at p. 175 (citing Popper and Hawkins 2016).

⁴⁶ *Id.* (citing Popper and Hawkins 2016).

⁴⁷ FEIR at p. 271.

⁴⁸ FEIR at p. 270-71

⁴⁹ MER at 76.

⁵⁰ Fournet at 6-9.

anthropogenic sound” concerning the “overall increase in sound levels in the area” or, in other words, chronic noise.⁵¹

36. Dr. Popper, in his 2023 expert report, responded to the FEIR’s argument that “*there are few data on potential impacts of chronic noise on fishes, and probably none on invertebrates.*”⁵² The science is directly examining chronic noise impacts to fishes is limited, but it exists and demonstrates low level sounds can affect systems involved in many life functions.⁵³ In the face of scientific uncertainty, the FEIR should have employed the precautionary principle to address impacts. Dr. Popper further found that chronic noise is a “*highly prevalent issue affecting humans and other terrestrial vertebrates*” and opined that since fish are vertebrates with many of the same hormones and ear systems as terrestrial animals, Dr. Popper felt that “*it is reasonable to extrapolate from terrestrial data to suggest that low-level chronic noise could have an impact.*”⁵⁴ The FEIR fails to look at the chronic underwater noise impacts from the powership’s operations for 16.5 hours a day, 7-days a week, for 20 years. As pointed out by Dr. Fournet, this is a critical failure.⁵⁵
37. Further, the MER acknowledged that noise levels lower than a TTS threshold can still cause many other ecologically significant harms, and concluded that noise impacts on marine ecosystems would be of at least Medium-High significance (before mitigation).⁵⁶ While we maintain that the medium-high rating underestimates impacts (see discussion on mitigation below), it is unclear why these harms are considered “significant” and given a scoring of Medium-High and Medium with mitigation within the MER but are dismissed as “negligible” by the FEIR. This arbitrary approach to rating impact is another major deficiency in the FEIR and further reveals a variation with the findings of the MER, which is one of the key factors that the Competent Authority considered in making the decision to grant the Environmental Authorisation.⁵⁷

⁵¹ Weiskel & Popper at 3.

⁵² Popper Expert Report 2023 at 4.

⁵³ Popper Expert Report 2023 at 4.

⁵⁴ Popper Expert Report 2023 at 4.

⁵⁵ Fournet at 6-9.

⁵⁶ FEIR at 284-85.

⁵⁷ Environmental Authorization at 20.

38. Second, in limiting its analysis to TTS, which encompasses the direct impact of a discrete noise on marine species' abilities to hear, the FEIR does not take into account the chronic noise effects on marine species. TTS examines hearing loss. This is an important aspect to consider. However, as Dr. Fournet points out, the FEIR failed to examine the full suite of behavioural effects that can occur beyond hearing loss and masking.⁵⁸ Drs. Popper and Weiskel reiterate this gap, stating:⁵⁹

"But what is highly relevant is that there are increases in the overall increase in sound levels in the area. Such increases are much more likely to result in far more important behavioral and physiological effects such as (but not limited to): animals moving from the local area and leaving breeding or feeding sites; masking of sounds of biological relevance to species such as those used to communicate between animals or the sounds of potential predators; and increased stress leading to physiological changes such as in hormonal levels, and numerous other issues. It is also critical to note that without knowing particle motion information and how well fishes and invertebrates make use of particle motion (for which we have minimal data), it is hard to predict what potential effects might be."

39. Ironically, in its discussing of underwater noise, the FEIR and MER acknowledge that some fish and marine mammals are mobile and would swim away from the sound source. Although not all marine species would be capable of doing so, the very act of swimming away is a behavioural change. Yet, the MER and the FEIR fail to take the next logical step to analyse the impact of this behavioural change of marine species now excluded from habitat in Saldanha Bay for twenty years.
40. For example, the MER concludes that *"there is no expected impact from the noise produced by the proposed Port of Saldanha Powership on marine mammals."*⁶⁰ Yet, both Southern Right whales and Humpback whales have been observed in Saldanha Bay engaging in feeding activities, in other words utilizing the Bay to support critical

⁵⁸ Fournet at 9-11.

⁵⁹ Weiskel & Popper at 3.

⁶⁰ MER at 77.

biological functions. Southern Right whales use the Bay to feed in the spring and the summer, and have even been observed south of the iron ore jetty where the Powership will be moored.⁶¹ Humpback whales have also been observed in the Small Bay and Big Bay, including a supergroup of approximately 200 individuals feeding in the mouth of the Bay.⁶² The FEIR recognizes, and expects marine mammals to swim away due to the noise, yet it does not analyse that same impact of precluding Southern Right whales and Humpback whales, sometimes in the hundreds, from feeding habitat for 20 years on individuals and populations. Similar questions can be raised for the other cetaceans found to be present in the Bay, including Dusky dolphins, the near threatened Heaviside's dolphin, and Killer whales.

41. Another issue that the FEIR glosses over is that of fish displacement related to underwater noise. For example, the white stumpnose *"is the most important angling species in the Bay"* for both commercial and recreational fishers and is on a *"declining trend."*⁶³ Although it is established that white stumpnose use the Bay as a breeding ground and nursery,⁶⁴ the FEIR recognizes that there exists scientific uncertainty relating to the white stumpnose population and placement within the Bay (gaps in research),⁶⁵ which warrants use of the precautionary principle. The FEIR recognises that *"[t]here remains a concern regarding displacement of fish populations"* as a *"result of impacts arising from Powership operations"* and that given the current population and low levels of white stumpnose recruitment within Saldanha Bay, efforts should be made to reduce impacts on juvenile white stumpnose. It is notable that the effects of the Powership operations is not just limited to noise, but also includes discharged warm water (see below on thermal plum discharge), and the water intake pipe (see below on water intake).
42. Lastly, the FEIR downplays the significance of chronic noise impacts because *"the noise levels produced by the ships associated with this project are also not substantially different to the noise levels produced by ships typically using the harbour"* and would

⁶¹ FEIR at 176.

⁶² FEIR at 176.

⁶³ FEIR at 175, 76.

⁶⁴ FEIR at 174-75, 274.

⁶⁵ FEIR at 274-75.

not create significant disturbance unless a marine mammal was directly adjacent to the ship.⁶⁶ Here, the FEIR erroneously equates the chronic, and near-constant noise impacts of the proposed Powerships with those of intermittent vessel traffic. Project operations will generate noise up to 16.5 hours per day for 20 years. In contrast, during the underwater noise assessment taking place over a 48-hour period, only two bulk carry vessels and their associated tugs used the port.⁶⁷ Chronic noise presents unique ecological harms different than intermittent noise sources (for example, elevated stress levels,⁶⁸ various internal and external organ injuries,⁶⁹ long term displacement from breeding and foraging regions,⁷⁰ shifts in migratory pathways,⁷¹ and permanent hearing loss⁷²). It is irrational and arbitrary for the FEIR to equate constant noise for 16.5 hours a day with the noise from two transient vessels over a 48-hour period. Noise from intermittent vessel traffic or other intermittent noises from the port will not hide or eliminate the negative consequences of chronic noise from the proposed project, as the FEIR seems to imply.

43. Because of the FEIR's failure to consider the chronic impacts of increased ambient noise in its conclusions, the record relied on by the Competent Authority significantly underestimated the magnitude and scope of likely impacts to the marine environment. Any decision based on this deficient analysis violates NEMA and PAJA.

Failure to consider noise impacts on diving birds

⁶⁶ FEIR at 270.

⁶⁷ Underwater Noise Assessment, p. 6-7.

⁶⁸ Rolland, R. M. *et al.* Evidence that ship noise increases stress in right whales. *Proceedings of the Royal Society B: Biological Sciences* (2012) doi:10.1098/rspb.2011.2429.

⁶⁹ Nabi, G. *et al.* The possible effects of anthropogenic acoustic pollution on marine mammals' reproduction: an emerging threat to animal extinction. *Environmental Science and Pollution Research* vol. 25 19338–19345 Preprint at <https://doi.org/10.1007/s11356-018-2208-7> (2018).

⁷⁰ Bryant, P. J., Lafferty, C. M. & Lafferty, S. K. Reoccupation of Laguna Guerrero Negro, Baja California, Mexico, by Gray Whales. in *The Gray Whale: Eschrichtius Robustus* (2012). doi:10.1016/B978-0-08-092372-7.50021-2; Morton, A. B. & Symonds, H. K. Displacement of *Orcinus orca* (L.) by high amplitude sound in British Columbia, Canada. *ICES Journal of Marine Science* **59**, (2002).

⁷¹ Richardson, W. J., Würsig, B. & Greene, C. R. Reactions of bowhead whales, *balaena mysticetus*, to seismic exploration in the canadian beaufort sea. *Journal of the Acoustical Society of America* **79**, (1986); Malme, C., Miles, P. & Clark, C. Investigations of the potential effects of Underwater Noise from petroleum industry activities on migrating gray whale behavior. *Beranek and Newman report* (1984).

⁷² Stevens, P. E., Hill, H. M. & Bruck, J. N. Cetacean acoustic welfare in wild and managed-care settings: Gaps and opportunities. *Animals* vol. 11 Preprint at <https://doi.org/10.3390/ani11113312> (2021).

44. The FEIR concludes that underwater noise from the Powership will not result in “*irreplaceable loss of marine fauna*,”⁷³ despite considerable evidence that increased ambient noise will negatively impact local diving bird populations, including the Endangered African penguin. In fact, a study by Pichegru et al. (2022) referenced in the MER found that an increase in ambient noise from shipping in Algoa Bay, South Africa resulted in an 85% decline in the numbers of a nearby African penguin colony.⁷² The Powership will result in an even greater increase in ambient noise than the noise from shipping analysed in Pichegru’s study, since it will emit noise continuously for 16.5 hours per day. The African penguin population has declined precipitously in recent years, and is currently at less than 1% of historical levels.⁷³ Therefore, any further decrease in local penguin populations could jeopardize the species’ recovery, resulting in irreversible impacts.

Reliance on flawed baseline noise assessment

45. In addition to the flaws concerning the failure to consider potential chronic noise impacts of the Karpowership, the baseline noise assessment has significant flaws, leading to an underestimation of the harms discussed above.
46. Specifically, the FEIR relies on a study of underwater noise levels conducted by Subacoustech Environmental Ltd, in which 10-second spot recordings were made at multiple locations throughout the Bay and a 48-hour continuous recording was made at one location, all in November 2021.⁷³ Results of this baseline study formed the foundation for the FEIR’s Underwater Acoustics and Marine Ecology impact assessments, and underpinned the FEIR’s conclusions that project noise would have “negligible” or insignificant impacts on baseline noise levels.⁷⁴
47. This approach is problematic because taking 10 second and static measurements over 48 hours is inadequate to give a complete picture of the baseline. As emphasized by bioacoustician Dr. Michelle Fournet,⁷⁵ the baseline noise assessment was too short in duration to capture the effects of the project’s continuous and chronic noise over its

⁷³ See, Baseline Underwater Noise Assessment, p. 5.

⁷⁴ FEIR at p. 271 (“no significant impacts on fish or marine mammals are predicted as a result of the operation of the Powership in Port of Saldanha as it will not materially change existing underwater noise associated with the port”).

⁷⁵ Fournet Report at 5-6, 11-12.

twenty-year life. Among other things, the assessment's sampling methods failed to capture soundscape variation across seasons, which is critical for understanding the impacts of the projects to marine organisms that use the Bay during different times of the year.

48. In fact, the specialists who conducted the baseline assessment asserted that its findings should not be used to draw long-term conclusions about noise in the Bay. Repeatedly, the Baseline Noise Report emphasized that the study was an "initial survey"⁷⁶ that is a *"first step before undertaking a comprehensive long-term baseline survey at the site."*⁷⁷ Its findings were explicitly *"not intended to represent a long-term or seasonal underwater noise baseline."*⁷⁸ Yet, no long-term sound monitoring was ever undertaken and the results of this short-term initial survey were used to assess noise impacts over the entire 20-year lifespan of the project.
49. Various clarification notes in the FEIR assert that despite the short duration of data collected, the assessment's findings are sufficient *"to represent a worst-case for any subsequent impact assessment."*⁷⁹ The FEIR notes further that: *"With the weather conditions clement, with light winds and surface wave action, this will represent a reasonable minimum level for underwater ambient noise. Use of the port will remain reasonably consistent throughout the year and seasonal changes are likely to lead to increases in the background noise due to worsening weather conditions. Thus the measured noise levels are expected to represent a worst-case for any subsequent impact assessment."*⁸⁰
50. It is unreasonable for the FEIR to conclude that its findings are representative of ambient noise levels throughout the year without any basis for comparison. For example, no data is provided to show how often the weather would be "clement" and how the use of the port will remain "reasonably consistent" throughout the year.

⁷⁶ FEIR Appendix B1 at p. 7.

⁷⁷ FEIR Appendix B1 at p. 1.

⁷⁸ FEIR Appendix B1 at p. 7

⁷⁹ FEIR Appendix B1 at p. 7

⁸⁰ FEIR Appendix B1 at p. 7.

51. In fact, the FEIR's attempts to downplay its methodological failure flies in the face of good practice in underwater acoustic assessment. For example, the National Physical Laboratory, the national measurement standards laboratory of the United Kingdom that sets and maintains physical standards for British industry, has made several recommendations regarding the length of underwater acoustics measurements.⁸¹ Some relevant excerpts include:

51.1. *"An important fact to appreciate is that ambient noise levels can show significant variation over time. ... This variation can be in the short-term of minutes and hours, or a medium-term such as a diurnal variation (day to night), variation with tidal flows, or a longer-term seasonal variation."*⁸²

51.2. *"Where the objective is to determine the change to the overall background noise caused by the presence of a specific activity (for example, the installation of a marine renewable energy development or oil and gas platform), a medium-term deployment of perhaps a few weeks is more appropriate. ... Here, it is important to sample the range of conditions that give rise to the statistical variation in noise levels. As a minimum There should ideally be enough time to cover variation in local shipping traffic."*⁸³

51.3. *"Where the objective of the measurements is to comprehensively characterize the ambient noise in specific locations or in specific regions, long-term measurements are required."*⁸⁴

51.4. *"A relatively short-term measure of the ambient noise should not be used as representative of the ambient noise at that location for any time other than the period of time during which the measurements were undertaken"*.⁸⁵

⁸¹ National Physical Laboratory, NPL No. 133: Good Practice Guide for Underwater Noise Measurement (2014), chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.npl.co.uk/special-pages/guides/gpg133underwater. This source is also included in the Ocean Best Practices Repository, which is co-sponsored by UNESCO/Intergovernmental Oceanographic Commission. Oceans Best Practices, available at <https://repository.oceanbestpractices.org/handle/11329/435> (last visited Dec. 12, 2023).

⁸² P46.

⁸³ P48.

⁸⁴ P48.

⁸⁵ P48.

52. The underwater baseline assessment is also flawed because, as Dr. Fournet notes, “the studies provided insufficient detail on the context of current sound in the project locations to understand the ecologically relevant impacts of adding the ships into those soundscapes.”⁸⁶ For example, there was no declaration made of what vessels or anthropogenic sources were present throughout the spot sampling and no effort to quantify the total hours per day that anthropogenic noise would contribute to the soundscape should the powership project be approved.⁸⁷
53. These critical gaps in information did not stop the FEIR finding that “*As the noise levels produced by the ships associated with this project are also not substantially different to the noise levels produced by ships typically using the harbour, no significant disturbance effect outside of the normal operational port is anticipated, except if potentially directly adjacent to the ships.*”⁸⁸ It is not appropriate to assume without data, as the FEIR has, that vessel and other anthropogenic noise in the harbour would be constant for 16.5 hours a day during the operations of the powerships. Because the FEIR failed to indicate how many hours per day the area is already anthropogenically altered, it is impossible to make any scientifically credible findings about the potential harm from the powerships, especially considering that the powerships will contribute chronic noise (see discussion above). As Fournet concludes: “*The addition of 16.5 hours a day of noise in these regions may result in continuous chronic noise in the project regions. This consideration – that an additional 16.5 hours may be a dramatic increase in the temporal noise budget resulting in continuous anthropogenic noise – was not included in the studies or the DEIAR.*”⁸⁹
54. Indeed, as Dr. Fournet explains, the baseline for underwater noise should be noise without other ships (the natural baseline) because the powerships will be operating even when other vessels are not. Figure 4.2. in the Baseline Underwater Noise Assessment shows clearly that there is as much as a 40 dB difference in ambient sound levels between periods when there are no vessels present (the natural baseline), and predicted values that were used to calculate the baseline. Dr. Fournet explains that a

⁸⁶ Fournet Report, p. 12.

⁸⁷ Fournet Report, p. 12.

⁸⁸ FEIR at p. 270.

⁸⁹ Fournet Report, p. 12.

“40 dB increase in noise is translated as being 10,000 times louder,” and opines that “Without a doubt, the powerships causing the environment to be 10,000 times louder will have significant negative impacts on the marine environment.”⁹⁰

55. In summary, as a result of relying on a flawed baseline noise assessment, the FEIR relied on by the Competent Authority likely underestimates the acoustic impacts of the proposed project. Therefore, the Competent Authority failed to consider all the significant impacts of the proposed project in issuing an environmental authorisation, in violation of PAJA. Additionally, their decision relying on an assessment that was explicitly incomplete was therefore unreasonable as well as arbitrary and capricious.

Impacts of cooling water intake

56. The FEIR underestimates the impacts of cooling water intake on marine wildlife by ignoring the highly significant ecosystem-level consequences of intake operations.
57. The proposed project will involve the intake of enormous amounts of seawater from Saldanha Bay to cool the Powership’s Steam Turbine Generator. In fact, the FEIR estimates that the ship will continuously intake seawater at a rate of 6.61 m³/s, or 6,610 litres per second.⁹¹ This means that roughly 400 million litres of seawater will be circulated through the Powership *per day*. As acknowledged by the FEIR, seawater abstraction harms local marine life in a variety of ways. Nearby organisms, including juvenile fish, sharks, and cetaceans, can be caught in the current created by the Powership’s intake and trapped (impinged) against the screens used to prevent debris from entering the pipes.⁹² Additionally, organisms that are small enough to pass through the debris screens (such as juvenile fish and plankton) will enter the pumps and be exposed to changes in pressure, biofouling agents, mechanical buffeting, and rapid changes in temperature. Studies have found that only a small fraction of entrained organisms survive.⁹³
58. The powership is located in an area where the entrainment and impingement of wildlife is very likely. Saldanha Bay is a “highly productive system” which provides “important

⁹⁰ Fournet Report, p. 13.

⁹¹ FEIR at p. 43

⁹² See Appendix B4 at Section 4.4.2

⁹³ Appendix B4 at p. 57

nursery habitat for many species ... that are essential to ecosystem functioning and integrity.”⁹⁴ The Marine Ecology Report notes that there will be “*potentially harmful impacts to marine ecology due to the volume and speed of intake.*”⁹⁵ In fact, the Marine Ecology Report concludes that “[p]redicted impacts are rated as High significance before mitigation and remain High following mitigation.”⁹⁶

59. However, the FEIR subsequently reduces these impact ratings to “Medium” and “Medium-Low” significance.⁹⁷ This downgrading of significance is justified by unsupported statements that impacts will “*be temporary as plankton biomass recovers quickly,*” “*will be reversed once the project infrastructure is removed,*” and would not result in “*irreplaceable loss of marine fauna and flora.*”⁹⁸ These conclusions are based on a flawed analysis and fail to consider the permanent, ecosystem-level consequences that will likely result from the project’s impingement and entrainment of marine wildlife.
60. For one, the FEIR likely underestimates the impacts of seawater abstraction by adopting an inaccurate intake flow velocity of 0.06 m/s⁻¹. As detailed in the expert report by Mr. Tonin, an environmental consultant and former oyster farmer in Saldanha Bay, and attached as **Annexure D**.

*“There is no information provided on where in the intake this velocity is measured ... The statement in the MER that the current velocity will be 0.06 m/s⁻¹ only has any meaning if it is measured at the point of impingement (i.e. against the filter screen). No information is provided about the actual size and configuration and fineness of the screens, or where the measurement is taken, hence it is not possible to assess either the accuracy of the statement or its meaning.”*⁹⁹

61. Additionally, it is wrong for the FEIR to assume that impacts from reduced plankton biomass will only be “temporary.” Changes in plankton abundance can have cascading effects throughout the food web, impacting fish populations that depend on plankton as a food source. While plankton have a relatively quick generation time, this is not

⁹⁴ Appendix B4 at p. 58

⁹⁵ Appendix B4 at p. 59

⁹⁶ Appendix B4 at p. 59

⁹⁷ FEIR at p. 273

⁹⁸ Appendix B4 at p. 59

⁹⁹ Tonin Expert Report at 13-14.

enough to compensate for the amount of plankton killed through the entrainment of 400 million litres on a daily basis, even if mortality is not 100%. Even assuming perfect conditions of light saturation and nutrient availability, generation times for plankton are roughly one day.¹⁰⁰ Since project specifications only allow for a 7.5 hour gap per day when the generators are not running, the Powership will kill plankton far faster than they can regenerate.

62. The FEIR's marine ecology report discounts the consequences of plankton mortality by claiming that plankton *"carcasses are also returned where they may be consumed or decomposed so the biological material is not lost to the system, [and so] it is anticipated that the volumes of plankton entrained will not affect broader ecosystem functioning."*¹⁰¹ However, dead plankton is not ecologically the same as living plankton. For one, it is well known that dead plankton sink while live plankton float,¹⁰² and thus plankton carcasses are not necessarily available to pelagic organisms as a food source. Additionally, plankton (especially phytoplankton) impact locally-available dissolved oxygen and nutrient levels through photosynthesis and decomposition. Live phytoplankton produce oxygen and support primary productivity through photosynthesis, while dead phytoplankton absorb oxygen through decomposition and contribute to the formation of deoxygenated "dead zones."¹⁰³ These potentially significant ecosystem impacts are ignored by the FEIR.
63. The FEIR also fails to explain how "deleterious effects" from the entrainment and impingement of fish, sharks, and other organisms will result in *"little impact on natural processes."*¹⁰⁴ These effects are concerning, since any fish or fish eggs that are entrained or impinged by the powership will reduce recruitment, with multigenerational impacts on local fish stocks. As described by Mr. Tonin:

"The equipment and technology of the seawater system is designed to eliminate blockage of the system by larger objects and organisms and prevent colonization of the

¹⁰⁰ Edward A. Laws, *Evaluation of In Situ Phytoplankton Growth Rates: A Synthesis of Data from Varied Approaches*, 5 ANNUAL REVIEW OF MARINE SCIENCE 247 (2013)

¹⁰¹ Appendix B4 at p. 58

¹⁰² Theodore J. Smayda, *Normal and accelerated sinking of phytoplankton in the sea*, 11 MARINE GEOLOGY 105 (1971)

¹⁰³ See Cheryl Lyn Dybas, *Dead Zones Spreading in World Oceans*, 55 BIOSCIENCE 552 (2005)

¹⁰⁴ Appendix B4 at p. 59; FEIR at p. 358.

system by marine organisms. This means that many, if not most, organisms impinged or entrained by the intake system do not survive. Although the MER vaguely discusses what might happen to different organisms drawn into the intakes, there is no quantitative impact assessment of most or all organisms in a 23,820m³h⁻¹ stream of water being killed on a continuous basis.... An apt environmental analogy to the failure of the MER's assessment in this regard would be issuing quotas for a particular species of fish without any stock assessment or sustainable yield assessment having been done, simply because it is known that this is a species capable of reproduction.”¹⁰⁵

64. Entrainment and impingement of juvenile fish and/or fish eggs is very likely, since *“Saldanha Bay and especially the nearshore shallow waters, is an essential nursery habitat for the juveniles of many fish species.”¹⁰⁶* For example, the impacts on the local population of the commercially important white stumpnose are at best uncertain, and at worst, catastrophic. As the Marine Ecology Report acknowledges, *“[g]iven the current population and low levels of white stumpnose recruitment within Saldanha Bay, efforts should be made to reduce impacts on juvenile white stumpnose. The extent to which juvenile white stumpnose inhabit the area of the proposed Powership needs to be established.”¹⁰⁷* South African law requires that these uncertain and potentially highly significant impacts are assessed *prior* to authorizing a project, and not after it is too late.
65. In conclusion, the Competent Authority issued an environmental authorisation in reliance on an unlawful FEIR and without considering the significant, permanent ecosystem impacts that will likely result from the proposed project's continuous intake of seawater. As such, the Minister should reverse the decision to issue an environmental authorisation for the proposed project.

Impacts of Thermal Pollution

66. The FEIR similarly underestimates the significant ecosystem-level consequences of the thermal pollution created by powership operations.

¹⁰⁵ Tonin Expert Report at 13-14.

¹⁰⁶ Appendix B4 at p. 87.

¹⁰⁷ Appendix B4 at p. 87.

67. Powership operations will “*involve the continuous discharge of [hot] cooling water into the sea*” at a rate of 6.61 m³/s, or 23,796,000 litres per hour.¹⁰⁸ As noted by the Marine Ecology Report, this “*discharge of warmed cooling water to the surrounding water body causes temperature changes which generate chronic level effects on biota[, including] alterations in growth, metabolism, respiration patterns and reproduction, and/or influence ecosystem-level processes such as alterations of the amount of oxygen dissolved in seawater, which can be detrimental to marine life.*”¹⁰⁹ The discharge of hot water into marine environments can be so harmful to marine wildlife that South Africa has enacted strict regulations for thermal discharges in sensitive marine environments, such as Saldanha.¹¹⁰ However, the FEIR fails to disclose the likely toxic nature of these discharges, adopts an outdated threshold for marine impacts from these discharges, admits that this under-protective threshold will be *exceeded*, and concludes that the project will nevertheless result in “[*n*]*o irreplaceable loss of marine fauna or flora*” because somehow “*natural functions should remain unaltered.*”¹¹¹ As discussed below, this assessment of thermal impacts is fundamentally flawed.
68. First, the FEIR does not disclose the potentially toxic impacts from the processes that it will use to prevent biofouling of its intake pipes. Any operation that involves the intake of seawater must deal with biofouling, or the clogging of pipes from the attachment and growth of marine organisms such as algae, barnacles, and bivalves. Current practices for preventing biofouling involve the use of toxic compounds that can have a cumulatively significant impact on local fisheries and mariculture operations. The FEIR does not contain any assessment of the potential impacts from its anti-biofouling methods. As detailed by Mr. Tonin:

“Biofouling rates in Saldanha Bay are extremely high and biofouling is not limited to a particular season or time of the year. The insides of fixed seawater pipes are extremely difficult to clean, and the restriction of water flow and loss of cooling capacity due to growth of such organisms in the pipes can be catastrophic to the vessel. ... [The proposed Powership’s] seawater systems are kept free of fouling using both ultrasound

¹⁰⁸ Appendix B4 at p. 61

¹⁰⁹ Appendix B4 at p. 62

¹¹⁰ Appendix B4 at p. 63

¹¹¹ FEIR at p. 273

and impressed current systems ... [t]he discharge water from such cooling systems [] is contaminated to some degree with copper. ... Given the possibility (in the absence of any verifiable data in the FEIR) that the seawater cooling system discharge from the Karpowership may well contain copper far in excess of the allowable limits, and in volume[s which] represent the equivalent impact of no less than a ten-fold increase in total shipping activity in Saldanha Bay, the failure of the EIA process to identify and analyse this risk constitutes a fundamental flaw in the study.”¹¹²

69. Thermal discharges may also include harmful levels of overly salty water, or “brine.” As explained by Mr. Tonin:

“The MER states (p4) that ‘Total brine discharge is less than 1% of total sea water outlet hence brine outlet is neglected and assumed Zero.’ This assumption is based on information supplied by the client as presented in the WBA. However, the WBA presents system information showing the presence of seven freshwater generators which collectively receive $840\text{m}^3\text{h}^{-1}$, yet only produce $14,6\text{m}^3\text{h}^{-1}$. This would indicate either that the freshwater generators are extremely inefficient, or that the data presented are incorrect. The latter possibility is supported by information available on Karadeniz Holdings’ own websites and brochures, which claim that their powerships can generate up to 10,000 cubic metres of fresh water per day, or $416.7\text{ m}^3\text{h}^{-1}$. This volume of freshwater generation would generate a brine volume which may pose significant environmental risks which are not considered in the MER.

The inconsistencies and improbabilities of information on fresh water and brine generation in the WBA have either not been detected or have been disregarded by the authors of the MER and FEIR. Whilst it may be possible that a vessel with large fresh water and hence brine generation capacity has been designated for the project without any intention of making use of the capacity, this would be counterintuitive and again is not spelled out anywhere in the FEIR required as a condition of approval by the competent authority.”¹¹³

¹¹² Tonin Expert Report at 5-8.

¹¹³ Tonin Expert Report

70. Additionally, the FEIR's analysis of thermal impacts is based on an outdated threshold for marine discharges issued by the Department of Water Affairs ("DWA") and Department of Environmental Affairs ("DEA"). According to this threshold, temperature deviations from ambient conditions due to discharges may not exceed 1°C beyond the "initial mixing zone," which the FEIR describes as 100 m from the Powership. The FEIR's Marine Ecology Report notes that it was aware of guidelines published by the DEA in 2018, and even more recent guidelines were published in 2022. However, the FEIR ignored these latest guidelines because they "have not been formally gazetted," and instead relied on water quality guidelines set by the DWA in 1995.¹¹⁴ According to DFFE, the 1995 Water Quality Guidelines adopted by the FEIR are outdated, not in line with best practice, and not sufficiently protective of the marine environment. Specifically, the 2022 Guidelines state that the 1995 Guidelines' "[s]pecifications for temperature [are] not in line with current international practice inasmuch as these are expressed as fixed ranges ... [and] a range above or below average ambient condition is likely to be meaningless."¹¹⁵ The 1995 Guidelines are inadequate for assessing the likely marine impacts of powership operations. The FEIR should have adopted "the site-specific" approach as DFFE recommends, in which "guideline values must be derived from a reference system (data set) that is appropriate to the discharge locality and should be determined as the range defined by the 20th and 80th %iles of the seasonal distribution ... for the reference system."¹¹⁶ It was unreasonable for the Competent Authority to authorize a project which fails to abide by the Ministry's own recommended water quality guidelines.
71. Incredibly, the project will exceed even the outdated and under-protective 1995 water quality threshold.¹¹⁷ The FEIR's thermal report found that "the thermal plume exceeds the recommended guideline by 0.1°C."¹¹⁸ Though this finding was relied on by the Marine Ecology Report, the thermal report's modeling results suggest even greater impacts that conflict with the FEIR's conclusions. In particular, Figures 5-1 and 5-2 show water temperatures increasing by at least 1°C as far as 300 m away from the Powership.

¹¹⁴ Appendix B4 at p. 63.

¹¹⁵ 2022 Water Quality Guidelines at p. 18.

¹¹⁶ *Id.*

¹¹⁷ FEIR at p. 273.

¹¹⁸ Appendix 10 Thermal Report at p. 34.

Because the Marine Ecology Report assumed that temperatures would not increase significantly outside of the 100 m mixing zone,¹¹⁹ the true ecological impacts of the project's thermal discharges were never analysed.

72. Additionally, the Marine Ecology Report dismisses the significance of the project's thermal impacts by arguing that temperature shifts will not exceed biological thresholds, benthic organisms will not be impacted, impacts will only last the duration of the project, and no ecologically sensitive habitats are within the impact area.¹²⁰ As explained, each of these claims is unfounded.
73. Regarding the claim that biological thresholds will not be exceeded, the FEIR relies on studies from the 1960s and 1990s. These studies present the "*upper limit[s] of thermal tolerance*" and "*lethal temperatures*" for species,¹²¹ and do not account for sublethal harms. These studies are also based on species found in completely different ecosystems: Heinle (1969) studied copepods in the U.S. Chesapeake Bay, and Bamber (1990) and the British Energy Estuarine and Marine Studies (BEEMS) framework focused on species found in British waters. Given the unique and ecologically important species found in Saldanha Bay, the Marine Ecology Report should have assessed thermal impacts on *local* wildlife based on the best available science before concluding that no impacts are anticipated.
74. Regarding the claim that benthic ecosystems will not be harmed, the FEIR concludes that benthic organisms will not be impacted because the thermal plume will "float" to the surface. However, the Powership will be located in waters only 8-10 m deep,¹²² and water will be discharged at a depth of 8 meters. Mr. Tonin explains that after factoring in the width of the discharge pipes and available depth data, thermal discharges will likely occur at the seafloor and may even require significant dredging to accommodate the vessel's height. Specifically,

"A vessel with a draft of not less than 8.6 metres cannot moor in a site of less than nine metres in the calmest of waters, let alone in the heavy swells experienced in Saldanha Bay. Yet beyond

¹¹⁹ Appendix B4 at p. 68

¹²⁰ Appendix B4 at Section 4.4.3.3; *Id.* at p. 68

¹²¹ Appendix B4 at p. 64

¹²² Appendix B1 (Baseline Underwater Noise Assessment) at p. 13

the lack of the most essential clearance at this site, there are factors which would have to be considered beyond the normal elements of a safe UKC clearance. The only in-water hull cleaning company currently operating in Saldanha Bay (Envirohull (Pty) Ltd) has indicated that a minimum of two metres clear between the bottom of the vessel and the seabed is required for the operation of their equipment, along with a safety margin which considers vessel movements. It is therefore evident that it will not be possible to accommodate a vessel capable of complying with the discharge conditions of approval even if the operator claimed that the true draft is sufficiently shallow for safe permanent mooring at the approved site. Dredging has not been considered or applied for or authorized in this entire process and given that it will not be possible to implement the approved project at the approved site without dredging, it must be concluded that the authorization should never have been granted and accordingly should be rescinded.”¹²³

75. Therefore, warm water will be discharged from the vessel either at or directly above the floor of the Bay, where impacts on benthic organisms are very likely. Additionally, numerous studies have found that thermal discharges from power plants can have significant impacts on benthic biodiversity, even where warm water is discharged meters above the seafloor.¹²⁴ For instance, Jie Lin et al. (2018) found that thermal discharges that did not significantly increase temperatures at the bottom still “*significantly affected the phytoplankton and zooplankton communities*” in the water column, which “*induced macrobenthic community succession, resulting in decreased species diversity and increased dominance.*”¹²⁵ Therefore, impacts to benthic biodiversity are likely significant and should have been analysed by the FEIR. In each of these studies, discharges would

¹²³ Tonin Expert Report at 12-13.

¹²⁴ See, e.g., Ayda Bozorgchenani et al., *Effects of thermal discharge from Neka power plant (southern Caspian Sea) on microbenthic diversity and abundance*, 75 JOURNAL OF THERMAL BIOLOGY 13 (2018) (finding decreased microbenthic diversity near thermal discharge stations in the Caspian Sea); Tatiana Pires Teixeira et al., *Effects of a nuclear power plant thermal discharge on habitat complexity and fish community structure in Ilha Grande Bay, Brazil*, 68 MARINE ENVIRONMENTAL RESEARCH 188 (2009) (finding a “significant decrease” in species richness and diversity at sites impacted by thermal discharges in Brazil); Timothy Ingleton & Andrew McMinn, *Thermal plume effects: A multi-disciplinary approach for assessing effects of thermal pollution on estuaries using benthic diatoms and satellite imagery*, 99 ESTUARINE, COASTAL AND SHELF SCIENCE 132 (2012) (finding that thermal plumes “affected benthic assemblages to greater depths ... than observed by previous studies and this is likely to have implications for estimates of estuarine productivity and nutrient cycling.”).

¹²⁵ Jie Lin et al., *Effects of the thermal discharge form an offshore power plant on plankton and microbenthic communities in subtropical China*, 131 MARINE POLLUTION BULLETIN 106 (2018).

be expected to rapidly “float” to the surface as the FEIR describes, and yet benthic environments were still significantly impacted. Therefore, the FEIR should not have dismissed impacts to benthic diversity as nonexistent.

76. Regarding the claim that impacts are only temporary, it is irrational for the FEIR to assume that the ecosystem will immediately recover after being inundated by daily thermal discharges for 20 years. Because of the project’s long duration, its daily and continuous thermal pollution has the potential to cause substantial changes to the local ecosystem, including causing species to move to avoid or seek-out higher temperatures associated with the waters surrounding the powership. Changes in the distribution and habits of organisms and shifts in the abundance of species can result in large-scale, permanent ecosystem changes. However, the FEIR never considers how species distributions and abundances will change in response to thermal pollution, nor how these impacts will reverberate throughout the ecosystem. Without this broader analysis, the FEIR cannot conclude that impacts are only temporary.
77. Finally, the FEIR’s claim that there are no ecologically sensitive habitats within the area of impact is unsupported because no baseline field surveys have been conducted for the project site. The Marine Ecology Report dismisses the need for a dedicated baseline assessment by claiming that *“the Saldanha Bay environment is well described, and dedicated field surveys to add to these data were considered unnecessary for this marine specialist study.”*¹²⁶ To the contrary, the Marine Ecology Report later notes that there is considerable uncertainty surrounding which benthic ecosystems are present at the project site, including that *“the extent of the calcrete reef in Big Bay and the benthic assemblages associated with it are not known as it is a largely unstudied habitat within Saldanha Bay,”* but that previous data from nearby locations suggests that reefs could extend to beneath the project location.¹²⁷ The FEIR and Competent Authority cannot legally conclude that calcrete reef ecosystems will not be affected without first confirming that these reefs are not present in the area impacted by the project’s thermal pollution.

¹²⁶ Appendix B4 at p. 1.

¹²⁷ Appendix B4 at p. 21-22.

78. In conclusion, the FEIR severely underestimates the likely marine impacts of thermal pollution from the powership's discharge of cooling water. As a result, the Competent Authority failed to consider all relevant impacts, relied on an unlawful record, and unreasonably authorized a project that will result in irreparable harm to the local marine ecosystem.

Failure to Abide by the Precautionary Principle

79. The Competent Authority failed to abide by the precautionary principle in issuing an environmental authorisation despite considerable uncertainty surrounding the extent of sensitive calcrete reef ecosystems in the vicinity of the proposed project. This failure to exercise caution in the face of scientific uncertainty is especially problematic given the potential for highly destructive, permanent impacts on calcrete reef habitats.
80. South African courts have held that environmental decision-makers are bound by the precautionary principle, concluding that South African law requires *"a risk averse and cautious approach' to be applied by decision-makers ... taking into account the limitation on present knowledge about the consequences of an environmental decision."*¹²⁸ This was not done here.
81. The Competent Authority was aware of considerable scientific uncertainty surrounding the extent of ecologically important and highly sensitive calcrete reefs. Calcrete reefs are unique habitats in Saldanha Bay, formed by aggregations of false corals, mussels, bryozoans, ascidians, sponges, sea cucumbers, urchins, whelks, rock lobsters and starfish that attach to the hard substrate of calcrete formations and otherwise cannot survive on the soft sediment habitats that dominate Saldanha Bay's seafloor.¹²⁹ The biodiversity found on these calcrete reef formations provides an important food source and valuable habitat for fin fish and diving birds.¹³⁰ An "extensive" platform of calcrete rock exists throughout much of Big Bay, and *"may occur in the vicinity of the proposed FSRU and gas pipeline."*¹³¹ However, the FEIR notes that no recent surveys have been

¹²⁸ *Fuel Retailers Association of Southern Africa v. Director-General: Environmental Management, Dept of Agriculture, Conservation and Environment, Mpumalanga Province*, Case Number 67/06, para 81 (Constitutional Court of South Africa) (7 June 2007).

¹²⁹ Appendix B4 at p. 21.

¹³⁰ Appendix B4 at p. 84.

¹³¹ FEIR at p. 172.

conducted of the seafloor near the proposed project, and hence “the present-day extent of the calcrete reef in Big Bay and the benthic assemblages associated with it are not known as it is a largely unstudied habitat within Saldanha Bay.”¹³² Current estimates based on historical data likely underestimate calcrete reef extent,¹³³ and the FEIR acknowledges that further surveys are needed to confirm this data.¹³⁴

82. The Competent Authority was also aware that harmful impacts to calcrete reef habitats were likely. According to the Marine Ecology Report, “installation of the [powership’s] pipeline will transform the seabed,”¹³⁵ and “[c]onstruction impacts on the reef could impact the local fisheries, and so should be avoided.”¹³⁶ The FEIR concludes that lasting damage to the benthic community and irreplaceable loss of benthic fauna are unlikely only as long as “calcrete reef habitats are avoided as far as possible.”¹³⁷ However, it is impossible to avoid what is unknown. As detailed in our previous comments on the DEIAr, data from recent aquaculture surveys in Big Bay indicate that “it will not be possible for the project pipelines to avoid traversing the reefs, and doing so to a significant extent.”¹³⁸
83. The Marine Ecology Report and FEIR both recommended (but did not mandate) that “high resolution bathymetry and side scan surveys should be conducted *before* the gas pipeline is installed to confirm that there are no important, potentially sensitive habitats along the pipeline route.”¹³⁹ As explained in our previous comments on the DEIAr, assessment of the benthic environment at the proposed project site should have been incorporated into the EIA process in order to inform its assessment of the project’s impacts.¹⁴⁰ However, the Environmental Authorisation did not include any conditions

¹³² FEIR at p. 173

¹³³ Anchor Environmental, *Saldanha Bay Sea Based Aquaculture Development Zone Specialist Environmental Monitoring: Hard Substrate Survey* (August, 2022) at p. 12

¹³⁴ FEIR at p. 173

¹³⁵ Appendix B4 at p. 54

¹³⁶ Appendix B4 at p. 84

¹³⁷ FEIR at p. 277

¹³⁸ Green Connection and Natural Justice, *Submissions to the Draft EIA Report for the Proposed Gas to Power Project at the Port of Saldanha Bay* (Dec., 2022) at para. 94

¹³⁹ Appendix B4 at p. 56

¹⁴⁰ See Green Connection and Natural Justice, *Submissions to the Draft EIA Report for the Proposed Gas to Power Project at the Port of Saldanha Bay* (Dec., 2022) at para. 95 (“The scale of the sensitivity of the marine environment and the presence of reefs I recommended for further study in the Marine expert report, in order to mitigate impacts, but this means that the impact assessment is as yet incomplete, as potential impacts have not yet been determined with any accuracy on a significant potential aspect of the project.”)

requiring benthic surveys before harmful activities commence. While the Environmental Authorisation includes a condition requiring that the *“benthic infauna ... in the area surrounding the Powership, FSRU and pipeline locations must be monitored for any signs of change that may be linked with direct, indirect or cumulative impacts associated with this project,”*¹⁴¹ this contemporaneous or post-hoc monitoring is useless without a baseline understanding of the environment to serve as a basis for comparison. The FEIR states that avoidance of calcrete reefs in laying the pipeline would reduce the construction impacts to “Low” significance.¹⁴² Yet, as noted, the EMPr and EA do not require comprehensive mapping of these reefs prior to this construction, thereby leaving open the possibility that the pipeline would damage this unique habitat. In short, the Competent Authority has allowed the project to proceed with the substantial risk that sensitive habitats will be damaged.

84. As a result, the Competent Authority issued an environmental authorisation for a project with risks that are both highly detrimental and uncertain. This decision was contrary to the precautionary principle and thus in conflict with the mandates of South African law.

Inadequate Mitigation Measures and Undervalued Significance of Impacts

85. Foremost, without meaningful analysis identifying the true impacts to the marine ecosystems, as noted throughout, the FEAIR cannot consider responsive and meaningful mitigation.
86. Just as it did with the assessment of the pipeline and mooring impacts on littoral and benthic communities, the MER, and in turn the FEIR, repeatedly reduce the significance levels of the impacts they identify based upon mitigation measures. Yet there is no assurance that these mitigation measures would either 1) be practically realizable; or 2) truly reduce the significance of the impact if they were realized, particularly where they lack specificity or trigger levels. These uncertainties mean that the significance of the project’s impacts to the marine environment are likely far understated in both

¹⁴¹ Environmental Authorisation at para. 52

¹⁴² FEIR at p. 277-278.

documents, and that the decisionmaker was relying on these inaccurate values in reaching their decision.

87. The significance of entrainment and impingement resulting from cooling water intake falls from Medium to Medium-Low in the MER based on the application of mitigation measures that have been entirely unexamined. The MER notes that Triplo4 received information from “the client” that the intake velocity would be 0.06 m/s, and thus the mitigation measure of having intake flow below 0.15 m/s is “met.”¹⁴³ The reasoning behind the 0.15 m/s threshold being applied in this specific environment, and the possibility for and impacts of the Karpowership using an intake velocity of 0.06 m/s are entirely unexamined. Thus, the study fails to consider the possibility of the primary means of reducing the significance of the impact or that mitigation measure’s effects.
88. The primary discharge water mitigation measure, requiring discharge at 8 m depth¹⁴⁴ is, as noted above and in Mr. Tonin’s report, likely a physical impossibility in the place where the boat would be moored. Even if it were possible to discharge water at this depth, the proximity of the discharge to the sea floor would result in scouring that could amount to dredging and would have significant benthic effects that are entirely ignored in the MER and FEIR. Thus, this mitigation measure would either be impossible or would have terrible and unevaluated consequences, meaning that the reducing of the thermal plume’s impact from medium-high to medium as a result of this measure is entirely incorrect.
89. The mitigation measures proposed for the acoustics are inaccurately framed as though they would reduce the significance of the underwater acoustic impacts of the project from Medium-High to Medium. In reality, all of the measures proposed are already incorporated into the assumptions of the acoustic studies, as they are legal requirements of the project stipulated elsewhere. For example, the ships are not permitted to run more than 16.5 hours a day according to their PPA,¹⁴⁵ nor produce more than 320 MW (contracted capacity) despite the ship having a 415 MW capacity.¹⁴⁶

¹⁴³ MER at 60.

¹⁴⁴ MER at 69.

¹⁴⁵ FEIR at 56.

¹⁴⁶ FIEAR at 22.

Thus, the following mitigation measures, *“The Powership shall not be operational for 24 hours a day,” “Maximum power output from the Powership should be avoided,”* and *“In the case that a marine mammal is in the near vicinity,...the Powership should not operate at maximum power output”* provide no benefits above and beyond what would have been the baseline impacts assessed in the acoustic studies.¹⁴⁷ The further requirement for the LNGC to “not move at maximum speed” when “moving in and out of the port” is also hardly a helpful measure, as no specific speeds are provided, and no vessel should ever be moving at a maximum speed within a port for safety reasons alone. These along with a requirement to monitor – without any specific trigger levels or consequences for the monitoring – are the only mitigation measures proposed to reduce the impact of the underwater acoustics, and arbitrarily lead the significance of these acoustic impacts to fall to “Medium.”

90. In addition, through arbitrarily lower rating impacts from the specialist report findings, the FEIR miscalculates the impacts of underwater noise on marine ecology during operations. This results in the environmental harms both before and after mitigation to be underestimated. If one applies the correct categories, the overall environmental significance of impacts of increased noise on the marine ecology during the operations will be rated at high – with or without mitigation. This underscores the fact that the operations of the powerships for 20 years in Saldanha Bay will have severe impacts on the marine ecosystem that have not been effectively addressed through the FEIR. Notably, even if we agreed that the mitigation itself would have lessen the harms of the project on the marine ecosystems, a proper assessment in the first instance and under the FEIR’s own system, would demonstrate that the underwater noise impacts cannot be reduced below high.
91. Specifically, the FEIR applied an erroneous rating category in calculating impacts relating to duration. Not only was the duration misapplied for noise impacts, but it was also misapplied for every other impact in the FEIR except for the cumulative impacts section.¹⁴⁸ In assessing the impacts of increased noise on the marine ecology, the FEIR

¹⁴⁷ MER at 82.

¹⁴⁸ Compare with FEIR at 289.

rates the duration impact as a “3.”¹⁴⁹ The FEIR’s own scoring indicates a “3” project should be one of a duration of “3 months to 1 year.”¹⁵⁰ This is not the case for the Karpowership project in Saldanha Bay which has a “20-year lifespan.” Therefore, and by its own scoring system, these impacts should have a duration rating of 5, which is for activities “beyond 10 years/Permanent.”¹⁵¹ This correction alone would shift the overall environmental significance rating from medium-high to high.¹⁵² Although this was the most egregious of the mistakes, this was not the only rating error in the FEIR.

92. The FEIR also incorrectly marked three other categories: 1) severity – marking it a 2 as opposed to a 3 indicating “significant/slightly harmful”; 2) spatial scale - marking it a 2 as opposed to a 3 which includes spaces “within business unit area or responsibility”, ie the port; and 3) probability of impact – marking it a 2 as opposed to a 5 which would include “daily/highly likely/definitively” probability of the underwater noise having impacts on marine ecology.¹⁵³ The collective result of these errors make the overall significance high even with the mitigation the FEIR proposes.
93. Further the mitigation measures proposed are vague and not tied to protection of biological functions of the marine species they are meant to protect. For example, the FEIR “expects” that the Powership will operate for 16.5 hours a day in order “to reduce chronic exposure of noise to marine organisms.”¹⁵⁴ Such a mitigation measure incorporates an underlying assumption that biological functions will be restored during the 7 ½ hours that the Powership will not be operating to produce power. However, this “mitigation” bears no relation to the biological needs of the marine species that utilize Saldanha Bay, in timing of the day or seasons when such a reprieve might be beneficial, or in the length of time required for marine species to recover biological functions lost during the 16 ½ hours of operations.
94. Lastly, the FEIR relies on the fact that these impacts are reversible. As noted by Dr. Fournet, the FEIR makes the statement that the chronic noise impacts generated for

¹⁴⁹ FEIR at 284

¹⁵⁰ FEIR at 200.

¹⁵¹ FEIR at 200.

¹⁵² With the corrected duration scoring, the overall consequence moves from 2.66 to 3.33, making the overall environmental significance 11.65 (3.33 x 3.5), which rates high as a score of 11 and above is high.

¹⁵³ FEIR at 200, 284.

¹⁵⁴ FEIR at 285.

16.5 hours a day for 20 years are reversible with no research to support it. Dr. Fournet notes that chronic noise impacts have been demonstrated to show multiple long-term effects, including habitat abandonment and population declines.¹⁵⁵ This concern on reversible effects is echoed by Dr. Popper who describes this suggestion of irreversibility as making “no scientific sense whatsoever.”¹⁵⁶ Dr. Popper goes on to explain that any way you slice it, fish and invertebrates are impacted. They will either move out of the area of impact as a result of the sound pressure, particle motion, and/or substrate vibration, or they will remain in the ensonified area which could have a range of effects on the animals including increased stress and changes in fecundity.¹⁵⁷

95. The mitigation measures proposed for reducing the impacts of the project on dynamic coastal processes are even more confused, as the **specialist undertook the analysis of these impacts with the powership located in a completely different location than that currently proposed.** The ship is supposed to be moored *east* of the iron ore jetty, as per all maps in the FEIR and MER (e.g., MER p. 8). Yet within the section describing dynamic coastal process impacts (Sec 4.5.1), the MER states, “With the proposed location of the Karpowership *west* of the ore jetty, within the existing inner Port of Saldanha, its proposed operation will not add to the existing and historic impact on sediment movement caused by the construction of the Port and its piers.”¹⁵⁸ (emphasis added). The MER also states, “The proposed location of the Karpowership *west* of the ore jetty within the existing and protected inner Port of Saldanha with its lack of wave action and currents, implies that any impact will be addressed as part of the Environmental Management / Climate Change mitigation planning undertaken by the Transnet Ports Authority, in respect to all shipping activities associated with the Port” (emphasis added). Thus, it seems that the **impacts of the ship in its current location on dynamic coastal processes have gone entirely unexamined,** and that mitigation measures proposed therefore are out of step with where plans currently state the ship will be moored. Thus, the decisionmaker clearly lacked the correct information on dynamic coastal processes and the impact of the project on these processes.

¹⁵⁵ Fournet at 18-19.

¹⁵⁶ Popper 2023 Expert Report at 4-5.

¹⁵⁷ Popper 2023 Expert Report at 5.

¹⁵⁸ MER at 92.

96. The significance of the impact of the project on coastal pollution is stated as falling from “High” to “Low” simply as a result of “mitigation” measures that are really only accident reporting and very basic actions that are already legal requirements, e.g. training emergency response teams and requiring that “all solid waste must be removed to an appropriate disposal facility.”¹⁵⁹ These hardly seem the type of requirements that should reduce the significance of coastal pollution from “High” to “Low.” This “Low” significance therefore understates the risk of pollution from the project, particularly considering that posed by LNG Carriers that often run on fuel oil being moored in the more unprotected part of the Bay which is experiencing increasing swells, per Mr. Tonin’s report. ¹⁶⁰
97. Moreover, baseline monitoring requirements that will inform the impacts of the project and the mitigation measures and triggers for future monitoring should have been completed as part of the EIA process, rather than included as EMPR requirements. For example, the mitigation measures for sound impacts from the project state, “*A baseline study of the ecology in the immediate vicinity of the FPP should be undertaken following a before-after-control-impact (BACI) approach. This should include an assessment of the local macrofauna and video surveys and fish sampling to understand the fish community in the nearshore region associated with the Powership.*”¹⁶¹ This study would have been a critical piece of understanding the impacts of the project, and the failure of the EIA process to include such a study is therefore a fatal flaw.

SECOND GROUND OF APPEAL: INADEQUATE CONSIDERATION OF MAJOR HAZARD INSTALLATION IMPACTS

98. The Appellants’ predominant critique of the FEIR in relation to major hazard installation impacts is that the Risk Assessment contains erroneous information and fails to consider critical risks. It therefore does not meet the requirements of NEMA and the EIA Regulations and could not have informed an adequate decision by the Chief Director as required by s24O of NEMA.

¹⁵⁹ MER at 94-95.

¹⁶⁰ Tonin Expert Report at 9-10.

¹⁶¹ MER at 82.

Major Hazard Installation Risk Assessment Contains Erroneous Information and Fails to Consider Critical Risks

99. The Major Hazard Installation Assessment (“MHI”) bases its conclusions on erroneous information and analysis, and fails to consider pertinent issues that increase the dangers of the project, thus making the project seem less hazardous than it would be.
100. These issues include: the use of incorrect wind stations to make their assessment; the misreading of the conclusions of those wind roses; the failure to consider the impacts of wave action on the installations; the failure to consider the shallow depth of the powership and pipeline; and the failure to consider interactions between the LPG and LNG facilities in the Bay.
101. In the December 2022 comments, the Appellants had highlighted that the assessment of the risks of the project as a major hazard installation is fatally flawed in that the risks of a pipe burst where the pipe traverses land is not considered. Furthermore, the potential cumulative impact of a major accident in the vicinity of large scale planned liquid storage and industrial activity areas is not assessed, notwithstanding the inherently dangerous environment of a port, and the duty to consider all potential impacts.¹⁶² These concerns have not been adequately addressed in the FEIR.
102. The December 2022 comments further highlight that the EIR had understated the significance of the risks involved.
103. The MHI mischaracterises the meteorological conditions of Saldanha Bay, stating, *“Saldanha Bay has a mild temperate climate... The wind is most often from the north-northwest (13.7% of the time), north-west (10.4% of the time), and east (3.8% of the time). The wind is least often from the east-southeast (2.5% of the time).”*¹⁶³ This is a complete misreading of its own wind rose on the following page, which shows that the dominant winds are from the southwest and that strong winds predominate.¹⁶⁴ However, this wind rose also shows the climate to be more mild than it is in fact, as it is

¹⁶² P35, December 2022 comments.

¹⁶³ MHI at 23.

¹⁶⁴ MHI at 24.

based on data from a station some 13 km inland from where the ships would be installed.

104. There is another wind station at the Saldanha Port, the Saldanha Port Control wind station, which would have been the correct station for the MHI to use for an accurate reflection of nearshore wind patterns. Figure 1 below shows a wind rose from that Port wind station that was used in a CSIR study of the marine conditions for LNG at Saldanha from 2014.¹⁶⁵ One can see from this rose that, directly contrary to the conclusion of the MHI, the wind at the port comes from due south, south-southeast and south-southwest most often and regularly exceeds 10 m/s. As Tonin notes in the expert report attached as **Annexure D**, the CSIR analysis concluded that the weather would result in “*between 50 and three days per annum*” in which LNG operations could not go forward.¹⁶⁶ This is hardly the mild picture that the MHI paints.
105. **The fact that the entire MHI assessment is grounded in entirely incorrect meteorological data from the start is worrying, particularly as that error underplays the wind, and by extension the waves, that would increase the risks of these hazardous installations.**
106. The MHI also fails to consider the depth of the project components and the hazards that these present. As noted elsewhere in this appeal, and thoroughly explained by Mr. Tonin, there will be very little, if any, space between the moored powership and the seabed.¹⁶⁷ This means that any significant wave action could lead to an unsafe circumstance in which the ship could be in danger of scraping the bottom, hitting the jetty, knocking a pipeline, or worse. The shallow depths of the pipeline also present risks that it could be knocked by other ships, releasing methane. Moreover, with wave heights in the Bay steadily increasing, as Mr. Tonin notes – some 50% over 60 years – the FSRU, the Powership, and the LNG carriers will all be at growing risks over time in

¹⁶⁵ CSIR Built Environment, *Port of Saldanha: Preliminary Assessment of the Marine Environmental Conditions for Liquefied Natural Gas (LNG) Shipment and Transfer Operations for Areas within Saldanha Bay*, (2014), p. 15, https://www.westerncape.gov.za/assets/departments/economic-development-tourism/lng_terminal_-_port_of_saldanha.pdf.

¹⁶⁶ Tonin Expert Report at 9, citing CSIR Built Environment, *Port of Saldanha: Preliminary Assessment of the Marine Environmental Conditions for Liquefied Natural Gas (LNG) Shipment and Transfer Operations for Areas within Saldanha Bay*, (2014), p. 44, https://www.westerncape.gov.za/assets/departments/economic-development-tourism/lng_terminal_-_port_of_saldanha.pdf.

¹⁶⁷ Tonin Expert Report at 11-13.

the Bay of becoming unmoored.¹⁶⁸ However, the MHI considered none of these factors that will shape the project's risks.

107. The proximity of the FSRU and LNG carrier to the Sunrise Energy LPG installation and the crossing of the gas and LPG pipelines present particular risks that have not been considered in the MHI.¹⁶⁹ While methane, lighter than air, rises rapidly if released, LPG is heavier than air and lighter than water, so would spread out atop the water in the case of a spill or accident of any kind. The proximity of several other installations and other boats could present ignition sources for this floating LPG which, if close enough to the FSRU, LNG Carrier, or even the powership, would create a catastrophic outcome.¹⁷⁰ The crossing of the LPG and LNG pipelines present similar concerns, especially given that long parts of them are in very shallow waters and could be knocked by a vessel, particularly in inclement weather. The MHI assessment fails to consider any interaction between these extremely hazardous installations and must therefore be redone if a decisionmaker is to consider the project with the correct information before them.

¹⁶⁸ Tonin Expert Report at 10.

¹⁶⁹ FEIAR at 38.

¹⁷⁰ The proximity of LPG and LNG is a serious concern at LNG export facilities, where mixed refrigerant systems rely on large quantities of propane and other gas liquids to cool the gas into a liquid form. See, for example, concerns raised in: J. Havens and J. Venart, *Expert comments regarding the Jordan Cove Export Terminal Draft Environmental Impact Statement Docket No. CP13-483*, (Jan. 14, 2015) p. 1 and 14-18, <https://valleygreenspace.files.wordpress.com/2015/10/havens-and-venart-ferc-jce-deis-comment.pdf>; Victor H Edwards, Filippo Gavelli & Jack Chosnek, *HSE Evolution in Conversion of LNG Import Terminals to Export* (2013), https://www.researchgate.net/publication/289620920_HSE_evolution_in_conversion_of_LNG_import_terminals_to_export?tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6InNjaWVudGlmaWNDb250cmliidXRpb25zIn19.

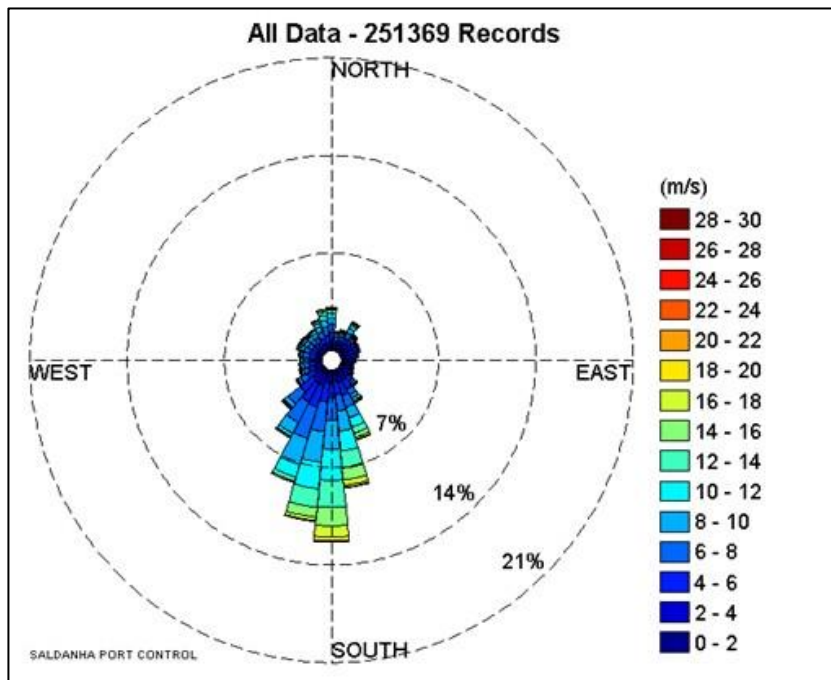


Figure 1: Nearshore wind rose from Saldanha Port Control¹⁷¹

108. Given the serious risks that LNG, gas pipelines, and gas power stations present, especially in the presence of LPG and in a place with strong wind and wave action, these gaps and errors require that the MHI be redone so that the decision-maker can understand and consider the true risks of the installation. On this basis alone, the project should not have been authorised.

THIRD GROUND OF APPEAL: INADEQUATE CONSIDERATION OF CLIMATE CHANGE IMPACTS

109. The December 2022 comments address, in sufficient detail, the significance of climate change and why climate change impacts are relevant considerations for purposes of assessing the impacts of the proposed project.¹⁷²

110. The United Nations Environment Programme ("**UNEP**") recently published its fourteenth Emissions Gap Report, 'Emissions Gap Report 2023: Broken Record' ("**UNEP Emissions Gap Report 2023**").¹⁷³ The UNEP Emissions Gap Report provides an annual, independent science-based assessment of the gap between the pledged greenhouse gas ("**GHG**")

¹⁷¹ CSIR Built Environment, *Port of Saldanha: Preliminary Assessment of the Marine Environmental Conditions for Liquefied Natural Gas (LNG) Shipment and Transfer Operations for Areas within Saldanha Bay*, (2014), p. 15, https://www.westerncape.gov.za/assets/departments/economic-development-tourism/lng_terminal_-_port_of_saldanha.pdf.

¹⁷² Pp50 – 52 of the DEIR comments, December 2022.

¹⁷³ At https://www.unep.org/interactives/emissions-gap-report/2023/#section_-1

emissions reductions and the reductions required to align with the long-term temperature goal of the Paris Agreement, as well as opportunities to bridge this gap. The UNEP Emissions Gap Report 2023 finds, *inter alia*, that:

- 110.1. global temperature rates have hit new highs, yet GHG emissions are increasing;
 - 110.2. emissions of GHGs that have higher global warming potential – such as methane – are increasing rapidly. In 2022 emissions of methane grew by 1.8%. UNEP has confirmed that global methane emissions must be reduced by 40-45 per cent by 2030 to achieve cost-effective pathways that limit global warming to 1.5°C;¹⁷⁴
 - 110.3. in order to meet a 2°C pathway under the Paris Agreement, global GHG emissions need to be cut by 28% by 2030. **For a 1.5°C pathway, emissions need to be cut by 42%;** and
 - 110.4. present pledges under the Paris Agreement commitments (assuming they are all met – which presently is not the case) put the world **on track for a 2.5-2.9°C temperature rise** above pre-industrial levels this century, pointing to the urgent need for increased climate action.
111. **South Africa's temperatures are expected to rise at twice the global average rate.**¹⁷⁵ **This means that an increase of 2.5 – 2.9 °C globally, translates to 5 – 5.8 °C of warming for South Africa.** The consequences of this would be catastrophic for the people of this country. It is common cause that the impacts of climate change go well beyond temperature increases and include increased intensified impacts such as water scarcity; extreme weather events (including floods) all with knock-on effects for food security, health, and wellbeing and safety. South Africa stands to be particularly affected by a wide range of these climate impacts including increased water scarcity and exposure to extreme weather events.¹⁷⁶

¹⁷⁴ According to the Climate and Clean Air Coalition and UNEP's 2021 'Global Methane Assessment'. At https://www.ccacoalition.org/sites/default/files/resources//2021_Global-Methane_Assessment_full_0.pdf.

¹⁷⁵ P29, SA's First Nationally Determined Contribution 2021.

¹⁷⁶ See Engelbrecht & Scholes 'Climate impacts in southern Africa during the 21st Century' at https://cer.org.za/wp-content/uploads/2021/09/Climate-impacts-in-South-Africa_Final_September_2021.FINAL_.pdf and Prof N King, 'Climate Change Implications for SA's Youth: What

112. The South African government has acknowledged that the people of South Africa are extremely vulnerable to the impacts of climate change¹⁷⁷ and has acknowledged, in its Nationally Determined Contribution under the Paris Agreement, the necessity of keeping temperature increases well below 2°C or even below 1.5°C.¹⁷⁸
113. The government accepts that climate change poses a substantial threat to the section 24 right and related constitutional rights. As a result, the government has signed and ratified international agreements committing the country to the global effort to address climate change, including the Paris Agreement.
114. Government decisions which would knowingly increase GHG emissions and exacerbate these threats arguably constitute unjustifiable limitations to constitutional rights.¹⁷⁹ This renders the need to fully assess the climate impacts of the project all the more pertinent.
115. It is against the background that the Appellants assert that the FEIR failed to adequately assess the climate impacts of the project, contrary to the requirements of Annexure 3 of the EIA Regulations, and as such the decision-making authority (the Chief Director) could not have dispensed with his legal obligations under section 240(1) of NEMA, which includes a duty to comprehensively consider climate impacts.
116. The 2017 judgment in the case of *Earthlife Africa Johannesburg v the Minister & Others*¹⁸⁰ (“**the Thabametsi case**”) confirmed that a comprehensive climate change impact assessment (“**CCIA**”) is a necessary component of an EIA for projects with climate impacts, and is required under section 240 NEMA.¹⁸¹

will basic lifestyles and services look like from 2021 onwards, through 2030, 2040, and beyond for today’s children and future generations?’, at <https://cer.org.za/wp-content/uploads/2021/09/Nick-King-Report-Final.pdf>.

¹⁷⁷ P8, Climate Change Response White Paper, 2011.

¹⁷⁸ p1, South Africa’s NDC, 2015

¹⁷⁹ S36. The Constitution of RSA, Act 104 of 1996.

¹⁸⁰ (65662/16) [2017] ZAGPPHC 58; [2017] 2 All SA 519 (GP) (8 March 2017).

¹⁸¹ In this case, the court acknowledged the need for a CCIA much broader than a mere assessment of anticipated emissions. It confirmed the need for a comprehensive assessment, which assesses, inter alia, the impacts of climate change on the project and the ways in which the project might aggravate the impacts of climate change in the area. The Pretoria High Court concluded that “[w]ithout a full assessment of the climate change impact of the project, there was no rational basis for the Chief Director to endorse these baseless assertions”.

117. Case law and the Department's own Consultation on the Intention to Publish the National Guideline for Consideration of Climate Change Implications in Applications for Environmental Authorisations, Atmospheric Emission Licences and Waste Management Licences ("**the draft CCIA Guideline**") published by the Minister for Forestry, Fisheries and Environment on 25 June 2021 (GN 559) envisage a fairly comprehensive climate impact assessment as part of an EIA process – more comprehensive than that undertaken by the project proponent. The draft CCIA Guideline states that:

"A climate change assessment done as part of an EIA involves an assessment of:
whether and to what extent, proposed development will result in the release of GHG emissions;
the impact of proposed development on ecological or built infrastructure that are important for climate change adaptation and resilience;
the projected impact of climate change on proposed development; and
*whether, and to what extent, the impacts identified in (i) – (iii) can be mitigated."*¹⁸²

118. The issues raised in the December 2022 comments have not been addressed in the revised FEIR – the CCIA included in the FEIR is dated October 2022 and therefore presumably remains the same impact assessment that was critiqued in the December 2022 comments. The Appellants stand by their initial objections as set out in the December 2022 comments, which should be read into this appeal.

119. The key respects in which the climate impact assessment is inadequate are the following:

119.1. It contains a number of material deficiencies or gaps;

119.2. A number of the CCIA conclusions are not supported by evidence and/or are based on inaccurate assumptions, rendering the CCIA as a whole inadequate;

119.3. The significance of the negative impacts is understated; and

¹⁸² Introduction, p7.

- 119.4. The climate impacts of the project would be significant - this should have weighed heavily against the granting of the EA and resulted in the EA being refused.

Material deficiencies in the CCIA, which render the assessment of climate impacts inadequate

120. In the Minister's appeal decision of August 2022 on the original EIA, she highlighted a number of deficiencies in the project's CCIA, which rendered the EIA defective.¹⁸³ These issues have not been addressed in the FEIR. They include:

120.1. that the mitigation measures for the GHG impacts were "*entirely undeveloped and inadequate*";¹⁸⁴ and

120.2. the CCIA failed to assess the full lifecycle emissions of the Karpowership projects, including "*gas production, gathering, processing, initial transport, and LNG liquefaction*".¹⁸⁵

121. The above issues have not been fully addressed in the CCIA that was included, and therefore considered, in the FEIR. The climate impact assessment therefore remains *prima facie* materially flawed and deficient, by the Minister's own stipulated requirements. On this basis alone the EA should not have been granted.

122. Further, there are a number of additional gaps in the CCIA, which have not been addressed. Together with the deficiencies initially highlighted by the Minister in the August 2022 appeal decision, the gaps in the CCIA include the following:

122.1. Inadequate mitigation measures proposed – which provide no detail on their feasibility and GHG emission reductions that could be achieved if implemented;

122.2. Failure to adequately consider lifecycle GHG emissions;

122.3. The absence of clarity on running times for the project, which materially affects the GHG emission estimations for the project;

¹⁸³ 2.61, Minister's Appeal decision of August 2022 at <https://cer.org.za/wp-content/uploads/2023/04/LSA-207023-Appeal-Decision.pdf>.

¹⁸⁴ 2.61.2.

¹⁸⁵ 2.61.1.

122.4. Failure to consider cumulative GHG emissions; and

122.5. The CCIA fails to adequately assess the risks posed by climate impacts for the project and on the project area's climate resilience and adaptation.

Inadequate mitigation measures proposed

123. The EIA Regulations define mitigation as *“to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible”*. This envisages an approach whereby a project proponent first and foremost must impose measures to prevent negative impacts. The CCIA, for the reasons set out below, does not do this.

124. The draft CCIA Guideline, under mitigation measures in CCIAs, requires, *inter alia*: *“for each identified impact, provide mitigation objectives that would result in a **measurable reduction**”* (emphasis added) and *“for each impact, recommend **practically attainable** mitigation actions that can **measurably affect the significance rating**”* (emphasis added).¹⁸⁶ Although a draft and not binding, this guideline serves as an important indicator of the expectations of the Department when it comes to setting out mitigation measures.

125. The greenhouse gas emission mitigation measures proposed in the CCIA have not improved since the 2021 DEIR (the first EIA), and the critiques raised in the December 2022 comments remain unremedied.

126. The only measure in the EMP that includes reference to climate change management is that the project should include:

“i) GHG emissions meters to ensure efficiency and safety; ii) gas leak detectors so that fuel can be immediately isolated and shut off, the leak identified, and the necessary repairs or replacements made and iii) air and water temperature monitors to ensure that potentially rising sea-surface and ambient air temperatures do not negatively impact operations and pose a safety hazard.

28. A climate change risk register should be developed and periodically updated ...

¹⁸⁶ S10, p27, draft CCIA Guideline.

Site-specific safety protocols must cross-reference relevant aspects of the climate risk register.

29. Where feasible and reasonable, consideration could be given to the purchasing of carbon credits or contribution to carbon capture and storage initiatives to offset some of the project's emissions and account for value-chain emissions/embedded carbon".¹⁸⁷

127. These are basic monitoring, control and safety measures that must be included as part of the project's operations. They are not measurable mitigation measures to reduce the day-to-day GHG emissions that will arise from the project in the ordinary course. In any event, the EMPr has not been approved.¹⁸⁸

128. The CCIA proposes three mitigation options:

128.1. The first is to reduce the duration of the power purchase agreement for the project. While this would be desirable, the CCIA notes "*this measure may affect the financial viability for the project,*" and therefore seems to write it off.¹⁸⁹ This is not a mitigation measure as such, as it gives the decision-maker and stakeholders no clarity on the extent to which it would be applied, if at all, or the GHG emission reductions to be received.

128.2. The second proposed mitigation measure is that Eskom does not dispatch the power from the ships, which again would be desirable but also unlikely if the project goes ahead.¹⁹⁰ This too, gives the decision-maker and stakeholders no clarity at all on the extent to which it would be applied, or the GHG emission reductions to be received.

128.3. Finally, the CCIA states that green hydrogen could be used in the future, but that this is not considered economically viable right now.¹⁹¹ While, again, this might be desirable, there is no evidence provided that the turbines could run on 100% green hydrogen, and the lack of economic viability currently makes

¹⁸⁷ 172, EMPr (pdf 183).

¹⁸⁸ Para 14, p12, EA.

¹⁸⁹ P53, CCIA.

¹⁹⁰ P53, CCIA.

¹⁹¹ P53, CCIA.

this unlikely to serve as a real solution – and certainly not for an extensive portion of the project’s operational lifetime.

129. All three mitigation measures proposed in the CCIA are purely speculative. None of them is measurable, or sufficiently preventative in line with the EIA Regulations and draft CCIA Guideline requirements. The CCIA simply states, *“these measures result in lower GHG emissions and therefore reducing its impact”*. But there is no provision in the CCIA – nor is there any requirement in the EA – stating that they will be implemented, if so, how and when and what reductions could be achieved. Quite the contrary in fact, as the FEIR itself admits these measures to be unlikely and makes no attempt to quantify the possible GHG emission reductions.
130. In short, the mitigation measures put forward, and relied on, in the CCIA are not mitigation measures at all. They are potential future scenarios, which – if they were to transpire – could mitigate the GHG emissions from the project by an unknowable degree. This is a far cry from specific measures to anticipate and prevent potential impacts and risks as required by NEMA and the EIA Regulations.

Failure to adequately consider full lifecycle emissions

131. The failure to assess the full lifecycle emissions of the Karpowership project, including *“gas production, gathering, processing, initial transport, and LNG liquefaction”*,¹⁹² was identified as a fatal flaw in the Minister’s August 2022 appeal decision.
132. The final CCIA included a number of upstream emission categories, including transport of gas to the port from within South Africa and the production of the gas. However, it still fails to adequately assess the upstream GHG emissions from the project because:
- 132.1. The precise assumptions behind the emissions calculations, including how fugitive methane emissions in various phases of the gas lifecycle are accounted for, are lacking in the CCIA, making it impossible to ascertain whether the specialists assessed the full scope of GHG emissions from the gas lifecycle appropriately; and

¹⁹² 2.61.1.

- 132.2. the deliberate exclusion of any GHG emissions that occur outside of South Africa is arbitrary and unjustified. These emissions are still relevant considerations for purposes of determining the extent of impacts – and certainly for assessing lifecycle emissions - of the project.
133. The CCIA notes that *“the value chain emissions for the project will be calculated and assessed, however, in the assessment of the impact of the project on climate change only the direct operational emissions will be considered.”*¹⁹³ It relies on the judgment of *South Durban Community Environmental Alliance and Another v Minister of Forestry, Fisheries and The Environment and Others*¹⁹⁴ (**“the SDCEA judgment”**) to justify the absence of an assessment of lifecycle emissions as part of the project’s climate impacts. This is incorrect for the following reasons:
- 133.1. It ignores the legal requirements set out in NEMA’s EIA Regulations, to consider cumulative impacts of activities,¹⁹⁵ which must (by definition) include consideration of reasonably foreseeable future impacts of an activity, considered together with the impact of activities associated with that activity.
- 133.2. Section 24O(1)(b)(i) of NEMA requires the assessment of all environmental impacts *likely* to be caused if an authorisation is granted.
- 133.3. The above legal requirements are not limited to impacts arising in South Africa – NEMA does not say that the obligation to consider impacts *only* applies to impacts within South Africa. Particularly in the context of climate change where the impacts of additional GHG emissions will be felt in South Africa (as set out above). If the impacts are the likely result of a listed activity under NEMA, NEMA requires the assessment of those impacts.
- 133.4. The SDCEA judgment relied on by the project proponent is subject to appeal proceedings¹⁹⁶ – which may well result in the findings in this judgment being set aside.

¹⁹³ P18, CCIA.

¹⁹⁴ (17554/2021) [2022] ZAGPPHC 741 (6 October 2022).

¹⁹⁵ Appendix 3 , section 2(c).

¹⁹⁶ <https://groundwork.org.za/leave-to-appeal-granted-in-sca-case-against-the-richard-bay-gas-power-plant/>.

134. Based on the above, the full lifecycle emissions of the project have yet to be adequately assessed, and the project proponent has misapplied and misinterpreted its legal obligations.

The absence of clarity on running times for the project, which materially affects the GHG emission estimations for the project

135. The CCIA assumes that the powerships will run for at maximum 16.5 hours per day, as per the constraints of the Risk Mitigation Independent Power Producer Procurement Programme (“**RMIPPP**”) Request for Proposals (“**RFP**”).¹⁹⁷ This is repeatedly explained to be a “*worst case scenario*”, simply because the RFP was for dispatchable power and specified that the project “*be able to operate between 05h00 and 21h30*”.¹⁹⁸
136. However, nowhere is it stated in the RFP or in the FEIR documents that the plant will *only* be allowed to run at these hours. Further, Karpowership has an incentive to run the project for the duration of the stipulated “*worst case*”, if not longer. In this regard the December 2022 comments note the following:
- 136.1. The Powership performs most efficiently when operating at full capacity.¹⁹⁹ Additionally, LNG is generally cheaper, and easier to procure, when purchased under long-term contracts that guarantee a supplier a steady customer. Thus, purchasing LNG for intermittent use is far more expensive and uncertain, meaning that there are incentives for the buyer (Karpowership) to know exactly how much they will use, and use it.²⁰⁰
- 136.2. Those familiar with energy markets know that resources can be run for more time than was originally specified in their procurement process – such as is the case with diesel “peakers” across South Africa today. It is not unreasonable to assume that the plants could be called on to run in more of a baseload capacity, in which case, the 16.5 hours a day, 450 MW limit may very well not be the worst-case emissions scenario, as the project’s running time would be far longer than this. There are indications elsewhere in the DEIR that the plants

¹⁹⁷ P48, CCIA.

¹⁹⁸ P58, CCIA.

¹⁹⁹ Richards Bay 2022 DEIA report CCIA April 2022, p. 51.

²⁰⁰ Para 120, December 2022 DEIR comments.

will run at or above the presumed “worst-case.”²⁰¹ For example, the number of LNG carriers estimated to supply the project, already assumes the plant would be running at higher capacity and/or for longer every day than the “worst-case” 450 MW, 16.5-hour days.

137. The Meridian Economics report, ‘Hot Air About Gas’, referenced in the December 2022 comments notes that *“Peaking plant fuel offtake is both variable and unpredictable and increasingly will be characterised by long periods of minimal or zero usage as renewables and battery storage provide for daily demand cycles. LNG contract norms require predictable, steady offtake fed by scheduled replenishment vessels with take-or-pay terms. Erratic usage as characterised by peaking plant needs is fundamentally incompatible with these norms, requiring LNG usage to be limited to what will definitely be needed between replenishment cycles.”*²⁰² Any assumed downward dispatching is therefore unlikely to materialise.
138. While the resolution of the Eskom power crisis and the lowered dependence on fossil fuels in South Africa would indeed be a positive outcome,²⁰³ the 20-year power purchase agreement (“PPA”) for the project, and the nature of long-term LNG contracts mean that there will be strong incentives to keep this project running more, rather than using it to dispatch occasional power at critical times as a peaker might.²⁰⁴
139. The running time for this plant is a material factor in determining the likely GHG emissions, and, evidently, the absence of clarity in this regard is a material deficiency. It is not possible to assess the full extent of potential GHG emissions from this project without this clarity and confirmations on the running time for the project.

The failure to assess cumulative GHG emissions

140. The CCIA did not assess the project’s additive contributions to anticipated GHG emissions from other fossil fuel energy projects.

²⁰¹ Paras 118 and 119, December 2022 DEIR comments.

²⁰² A. Roff et al., Hot Air About Gas, Meridian Economics, (June 2022).

²⁰³ P47, CCIA.

²⁰⁴ Para 126, December 2022 comments.

141. The draft CCIA Guideline states that a *“specialist must consider potentially significant direct, indirect and cumulative climate change impacts of a proposed development. This requires the following: Conceptualisation of possible cause-effect pathways resulting from the proposed development; an understanding of strategic context within which the proposed development is located, the current and future plans/frameworks, developments and activities in the area; and an awareness of other threats or trends that could affect the socio-economic and socio ecological systems within which the development is proposed ...”*.²⁰⁵ Again, this draft guideline serves as an important indicator of what government expects of a CCIA and is aligned with what is already required under NEMA.
142. The FEIR states that because the emissions of GHGs have no local impact and cannot be managed locally, there was no obligation to consider cumulative GHG emissions from other sources in the proximity of Saldanha Bay. On this basis the CCIA did not consider the cumulative impacts of any of the additional power plants underway or planned within proximity of Saldanha Bay, let alone elsewhere in the country.²⁰⁶
143. This mischaracterises the nature of the issue and legal obligation. This project is one of many proposed fossil fuel projects proposed for South Africa, in the context of:
- 143.1. Increasingly constrained national GHG emission space²⁰⁷ and an acknowledged priority from National Government to reduce GHG emissions in the energy sector;²⁰⁸
- 143.2. a number of oil and gas projects, proposed nationally (not just in Saldanha) which will be taking up the country’s limited emission space; and

²⁰⁵ S11, p29, draft CCIA Guideline.

²⁰⁶ P306, FEIR.

²⁰⁷ The GHG emission trajectory is set out in South Africa’s NDC 2021. In time, the national emissions trajectory and sectoral emissions targets (including for the energy sector) will be set under the Climate Change Bill, once promulgated.

²⁰⁸ See South Africa’s Just Energy Transition Investment Plan for the initial period 2023–2027 at <https://pccommissionflo.imgix.net/uploads/images/South-Africas-Just-Energy-Transition-Investment-Plan-JET-IP-2023-2027-FINAL.pdf>.

- 143.3. a number of industrial projects in the project area, which are at risk of being affected by climate change and, importantly, exacerbating the project area's resilience to climate impacts.
144. This project is one in a plethora of new and/or proposed fossil fuel projects for South Africa – some of which are already authorised. Some of these projects include:
- 144.1. Proposed new gas to power projects which have received EAs and/or applied for EAs, such as:
- 144.1.1. Karpowership's Richards Bay gas to power project (authorised);
- 144.1.2. Karpowership's Coega project (not yet authorised);
- 144.1.3. Eskom's 3000MW gas to power facility for Richards Bay (authorised);
- 144.1.4. Phinda Power 450MW gas to power plant proposed for Richards Bay (authorised);²⁰⁹
- 144.1.5. Richards Bay Gas to Power 400MW gas to power plant (authorised);²¹⁰
and
- 144.2. Gas exploration and production projects, all of which intend to supply gas to a domestic market (such as the Karpowership projects):
- 144.2.1. Total Energies EP South Africa BV. ("TEEPSA") Deep Water Orange Basin exploration well drilling authorised off the west coast of South Africa and - in proximity to the Karpowership project;
- 144.2.2. TEEPSA offshore drilling of exploration wells in Block 5/6/7 off the South West Coast authorised - also in proximity to the Karpowership project; and
- 144.2.3. TEEPSA has applied for an environmental authorisation for offshore production in Block 11B/12B off the coast of Mossel Bay to Cape St Francis.

²⁰⁹ https://www.gem.wiki/Phinda_power_plant.

²¹⁰ See [https://www.gem.wiki/Richards_Bay_Gas_to_Power_Plant_2#:~:text=Richards%20Bay%20Gas%20to%20Power%20Plant%202%20\(RB2\)%20is%20a,in%20the%20Richard's%20Bay%20Area](https://www.gem.wiki/Richards_Bay_Gas_to_Power_Plant_2#:~:text=Richards%20Bay%20Gas%20to%20Power%20Plant%202%20(RB2)%20is%20a,in%20the%20Richard's%20Bay%20Area).

145. If the GHG emissions of this project are viewed in isolation, while ignoring the wider context which indicates a much bigger build out of fossil fuels in South Africa – including the two other Karpowership projects – it is impossible to properly assess the potential climate impacts of this project.
146. A CCIA ought to consider how a development’s estimated GHG emissions will impact on South Africa’s emissions trajectory and its ability to meet its Nationally Determined Contribution under the Paris Agreement.²¹¹ To determine this, a full picture of the projected GHG emissions landscape for South Africa is required and the CCIA ought to have taken into account at least: the two other proposed (one of which is authorised) Karpowership projects; other gas to power generation projects in the pipeline; and upstream oil and gas exploration production projects.
147. The alleged “absence of local impacts” referred to in the FEIR is irrelevant and misconceived. The project’s emissions still need to be considered cumulatively, as part of a bigger picture of potential future GHG emissions – irrespective of where or how the climate impacts from these GHGs manifest – because of South Africa’s international and domestic duties to manage and reduce its GHG emissions.

The CCIA fails to adequately assess the risks posed by climate impacts for the project and on the project area’s climate resilience and adaptation

148. The Minister’s August 2022 appeal decision found fault with the proponent’s original CCIA because it was instead mainly concerned with the contribution of the proposed project’s GHG emissions towards climate change.²¹² The new CCIA, while including more information about the likely impacts of climate change in the project area and the general social context of the area, still fails to meet the Thabametsi case standard in several respects. These include the following:

- 148.1. **In terms of risks to the project:** it does not explain what the project designs include, beyond the ships being in a relatively sheltered port area. Nor does it explain how the project will manage the risks to its operations described in the CCIA. These risks include, among others, rising sea temperatures affecting the

²¹¹ P26, draft CCIA Guideline.

²¹² 2.69, Minister’s August 2022 appeal decision.

cooling mechanism of the ship, and rising sea levels combined with storm surges and more intense tropical cyclones causing severe damage and flooding to pipelines, the transmission line, and the ships themselves.²¹³ The only suggestion the CCIA poses for reducing harms from these impacts and risks is “regular maintenance of port infrastructure”,²¹⁴ yet it notes that a number of these risks to the project are high. For example, storm surges are noted as a “major risk for the entire Project, as the electricity generation depends on a continuous and reliable gas supply”.²¹⁵ Yet no measures are proposed to address, mitigate and manage these risks.

- 148.2. **The CCIA makes no attempt to consider how the project, compounded with climate impacts, could render surrounding ecosystems and communities more vulnerable to the impacts of climate change.** In other words, the risk assessment is confined solely to assessing the risks of climate impacts for the project and climate impacts in the project area and communities, but it fails to assess how these interact with one another. No consideration is given to how the project may operate as a threat multiplier, either reducing the resilience of community members to climate change, or exacerbating their challenges, that climate change is making worse. For example, small-scale fishers may already be struggling with catches because of warming waters affecting fish breeding and fitness (which the CCIA recognises as a risk for the project area²¹⁶), while the project’s noise and vibrations, thermal plumes, and impacts to estuaries may further reduce fish breeding and juvenile success. This is particularly pertinent in this context because Saldanha Bay is home to several nurseries for threatened species of fish, as well as a number of small-scale fishers who depend on fishing for their livelihoods and culture.

149. Integrating and considering the impacts of proposed activities on climate adaptation is an essential component of an EIA, as it is necessary to ensure that a projects is resilient to the impacts of climate change, and also that it is environmentally and socially

²¹³ P53 – 57, CCIA.

²¹⁴ P57, CCIA

²¹⁵ P58, CCIA.

²¹⁶ P60, CCIA.

responsible.²¹⁷ Ecosystems, communities, and infrastructure must be protected from climate-related risks – particularly where proposed projects would pose threats to their ability to adapt to, and cope with, climate impacts. These impacts also come with high costs, which are typically borne by communities – not the project developers.

150. The extent to which proposed activities in an EIA may impact upon the climate adaptation of the surrounding environment is therefore a relevant factor for consideration under section 24O(1)(b) of NEMA.
151. While the draft CCIA Guideline has not been formally adopted, it clearly demonstrates that the Department envisages a CCIA that not only considers the climate mitigation (GHG emissions) impacts of a project and impacts of climate change on a project. It also requires an assessment of how a proposed project might affect ecological and built infrastructure that is important for climate resilience and adaptation to the impacts of climate change over time.
152. In this case, the climatic adaptive capacity of the marine environment in Saldanha Bay – and the communities that depend on it - are placed at further risk by this project and the risks of harm that it poses to the surrounding environment (see the first and second grounds of appeal above). This ought to have been given thorough consideration by the project proponent and decision-maker, but was not considered.

A number of the CCIA conclusions are not supported by evidence and/or are based on inaccurate assumptions, rendering the CCIA as a whole inadequate

153. The methodologies and assumptions used in calculating the GHG emissions for the project have, in a number of instances, either not been made available or are incorrect. Thus the figures provided are unsubstantiated and cannot be verified or relied upon as credible.
154. Examples of such inaccuracies in the CCIA include the following:

²¹⁷ Mayembe, Rose, Nicholas Philip Simpson, Olivia Rumble, and Marieke Norton. 2023. "Integrating climate change in Environmental Impact Assessment: A review of requirements across 19 EIA regimes." *Science of The Total Environment* 869:161850. doi: <https://doi.org/10.1016/j.scitotenv.2023.161850>.

154.1. **Incorrect figures for the global warming potential of methane:** The CCIA uses the global warming potentials (“GWPs”) of methane from an outdated, and since replaced, 2006 Intergovernmental Panel on Climate Change (“IPCC”) report (23), rather than the most recent IPCC report, which finds that the 100-year GWP of methane is 29.8.²¹⁸ This means that the methane leakage estimates included in the CCIA are converted to CO2 equivalent (“CO2e”) at a rate lower than the latest science supports. In addition, the specialists dismiss the use of the 20-year GWP (82.5), rather than the 100-year GWP (29.8) for methane, even though the growing scientific consensus around climate tipping points suggest that a 20-year GWP is more relevant. UNEP has confirmed, in relation to methane emissions, that:

154.1.1. historically, available data on methane emissions has largely been based on generic emissions factors that peer-reviewed science has repeatedly proven, dramatically underestimate measured levels; and

154.1.2. atmospheric methane is at its highest level in recorded history, and poses serious threats to air quality and human health. It is the second biggest driver of global warming caused by human activity after carbon dioxide (“CO2”), and in the near term over 80 times more powerful than CO2. It is therefore fundamental that emissions from methane be accurately assessed.

154.2. **Absent data and assumptions that informed estimates for, *inter alia*, upstream and fugitive emissions:** As stated above, in relation to the contention that the upstream emissions of the project have not been adequately assessed, the absence of the assumptions and data allegedly relied upon to assess some of these emissions makes it impossible to verify their accuracy.

154.3. **False averments that the project would have climate benefits:** The CCIA states that the project would have climate benefits as it replaces GHG emissions from coal.²¹⁹ This is misleading and incorrectly assumes that the only electricity

²¹⁸ IPCC, AR6 - Climate Change 2021, The Physical Science Basis - Chapter 7, p. 1017, (August 2021), https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter07.pdf.

²¹⁹ P52 – 53, CCIA.

supply alternative to this project is emission-intensive coal power.²²⁰ Statements that the project would have climate benefits are simply not correct as they disregard: (1) a plethora of electricity supply and efficiency options that could supply electricity and have far fewer GHG emissions than the present project; and (2) the known and typically underestimated high GHG emissions of gas power along its lifecycle.

154.3.1. There is no assessment in the CCIA of the capability of battery, and other forms of storage, to play the role of supporting renewable capacity, other than reference to two of the hundreds of grid-stabilising battery projects in operation around the world today.²²¹ This is addressed below in the grounds of appeal addressing need and desirability (ground 4) and alternatives under (ground 5).

154.3.2. It is crucial to note that when regard is had to the full lifecycle of gas to power projects, including upstream emissions, gas is as – if not more – GHG emission-intensive than most coal power technology.²²² Statements around the alleged GHG emission benefits of gas versus coal are simply not true or correct.

155. As a result of the above, the conclusions in the CCIA are fundamentally flawed and unreliable. This would have hindered the Chief Director in dispensing with his obligations under s24O NEMA.

The significance of the GHG emissions is understated and inappropriately ranked rendering the assessment of the climate impacts inadequate

156. The EIA Regulations require an assessment of the significance of the risks.²²³ Yet, the Chief Director would have been prevented from adequately considering the significance

²²⁰ P50, CCIA.

²²¹ p52, CCIA.

²²² See Richard A Howarth Gas Lifecycle Methane Emissions: Richards Bay Review <https://naturaljustice.org/wpcontent/uploads/2021/05/FA-12-Howarth-RichardsBayReview.pdf> and A 2022 EU Briefing titled 'the Hidden Emissions from Gas-fired Power' states that "Evidence is emerging that greenhouse gas (GHG) emissions from gas-fired power are much closer to coal than previously realised." At <https://www.climatebonds.net/files/files/eu-gas-briefing-220221.pdf>.

²²³ S3(1)(h)(v) and (j)(ii), Appendix 3 to the EIA Regulations, 2014.

of the project's anticipated GHG emissions by virtue of the fact that the significance threshold and methodology in the CCIA are arbitrary, and the significance of the GHG emissions has been understated without rational basis.

157. In the project's initial DEIR of 2021 (under the first EIA) the GHG emissions had been categorised as "very high".
158. Under the second EIA process, the CCIA in the FEIR oscillates between a high and medium significance ranking for the project. This oscillation between medium, and high is in itself ambiguous and unclear. What is most arbitrary, however, is the downgrading of the significance rating for the project from very high (as it was rated under the first EIA) to medium and/or high (under this EIA). This, in circumstances where the project has not changed at all. In fact the GHG emissions under the revised CCIA would be higher than what was initially estimated in the 2021 initial DEIR.²²⁴
159. The CCIA states: *"the proposed Karpowership Project would result in approximately **1.1 million tCO₂e/annum and 22 million tCO₂e over the PPA duration** assuming that the project operates 16.5 hours per day per year. This falls **within the medium intensity** as assessed against the thresholds in section 3.1.5. The emissions from the Project would have a negative climate change impact"*²²⁵ (emphasis added).
160. The final CCIA uses an arbitrary and dangerous comparison for concluding that emissions will not be very high – that of a coal-fired power plant:

*"The emissions over the 20-year lifetime of the project are comparable to 2 years of running a new coal fired power station which the upper threshold is based on. This supports the paragraph above that natural gas can be used as a transitional technology to move away from reliance on coal. If **the operational emissions of the Project are analysed for just a 5-year period, the emissions total 5.5 million tCO₂e which remains in the high category but below the emissions from operating a coal fired power station** for a year. This can be considered a positive impact allowing for economic growth while reducing the reliance on coal fired power stations. When*

²²⁴ In the original EIR, the specialists developing the CCIA calculated that the project would emit 656,710 tCO₂e annually, in contrast to the 1,1 million tCO₂e calculated in the new CCIA.

²²⁵ P49, CCIA.

considering all impacts related to the Project, it can be considered to have a low positive impact. Despite having a high intensity impact from operational emissions, the project enables significant reductions through avoided emissions and enabled renewables. Furthermore, it allows for economic development to occur by providing dispatchable power onto the grid which is critical for the economy.”²²⁶

161. It is not disputed that the GHG emissions of a new coal-fired power plant are, and should be, categorised as very high. But this does not mean that any emissions lower than this would not be “very high”. Emissions totalling approximately **1.1 million tCO₂e/annum and 22 million tCO₂e over the PPA duration are, objectively speaking, very high for a single project.** Compare this to total annual GHG emission for some countries. For example, Namibia emitted 4.013 MtCO₂e in 2020.²²⁷ If this “very high” threshold were to be accepted, it would also mean that a number of new coal-fired power plants in South Africa would not be categorised as very high (as the emissions metric for a coal plant relied on here is higher and larger than many in South Africa).²²⁸ This cannot be correct.
162. Notably also, in the SEIA specialist study in Annexure 9 to the FEIR, Table 8-2 which compares GHG emissions and other parameters of conventional generation versus alternative energy generation technologies – shows Karpowership having the highest GHG emissions (higher than the coal plant comparison) at 508.5 grams of carbon dioxide equivalent per kilowatt-hour.²²⁹
163. The original CCIA had acknowledged that the project emissions would be very high, even though it had calculated fewer GHG emissions than currently calculated under the CCIA. The conclusion therefore must be, as stated in the December 2022 comments, that the

²²⁶ P50, CCIA.

²²⁷ See European Commission’s 2021 Report, GHG emissions of all world countries at https://edgar.jrc.ec.europa.eu/booklet/GHG_emissions_of_all_world_countries_booklet_2021report.pdf.

²²⁸ The 15 0000 Mt per annum in the table on p27 would be significantly more than the proposed Thabametsi plant would have emitted annually (9.9 Mt) and its emissions were ranked as high, and in a peer review, as very high. See <https://cer.org.za/wp-content/uploads/2016/07/Thabametsi-Final-Summary-Report-Jun17.pdf> and <https://cer.org.za/wp-content/uploads/2018/01/Final-Peer-Review-Thabametsi-Power-Station-CCIA-14-Dec-2017.pdf>.

²²⁹ P407, SEIA, Annexure 9 to the FEIR.

specialist, without adequate justification has moved the goalpost to offer an advantage for its climate change assessment.²³⁰

164. The CCIA refers to nebulous and misleading claims that the project would have a climate benefit in avoiding emissions from the coal fleet in the national grid. As stated above, this is a false comparison as it presumes a binary and inaccurate reality in which South Africa only has this project and coal power to choose from to meet its electricity requirements. This is, in fact, not the case and the project proponent has not provided any evidence to show that coal specifically would take up this capacity for the duration of the 20 year PPA if this project does not go ahead. Nor has it shown that cleaner renewable energy options would not take up the capacity space if Karpowership did not proceed.
165. Based on the above, the significance rating(s) allocated to the project emissions are disputed as they are clearly understated, and the allegations made around the project's GHG emissions, misleading.
166. In short, the CCIA in the FEIR does not provide a full description of the process followed to reach the proposed development footprint within the approved site, nor does it adequately address the significance of the impacts and risks as required in the EIA Regulations.

The high climate impacts of the project should have weighed heavily against the granting of the authorisation

167. The South African government has international obligations to reduce GHG emissions under the Paris Agreement, and, as stated above, it also has domestic responsibilities to manage and reduce GHG emissions by virtue of its duties to uphold and protect the rights in the Bill of Rights – a number of which are threatened by domestic climate impacts.
168. The project will emit 22 million tons of CO₂e over its lifetime if it runs at 100% of the contracted capacity. This is a significant amount and is equivalent to about 0.33% of what Climate Action Tracker considers to be South Africa's fair share annual emissions

²³⁰ P54, December 2022 comments.

rate of 347.78 MTCO₂e by 2030,²³¹ and around 0.3% of South Africa's latest 2030 NDC target (insufficient for achieving 1.5° C). What this means is that this project alone would take up a substantial portion of limited GHG emission space that ought to be allocated to sectors that are harder and costlier to abate.

169. As stated above, it is also not possible to verify that the stipulated GHG emission figures are accurate because the assumptions and methodologies used in making this calculation are not detailed enough. It may be – based on inaccurate assumptions on the running time for the project - that the potential GHG emissions would in fact be much higher than anticipated in the CCIA.
170. The question must be asked, how significant must negative impacts be to justify a refusal of the EA? It stands to reason that a finding of unmitigable high emissions – with consequent irreversible harms for people and the ecosystems, should give serious cause for reconsideration and refusal of an EA – particularly if the principles in section 2 of NEMA are applied in the decision-making process (as they are required to be). In this case *“a risk-averse and cautious approach”* as set out in section 2(2)(2)(vii) NEMA would have warranted a refusal of the project's authorisation.
171. As stated above, the government of South Africa has acknowledged that its people are extremely vulnerable to the impacts of climate change. Authorising a project which would knowingly cause excessive GHG emissions, and therefore contribute to resultant climate harms, potentially unjustifiably limits a number of fundamental Constitutional rights,²³² particularly as (1) less harmful electricity supply options which do not impose the same level of climate and other harms, could be available (as addressed in more detail below under the section dealing with alternatives); and (2) no evidence has been provided to show that, and if so, how, GHG emissions from the project would be mitigated.

²³¹ See Climate Action Tracker's Effort Sharing Data, at https://climateactiontracker.org/documents/995/202210_CAT_AssessmentData_ZAF.xlsx/.

²³² This includes the section 24 environmental right but also rights to equality (section 9); rights of children (section 28); and of access to food and water (section 27) for example.

172. The project's high GHG emissions and the existence of electricity supply technologies that do not have such high GHG emissions and consequent climate harms, should have weighed heavily against the approval of this project.

FOURTH GROUND OF APPEAL: INADEQUATE CONSIDERATION OF NEED AND DESIRABILITY

173. The EIA Regulations, require an assessment of the need and desirability of the proposed activity²³³ and a competent authority, in considering an application for an environmental authorisation, must have regard to the need and desirability of the undertaking of the proposed activity.

174. The Department's Guideline on Need and Desirability in terms of the Environmental Impact Assessment Regulations²³⁴ ("**the Need and Desirability Guideline**") states that:

174.1. The consideration of need and desirability in EIA decision-making "*requires the consideration of the **strategic context of the development proposal along with the broader societal needs and the public interest. The government decision-makers, together with the environmental assessment practitioners and planners, are therefore accountable to the public and must serve their social, economic and ecological needs equitably. Ultimately development must not exceed ecological limits in order to secure ecological integrity, while the proposed actions of individuals must be measured against the short-term and long-term public interest in order to promote justifiable social and economic development***" (emphasis added),²³⁵ and

174.2. "*in South Africa all development must in terms of Section 24 of the Constitution be ecologically sustainable, while economic and social development must be justifiable. There are therefore specific "trade-off" rules that apply. **Environmental integrity may never be compromised and the social and economic development must take a certain form and meet certain specific objectives in order for it to be considered justifiable.***"²³⁶

²³³ S2, Appendix 3, EIA Regulations, 2014.

²³⁴ GN 891 of 24 October 2014 (GG 38108).

²³⁵ S3, p16, Need and Desirability Guideline.

²³⁶ S5, p24, Need and Desirability Guideline.

175. In her August 2022 appeal decision on this Karpowership project, the Minister stated that: “[w]hile another government department may decide the ‘need and desirability’ of a project from their planning perspective,” “proposed activities are to be considered needed and desired from an EIA perspective, in particular, whether that option provides the most benefit, and causes the least damage to the environment as a whole, at a cost acceptable to society, in the long-term as well as in the short-term.”²³⁷
176. In denying the project’s environmental authorisation, the Minister found that the potential environmental harms of the project were too high, no matter how important the project claimed to be for alleviating the energy crisis. The Minister stated: “*The alleviation of the current energy crisis may be vital, but this does not mean that it must be achieved by this specific project, nor does it follow that there is now a license to ignore all relevant environmental considerations.*”²³⁸
177. The Minister also listed a litany of environmental harms from the powership project to justify her decision, including an increase in greenhouse gas emissions, harm to marine organisms from underwater noise, threats to the highly sensitive estuarine habitats and organisms, including mangroves, and many more.
178. As stated in the December 2022 comments, **none of these harms have disappeared just because the applicant has prepared an updated environmental assessment. In fact, the project is exactly the same.** Although the updated DEIR had added more text to justify the powership’s need and desirability, including various reports discussing the shortcomings of renewable energy and the benefits of gas to meet the energy crisis, these updates (in addition to being contested) do not address the core of the Minister’s concerns that the environmental and social harms of the project are just too high.²³⁹
179. The Minister has also not sought to set aside her appeal decision. It therefore stands, and serves as *prima facie* evidence that the project does not meet the need and desirability criteria as set out in NEMA and as such should not have been authorised.

²³⁷ Karpowership Saldanha Bay Appeal Decision at para. 2.18.

²³⁸ Appeal Decision at para. 2.22.

²³⁹ Para 146, December 2022 comments.

180. The FEIR, in short, says that this project is necessary and desirable on the following bases. We provide short responses next to each justification provided, and then address some of these issues in more detail below:

180.1. The electricity capacity from the proposed project is needed in the context of South Africa's electricity crisis – the project can be deployed immediately, and *“can reach commercial operation in 12 months, given the infrastructural requirements on the landside”*.²⁴⁰ It is not disputed that electricity capacity is needed in South Africa, only that this particular project is not the solution to South Africa's capacity constraints, particularly as it is mired in legal challenges, which will affect its ability to be “deployed immediately”.

180.2. *“The Karpowership Project will create thousands of new jobs over the construction and operational phases of the Project. During the operational phase Karpowership will also contribute to skills and capacity development which will benefit locals and that contribute to South Africa's just transition”*.²⁴¹ Any alleged job benefits should be weighed against negative impacts on employment and livelihoods of those employed in, for example, the small-scale fishing sector. This is addressed further below, under the ground of appeal addressing the inadequate assessment of socio-economic impacts.

180.3. *“The Karpowership Project will produce less than half the GHG emissions, and a fraction of the particulate emissions to that of coal. It is therefore expected to directly result in more emissions avoided (from coal-fired plants)”*.²⁴² This is untrue firstly because no evidence has been provided to suggest that the coming online of this project would correlate directly with the decommissioning of existing coal plants. In fact Eskom plans to extend the lives of a number of its coal plants.²⁴³ The majority of Eskom's coal fleet will likely continue operating in the near-term whether this project comes into operation

²⁴⁰ P398, FEIR.

²⁴¹ P399, FEIR.

²⁴² P399, FEIR.

²⁴³ See Eskom Just Energy Transition Project at

<https://documents1.worldbank.org/curated/en/099710010022235233/P1773980754558060a5e20db9f5d3244c.docx> and <https://www.engineeringnews.co.za/article/eskom-to-extend-deadline-for-decommissioning-stations-2023-10-05>.

or not. In addition, it is fundamentally incorrect that the emissions of this project – which has very high GHG emissions - would be half of those of a coal plant.²⁴⁴ It is also a misleading comparison to assume that this project would be the only suitable alternative to displace coal (it is not). Claims that the use of gas has negligible climate impacts and is consistent with the goals of the Paris Agreement to limit global warming to under 1.5 degrees are simply not correct. We have already stated above that gas power is as, if not more, GHG-emission intensive than coal when viewed along the value chain.²⁴⁵ The high lifecycle GHG emissions for this project are a case in point.²⁴⁶

180.4. *“Development of a gas industry in South Africa is already underway, and will continue, and thus the skills, supply, and enterprise development undertaken by Karpowership will further contribute to establishing a more efficient and viable domestic industry. This will ultimately lead to increased job creation activities”*²⁴⁷ and *“Karpowership SA has committed to invest at least R18 billion directly into local economies”*.²⁴⁸ The cost to the economy of this project would far outweigh this investment figure.²⁴⁹ There is much, and increasing, recent evidence to suggest that gas should not form part of the development trajectory for South Africa – and certainly not at large scale. The Presidential Climate Commission has warned against this.²⁵⁰ Anwar et al note that expanding the gas sector carries risks for South Africa, including the possibility

²⁴⁴ See for example, <https://www.climatebonds.net/files/files/eu-gas-briefing-220221.pdf>.

²⁴⁵ See Richard A Howarth Gas Lifecycle Methane Emissions: Richards Bay Review <https://naturaljustice.org/wpcontent/uploads/2021/05/FA-12-Howarth-RichardsBayReview.pdf> and A 2022 EU Briefing titled ‘the Hidden Emissions from Gas-fired Power’ states that “Evidence is emerging that greenhouse gas (GHG) emissions from gas-fired power are much closer to coal than previously realised.” At <https://www.climatebonds.net/files/files/eu-gas-briefing-220221.pdf>.

²⁴⁶ The SEIA specialist study in Annexure 9 to the FEIR, Table 8-2 compares GHG emissions and other parameters of conventional generation versus alternative energy generation technologies. It shows Karpowership having the highest GHG emissions (higher than the coal plant comparison) at 508.5 grams of carbon dioxide equivalent per kilowatt-hour.

²⁴⁷ P399, FEIR.

²⁴⁸ Ibid.

²⁴⁹ See above: Karpowership is estimated to cost South Africa between R200 and 500 billion. See <https://mybroadband.co.za/news/energy/491991-karpowerships-could-cost-south-africa-half-a-trillion-rand.html>; <https://www.biznews.com/interviews/2023/05/23/karpowership-deal-cost-r200-billion-mileham>; and <https://www.news24.com/fin24/economy/karpowership-sa-how-much-again-20210709>.

²⁵⁰ See <https://www.climatecommission.org.za/publications/recommendations-from-the-pcc-on-south-africas-electricity-system>. None of the models relied on build new coal or nuclear or have gas at high utilisations.

of new investments in gas-related infrastructure becoming stranded once global markets stabilise and stricter decarbonisation measures are implemented.²⁵¹

- 180.5. The FEIR deliberately puts forward false and misguided narratives that renewable energy is substantially more costly than gas from the powerships, that renewable energy cannot meet the energy demands of the grid. This is not true or correct and we refer in this regard to the fifth ground of appeal dealing with the inadequate consideration of alternatives.
181. The Appellants dispute the above claims as false and fundamentally flawed. They cannot support any assessment of the need and desirability of this project.
182. In the December 2022 comments it has been clearly set out why and how this project is neither necessary nor desirable, and as such does not meet the requirements for need and desirability in NEMA and the EIA Regulations. The Appellants stand by those objections, which should be read into this appeal.
183. We herein reiterate that the project does not meet the requirements of need and desirability because, *inter alia*:
- 183.1. The negative impacts of the project (for the environment and climate, and its high costs) outweigh any alleged benefits, making this project neither necessary nor desirable;
- 183.2. It is not necessary because less harmful and less costly alternatives are available; and
- 183.3. There are a number of additional risks associated with the project that render it undesirable, including: the risks of lock-in to a 20-year PPA; the risk of Karpowership displacing grid capacity needed for cheaper and cleaner renewable energy; and the alarming track record and evidence of harm caused by Karpowership in other countries where it operates.

²⁵¹ <https://www.wtwco.com/en-za/insights/2022/12/natural-gas-in-africa-amid-a-global-low-carbon-transition>.

The project is not necessary or desirable because it is harmful to the environment and climate, and is costly

184. None of the above-referenced justifications in the FEIR for the project's need and desirability address the harms that would result from the project if it proceeds. The **harms that this project poses for the environment; the climate and the livelihoods and wellbeing of surrounding communities; as well as the socio-economic interests of the people of South Africa are extensively documented in this appeal, and they would render the project both unnecessary and undesirable.**
185. As stated above, in the Need and Desirability Guideline, environmental integrity may never be compromised and social and economic development must meet certain specific objectives in order for it to be considered justifiable. This is also aligned with the findings in the Minister's August 2022 appeal decision referenced above.
186. Further, as stated above, section 2 of Appendix 3 to the EIA Regulations states that the EIA process must describe the need and desirability of the activity in the context of the development footprint on the approved site. There are a number of material deficiencies and flaws in assessing the impacts on the site, including those related to underwater and terrestrial noise, marine ecology, climate change, and socio-economics, among others. These deficiencies make an accurate assessment of the need and desirability of the project impossible.
187. In terms of costs of the project it is estimated that the Karpowership projects will cost South Africa up to R500 billion over the 20 year power purchase agreement period.²⁵² A report by Clyde Mallinson titled 'The South African Risk Mitigation Power Producers Procurement Programme (RM4P): A techno-economic evaluation of the underlying design of the request for proposals (RFP) and the resultant impact on the outcomes of the RM4P' of 21 August 2021,²⁵³ ("**the Mallinson report**") is attached as **Annexure E**. The Mallinson report confirms that it would be possible to integrate alternative projects

²⁵² <https://mybroadband.co.za/news/energy/491991-karpowerships-could-cost-south-africa-half-a-trillion-rand.html>.

²⁵³ Clyde Mallinson, 'The South African Risk Mitigation Power Producers Procurement Programme (RM4P): A techno-economic evaluation of the underlying design of the request for proposals (RFP) and the resultant impact on the outcomes of the RM4P' at 1 (27 Aug. 2021).

that would more than halve the tariffs, *“thus saving Eskom, and ultimately the South African electricity consumer, eight billion rand (R8b) per year, or one hundred and sixty billion rand over the term of the power purchase agreements”*.²⁵⁴

188. The Appellants stand by their long-held position that the potential harms to the marine ecosystem in and around Saldanha Bay, the climate and noise harms, and the potential harm to the livelihoods of fishing communities are serious and undeniable, no matter how many additional flawed specialist reports the Applicant presents.

Less harmful and less costly alternatives are available, rendering the project unnecessary

189. The FEIR relies heavily on the contention that dispatchable and flexible generation is required to complement renewable energy. The Appellants do not dispute the need for flexible generation capacity to complement renewable energy. However, what is disputed are the false and misleading claims that *this* particular project would be a necessary and desirable means to provide that flexible capacity.²⁵⁵
190. This is addressed in more detail in the fifth ground of appeal dealing with the duty to consider alternatives. There are alternative electricity supply options that are not only less harmful to the environment, climate and human rights, but also which are less costly. Because of this it is not correct that the project is necessary, or that it is desirable.
191. The following reports by Meridian Economics are relevant to the question of the necessity of the Karpowership project. Meridian models and considers the role of gas in the South African electricity system in a report titled ‘Hot Air About Gas: An Economic Analysis of the Scope and Role for Gas-Fired Power Generation in South Africa’²⁵⁶ as well as ‘Resolving the Power Crisis: Insights From 2022’.²⁵⁷ It concludes, inter alia, that: *“[f]orcing large-scale gas use into the power generation portfolio in South Africa instead of the much smaller alternative peaking role to support renewables will increase the cost of the electricity generated by more than 40%.”* As stated above under the third ground of appeal on climate impacts, Karpowership has an incentive, and by many accounts

²⁵⁴ P1, Mallinson Report.

²⁵⁵ P392 – 397, FEIR.

²⁵⁶ See <https://meridianeconomics.co.za/wp-content/uploads/2022/06/Hot-Air-About-Gas.pdf>.

²⁵⁷ See <https://meridianeconomics.co.za/wp-content/uploads/2023/02/Briefing-Note-2023-01-Load-Shedding-Insights-From-2022.pdf>.

intends, to run its facility as more than a mere peaking plant, and no guarantee has been provided to the contrary (i.e. it has not been confirmed that the project would *only* function at minimal peaking capacity).

Additional risks associated with the Karpowership project that render it undesirable

192. Further to the above, there is relevant evidence which the Chief Director ought to have considered, which further indicates that the project is not desirable. This includes the following:

- 192.1. Lock-in to a 20 -year power purchase agreement at high cost poses extreme risk to the people of South Africa as this will impact on already-escalating electricity costs and, in turn, the costs of living;
- 192.2. Lock-in to a power purchase agreement with Karpowership crowds out cleaner and cheaper renewable alternatives that are much needed for affordable electricity, security of supply and for meeting South Africa's decarbonisation obligations; and
- 192.3. The Karpowership company has a concerning track record of legal compliance and harmful conduct in other countries where it operates.

Risks of Lock-in to a 20-year PPA

- 193. The FEIR refers to, and purports to assess, the impacts of, a project that will have a 20-year duration.
- 194. As noted in the First and Second Appellants' September 2023 comments, recent reports in the media have stated that Karpowership and the government are considering a reduction in the length of the contract period for Karpowerships from 20 years to five years.²⁵⁸ If this is indeed the case, a reduction in the contract length will materially and significantly change many of the impacts described and assessed, including a decrease in some impacts, and an increase in others.²⁵⁹ Consequently, a new assessment of

²⁵⁸ See <https://www.dailymaverick.co.za/article/2023-08-10-karpowership-offers-to-chop-20-year-energy-deal-to-five-years-but-theres-a-new-price/>; and <https://mg.co.za/the-green-guardian/2023-06-06-karpowership-contract-to-be-negotiated-amid-heavy-fuel-oil-fears/>.

²⁵⁹ It is estimated that costs could triple if contracting period were to be reduced. <https://www.energy.gov.za/IPP/Risk-Mitigation-in-Context.pdf>.

impacts would be required, together with public participation, to enable the Competent Authority to take a new informed decision on any such revised proposal. Such process has not happened and the approved EA makes no mention of the duration of the project.

195. The risks of committing to this project for a period of 20 years include the following:

195.1. The high costs associated with this project and the risks of volatile gas prices.

As stated in the Mallinson report *“the fuel cost for projects requiring fuel, such as LNG, LPG, or diesel, is treated in the tariff calculations as a pass-through cost to the buyer. The buyer, in this case Eskom, is therefore fully exposed to the risk and price volatility of the global oil and gas markets. In addition, these products are all dollar denominated, so there is additional currency exchange risk on top of commodity price risk ... One could argue that prices and exchange rates may in fact move in favour of lowering the tariffs of gas-dominated projects. Although this may conceivably happen, why take the risk when there are alternatives that are not exposed to price and exchange rate fluctuations?”*.²⁶⁰

195.2. The lock-in to GHG emissions of this scale when South Africa will be increasing its reduction ambitions carries with it significant transition risk. Transition risk is the risk that the value of assets and income are less than expected because of climate policy and market transformations, such as the transition away from fossil fuels. Transition risk includes: the problem of stranded assets; negative impacts on trade and competitiveness; and the physical risks of climate change itself. All these factors must be considered in an EIA and prior to investment in a non-renewable resource project, such as the Karpowership project.²⁶¹ This is particularly pertinent in the context of, *inter alia*:

195.2.1. The anticipated increase, over the duration of this project, of regulatory controls on GHG emissions. For example, sectoral emission

²⁶⁰ P10, Mallinson report.

²⁶¹ Huxham, M., Anwar, M., & Nelson, D. (2019). Understanding the Impact of a Low-Carbon Transition on SA. Climate Policy Initiative at <https://www.climatepolicyinitiative.org/publication/understanding-the-impact-of-a-low-carbon-transition-on-south-africa/#:~:text=%E2%80%9CTransition%20risk%E2%80%9D%20is%20widely%20regarded,away%20from%20coal%20fired%20power..>

reduction targets to be adopted under South Africa's climate legislation once adopted.²⁶² This would see GHG emission constraints being imposed on the energy sector; and

195.2.2. The risks of taxes being imposed on carbon-intensive products, for example the carbon border adjustment mechanism ("CBAM"). According to the National Planning Commission, South Africa's trade accounts for around 60% of GDP.²⁶³ Products that have a high carbon footprint – from emission-intensive electricity production for example – could be penalised. South Africa's exports are focused on few destinations and are heavily concentrated around a small number of value chains. Therefore, South Africa is particularly vulnerable to changes in trade patterns arising from measures aimed at transiting to low-carbon pathways.

196. Political Economy Southern Africa ("PESA") states, in its report annexed to the FEIR as Appendix 8.1, that:

"Some of the shortcomings highlighted by critics besides the perceived gaps on the environmental processes include that the 20-year PPA's are too long for an emergency power. This is a rather simplistic view that does not account for the positive externalities which include supporting the growth of the local and regional gas industry in the medium to long term, augmentation to the transmission infrastructure and supporting feasible JET implementation. Reports like "Hot Air About Gas: An Economic Analysis of the Scope and Role for Gas-Fired Power Generation in South Africa" by Meridian Economics contend that gas on a large scale is uneconomical and will ultimately render businesses less competitive globally as consumers eventually would have to bear the cost of the disincentive to meet net zero targets. For South Africa this is not the immediate trade-off given our need to expeditiously resolve the intensifying energy crisis, which needs a solution now and not a decade in the future. While gas does provide a peaking

²⁶² The Climate Change Bill, currently before the National Council of Provinces, makes provision for a national emission trajectory (section 21), sectoral emission targets (section 22) and carbon budgets (section 24).

²⁶³ National Planning Commission. (2020). Economic Progress Towards The National Development Plan's Vision 2030. Pretoria: National Planning Commission.

*solution on a limited scale, its role in supporting energy security by complementing the power system as a whole in South Africa cannot be overstated.”*²⁶⁴

197. The PESA report does not address the concerns and risks listed above.
198. The report by the Rocky Mountain Institute (“**RMI**”) titled ‘Assessment of the Need for the proposed Karpowership Power Plant projects located at the Port of Saldanha Bay (Western Cape), Port of Ngqura (Eastern Cape) and Richards Bay (KwaZulu Natal)’ of July 2021 (“**the RMI report**”) refers to the 2020 report by Meridian Economics and the CSIR (referred to here as the “**CSIR and Meridian report**”).²⁶⁵ This report is attached to the December 2022 comments, and is attached to this appeal as **Annexure F**. It states that *“Applying the Meridian study’s analysis to the proposed Karpowership projects show that 1.2 GW (i.e., 1200 MW) of new gas power ships is neither timely nor economically optimal in the next decade. **The study’s findings suggest that the Karpowerships’ 20-year lifespan risk them becoming a burden to South African electricity customers, and is inconsistent with a least-cost investment plan for the nation.** Per the Meridian study, South Africa would be better served by focusing on investment in infrastructure to enable a 21st century electricity system, which Meridian’s findings and global trends show to be largely renewable”* (emphasis added).²⁶⁶
199. Examples of the kinds of risks flagged by RMI materialising can be seen in Sierra Leone. Here, earlier in 2023, a Karpowership company, which supplies 80% of Sierra Leone’s electricity, cut off supply. Sierra Leone had signed the deal with Karpowership in 2020 and has been struggling with prolonged blackouts as its debts to Karpowership mount. In Sierra Leone power outages have become common since 2021, as it finds itself in a predicament of lock-in to an electricity deal it cannot afford, plunging it further into debt. In order to make up the costs owed, electricity tariffs in Sierra Leone would reportedly have to double.²⁶⁷ The exact terms of Sierra Leone’s contract with Karpowership have not been publicly disclosed. The World Bank described the supply of

²⁶⁴ P5, PESA report, Appendix 8.1 to the FEIR.

²⁶⁵ ‘Systems analysis to support increasingly ambitious CO2 emissions scenarios in the South African electricity system’, July 2020, at <https://researchspace.csir.co.za/dspace/handle/10204/11483>.

²⁶⁶ P1, RMI Report.

²⁶⁷ <https://www.702.co.za/articles/483980/sierra-leone-facing-massive-power-cuts-after-losing-karpowership-supply>; and <https://www.reuters.com/world/africa/sierra-leone-hit-by-power-cuts-after-turkish-power-ship-switches-off-supply-2023-09-08/>.

electricity from the company as “costly”. The purchase price of electricity from Karpowership is indexed to global fuel prices, which significantly increased after the Russian invasion of Ukraine. The World Bank has advised Sierra Leone to invest in solar and hydropower generation as an alternative. It is estimated that the cost of electricity from Karpowership would be anywhere between 2.5 and 4 times greater than from new combined cycle power plants or wind or solar farms.²⁶⁸ It is not inconceivable that South Africa could suffer a similar fate in its contract with Karpowership, should this project proceed.

Risk of Karpowership displacing grid capacity needed for cheaper and cleaner renewable energy

200. The grid capacity analysis expert report by long-time ESKOM Senior Network Planning Engineer Ms. Zoe Lincoln of TNEI is attached as **Annexure G**. It makes clear that the project is neither needed nor desirable for meeting national energy needs. Rather, the placement of the Karpowership within a region known for its outstanding wind resources yet limited grid space, would instead lead to higher energy prices and carbon emissions, as the Karpowership project would run, as per its contractual obligations, at an unnecessarily high capacity and crowd out the entry of the cheapest renewable energy.
201. Regarding the crowding out of cheaper wind resources, Ms. Lincoln states, *“Given the cause, nature and location of the provincial congestion, all generation feeding into the Transmission System in the Western Cape contributes to the congestion, placing the Karpowership at Saldanha in direct competition for capacity with most potential wind generation facilities in the province.”*²⁶⁹ The Karpowership space is even standing in the way of wind generation bids in the most recent renewable energy independent power producer procurement programme (“**REIPPPP**”) bidding round, that had to be rejected due to *“the erosion of Transmission System grid capacity in the Western and Eastern Cape.”*²⁷⁰ Ms. Lincoln reiterates that rather than aiding in the expansion of renewables

²⁶⁸ <https://trendsnafrica.com/karpowership-crisis-in-sierra-leone/>.

²⁶⁹ Lincoln Expert Report at 3.

²⁷⁰ Lincoln Expert Report at 5, citing Department of Mineral Resources and Energy, “REIPPPP Bid Window 6 List of Unsuccessful Bidders,” 2022. [Online]. Available: <https://www.ipp->

by providing peaking capacity to manage renewable variability, *“The location of the Saldanha Karpowership...places it in direct competition for extremely limited network capacity within some of the country’s most optimal wind resource areas.”*²⁷¹

202. Indeed, Ms. Lincoln concludes from her technical analysis that the 320MW reserved for Karpowership is actually inhibiting the entry of a greater quantity of wind resources to the grid: *“Should Karpowership’s 320 MW reserved network capacity be released, it would have the effect of allowing substantially more than 320 MW (in excess of 420 MW, specific location dependent) of wind generation to be connected, given the understood temporal diversity of RE across the Cape, and therefore the lessened aggregated effect on congestion along the central corridor.”*²⁷² Thus, greater quantities of wind could be brought on if the grid space currently being reserved for Karpowership were freed.
203. According to Ms. Lincoln, one of the results of this situation is higher electricity costs, as wind projects are displaced into suboptimal locations, where developers must charge higher tariffs to make up for the lower capacity factors of these projects.²⁷³ As such, *“In order to harness the most cost-efficient wind generation, Transmission System capacity would need to be unlocked in the Western Cape and/or Eastern Cape provinces.”*²⁷⁴
204. Ms. Lincoln further explains that the Karpowership will also be unable to balance variable renewables as claimed because of their contractual operating obligations– a dispatch commitment of for a minimum annual load factor of 50%.²⁷⁵ *“Whilst some gas power plants can operate as a complementary technology to systems with a high penetration of variable renewable energy generation, the structure of the RMIPPPP contract means that it **is almost impossible for the Karpowership at Saldanha to be operated in a manner that will complement the variable nature of the RE in the Cape.**”* (emphasis added).²⁷⁶

projects.co.za/PressCentre/GetPressRelease?fileid=b9227630-ef7a-ed11-958b-2c59e59ac9cd&fileName=REIPPPP%20BW%206%20Unsucessful%20Bidders.pdf.

²⁷¹ Lincoln Expert Report at 9.

²⁷² Lincoln Expert Report at 9.

²⁷³ Lincoln Expert Report at 7-8.

²⁷⁴ Lincoln Expert Report at 8.

²⁷⁵ Lincoln Expert Report at 9.

²⁷⁶ Lincoln Expert Report at 9.

205. The combination of the contractual obligations to run Karpowerships not for peaking, but essentially as baseload, and its crowding out of wind resources, means that the Karpowership project is a more carbon-intensive and less useful energy resource than many other projects that have been passed up in recent procurement rounds. While additional grid capacity is planned, the clear takeaway from Ms. Lincoln's work is **that it would be far more desirable to use the limited capacity available today to enable the entry of greater quantities of the cheapest, least carbon intensive, and most geographically-optimal renewable resources and complementary peaking technologies than to continue reserving space for this powership that is sub-optimal for the people of South Africa in all of these respects.**

Alarming track record and evidence of harm caused by Karpowership in other countries where it operates

206. Karpowership is an international company with a presence in a number of countries globally and throughout Africa.²⁷⁷ Karadeniz Holdings is a Turkish energy company which owns and operates land-based power plants and powerships, through its subsidiary Karpowership. Karadeniz Holdings Ltd is referred to as Turkish power ship parent company.²⁷⁸
207. Based on information in the public domain, Karpowership and Karadeniz Holdings have an alarming track record of legal compliance and harmful conduct, including allegations of human rights violations and criminal conduct in other countries where they operate. This should serve as a stark warning to South Africa, as the government should not expose the people of South Africa to projects where there is any risk or possibility that the proponent may not be a fit and proper person. This, even more so in the context of South Africa's challenges with corruption and state capture, which have, and continue to, cost the country billions.²⁷⁹ This is further evidence that the project is not desirable.

²⁷⁷ See <https://www.karpowership.com>.

²⁷⁸ <https://www.businesslive.co.za/bt/business-and-economy/2023-09-24-karpowership-parent-company-accused-of-state-capture-on-steroids/>.

²⁷⁹ See <https://www.dailymaverick.co.za/article/2021-05-24-the-totalish-cost-of-the-guptas-state-capture-r49157323233-68/>.

208. It may be that the above examples refer to separate Karpowership entities, distinct from the project proponent which is the holder of the environmental authorisation in this instance. Nevertheless, the above information is still relevant because it points to impacts being suffered from the same kinds of projects under the Karpowership name, in other countries. Importantly, the harms highlighted are precisely the impacts and harms the Appellants are concerned about – these being impacts of lock-in to high and unaffordable electricity costs and dangerous and long-lasting environmental impacts with implications for human rights.
209. Even in South Africa, Karpowership has been accused of improper conduct in relation to the project for which it has now obtained authorisation. This includes: seeking to bypass environmental authorisation by obtaining an emergency permit under section 30A NEMA in 2020;²⁸⁰ allegations of improper conduct and bribery in the RMIPPPP process;²⁸¹ as well as more recent allegations of misrepresentation, bias and state capture, in litigation and arbitration against Karadeniz Holdings brought by its local empowerment partner, Powergroup SA.²⁸² A project mired in legal accusations of improper conduct is certainly not desirable, even notwithstanding all the other negative environmental, socio-economic and climate impacts.
210. The above also goes to show that the Karpowership project is unlikely to realise the economic and environmental benefits it so brazenly praises in its EIA.

FIFTH GROUND OF APPEAL: INADEQUATE CONSIDERATION OF ALTERNATIVES INCLUDING THE NO GO OPTION

211. As above, NEMA and the EIA Regulations require consideration and investigation of alternatives including the option of not implementing the activity (the no-go option).

²⁸⁰ See <https://www.dailymaverick.co.za/article/2020-08-13-proposal-for-turkish-company-to-anchor-floating-power-stations-off-sa-harbours-raises-alarm-bells/> and <https://www.dailymaverick.co.za/article/2023-01-27-no-charges-for-environmental-crimes-npa-wont-prosecute-karpowership-case/>.

²⁸¹ See <https://www.dailymaverick.co.za/article/2021-04-29-karpowership-consortium-in-affidavit-losing-bidder-claims-blatant-corruption-fingers-mantashe-associate/>. Note, the following quote from this article: Karpowership SA said in a statement: “We strongly reject the allegation of impropriety on the part of Karpowership SA ... We have every confidence that the South African courts will deal with this appropriately... The false allegations levied by a failed bidder are alarming. It is right to have robust debate around the best options for South Africa’s energy future, but these debates should be fact-based.”

²⁸² See <https://www.businesslive.co.za/bt/business-and-economy/2023-09-24-karpowership-parent-company-accused-of-state-capture-on-steroids/> and <https://www.dailymaverick.co.za/article/2023-12-02-verdict-karpowerships-owner-slammed-for-discrimination-against-bee-partners/>.

The EIA Regulations define “alternatives” as “different means of meeting the general purpose and requirements of [an] activity, which may include alternatives to the . . . (b) type of activity to be undertaken” or the “(d) technology to be used in the activity.”

212. The FEIR only considered layout, design and technology alternatives for the powership project.²⁸³ It does not stray far from the general concept of the proposed powership project and does not consider any changes to the type of activity to be undertaken. Nor does it delve into a meaningful assessment of feasible and reasonable alternatives to the activities as required by NEMA. In other words, the alternatives assessed do not materially address or minimise the harms that would be caused by the project should it proceed.
213. In respect of the no-go alternative, the FEIR states that “*the option of not implementing the Project, i.e. the “no-go” option, was considered as an alternative. In respect of the Project, it would mean that the existing status quo would prevail. While the benefit of this option is that there will be no negative environmental or social impacts, there will also not be any positive environmental or socio-economic benefits*”.²⁸⁴
214. Below we set out that the FEIR assessment, and Chief Director’s consideration of alternatives, were inadequate because:
- 214.1. Clean energy alternatives such as renewable energy with storage, would be a less harmful technology alternative to the project, and were not adequately considered; and
- 214.2. No consideration was given to the no-go alternative.

Clean energy alternatives were not adequately considered

215. The FEIR makes reference to the “*renewable energy myth*” seeking to refute the evidence that renewable energy is cheap and clean.²⁸⁵ The Appellants are certainly not arguing that renewable energy is without any impacts or cost. We are well aware of the potential for negative upstream impacts of all energy technologies. What is beyond

²⁸³ p73 – 89, FEIR.

²⁸⁴ P89, FEIR.

²⁸⁵ P386, FEIR.

dispute however, and what is relevant for purposes of this appeal, is that certainly renewable energy technologies would be cheaper and cleaner than *this* proposed powership project. The FEIR provides no compelling evidence to refute this.

216. In her August 2022 appeal decision on the Karpowership Saldanha Bay project, the Minister noted that “[t]he alleviation of the current energy crisis may be vital, but this does not mean that it must be achieved by this specific project, nor does it follow that there is now a license to ignore all relevant environmental considerations.”²⁸⁶ The concerns raised by the Minister still hold true in respect of the FEIR, and therefore serve as *prima facie* evidence that the assessment of alternatives for this project has not been adequately conducted.
217. The December 2022 comments state that, as with the first EIA process in 2021, Karpowership’s current 2022 DEIR (and now the FEIR) fails to assess renewable energy options in its alternatives analysis, even though expert reports submitted in response to the first EIA demonstrate that renewables, as part of a systems approach, are viable options that would result in the same, if not more, benefits than the Karpowership projects.
218. The FEIR states that “by providing load following and dispatchable electricity which renewable energy cannot provide, the project will enable more renewable energy projects to come online than otherwise would have been possible, providing the energy stabilisation needed until sufficient battery technology can be deployed.” Again, this misconstrues the Appellants’ argument, which is not that renewables alone would resolve South Africa’s power crisis, but simply that this particular project is not part of a least-cost clean energy plan based predominantly on renewables – which should have been considered as an alternative to the Karpowership project.

²⁸⁶ Para. 2.22, Minister’s August 2022 appeal decision.

219. Multiple experts (referenced in this appeal and in previous comments) have demonstrated that while South Africa does require electricity capacity, it does not need this Karpowership project to meet that objective.²⁸⁷
220. Karpowership has put forward number of reports in support of a role for gas from the powership project, and/or refuting the evidence put forward by the Appellants in support of clean energy as an alternative to the proposed project. These have been responded to in the December and September 2023 comments, and some of these responses are reiterated below.
221. The RMI report referred to in the December 2022 comments, which is attached as **Annexure F**, states that *“Many leading global utilities have shifted their approach to resource planning, and in doing so have found that emerging technologies, and specifically wind, solar, and storage, can provide the same sort of grid services that were provided by “baseload,” “peaking,” and “mid-merit” power plants in the 20th Century”*.²⁸⁸
222. The CSIR and Meridian report of July 2020, referred to above, found that a least-cost scenario for the South African electricity sector involves rapidly expanding wind and solar power in the near term, with 90% renewable uptake in the grid by 2050.²⁸⁹ The report found that *“[p]eaking requirements can be provided by liquid fuels for at least the next 10 years in all scenarios,”* and South Africa *“can wait for 10 – 15 years”* before making a decision to *“expand gas infrastructure to support the power sector.”*²⁹⁰
223. The RMI report concludes that the Karpowership projects *“would come online as much as a decade prior to the planned need for any type of new high utilization energy*

²⁸⁷ See also ‘Breaking the system for profit — and how Karpowership stands to gain’, <https://www.businesslive.co.za/bd/opinion/2023-12-13-hilton-trollip-breaking-the-system-for-profit--and-how-karpowership-stands-to-gain/>.

²⁸⁸ P4, RMI Report.

²⁸⁹ CSIR and Meridian Economics, 22 July 2020, Systems analysis to support increasingly ambitious CO2 emissions scenarios in the South African electricity system (CSIR & Meridian Report) https://researchspace.csir.co.za/dspace/bitstream/handle/10204/11483/Wright_2020_edited.pdf?sequence=7&isAllowed=y.

²⁹⁰ Meridian Economics, 2020, A Vital Ambition: Determining the cost of additional CO2 emission mitigation in the SA electricity System at 59, <https://meridianeconomics.co.za/wp-content/uploads/2020/07/Ambition.pdf>.

*capacity” and thus “represent an unneeded and uneconomic addition to [South Africa’s] electricity system” for over half of their operational life.*²⁹¹

224. Meridian’s report titled ‘Resolving the Power Crisis Part A: Insights from 2021 - SA’s Worst Load Shedding Year So Far’²⁹² demonstrated that the addition of renewable energy would have eliminated almost all the loadshedding in 2021, without any help from new gas resources.²⁹³ The Meridian report concluded that *“an additional 5GW of wind and solar would have allowed Eskom to eliminate 96.5% of loadshedding in 2021”*²⁹⁴
225. PESA (The Political Economy South Africa – whose report is Appendix 8.1 to the FEIR) asserts that *“the [Meridian] report does not make any consideration or reference to assumptions about the storage capacity and climate conditions required to produce the optimal amount of electricity from the additional 5GW in renewables.”*²⁹⁵ This assertion is incorrect. Meridian found that 5GW of wind and solar *alone* could have eliminated 96.5% of loadshedding in 2021—even before installing additional battery storage.
226. The Mallinson report reveals that a “full systems approach” to the request for proposals where *“projects were fully integrated with existing Eskom storage assets,”* evaluated in the context of their interaction with other generation assets, and free from arbitrary restraints, would have resulted in tariffs that were *“less than one half of the [] Karpowership [bid] tariffs.”*²⁹⁶
227. South Africa’s Presidential Climate Commission (“PCC”) has, in a report titled *“Recommendations from the PCC on South Africa’s Electricity System”* called for an energy system dominated by renewable energy as evidence shows them to be secure, reliable, and least cost. With regards to the electricity crisis and resolving load shedding, the report states that: *“South Africa’s current electricity crisis requires interventions in the short term. How would electricity policy decisions change in the short term to*

²⁹¹ P314, RMI report.

²⁹² <https://meridianeconomics.co.za/wp-content/uploads/2022/06/Resolving-Load-Shedding-Part-A-2021-analysis-01.pdf>.

²⁹³ Ibid.

²⁹⁴ Pij, Ibid.

²⁹⁵ P20 – 21 , Appendix 8.1 to the FEIR.

²⁹⁶ Clyde Mallinson RMI4P Report at 12.

*address the urgent need for electricity access, and would these decisions compromise the long term, least cost and climate compatible energy mix? The answer is no. In the short term, the least cost, no-regret option remains renewables, batteries, and balancing and peaking support, for example from gas. Not only are these the cheapest, secure options, but they are also the only options with build times short enough to make a meaningful impact on load shedding.”*²⁹⁷ The PCC recommends the use of gas only at very low utilisations (it only forms part of a least cost plan at very low utilisation), which – according to the RMIPPPP requirements and the FEIR - is not what is envisaged for the current project.

Failure to adequately assess the no-go option

228. The EIA Regulations, as stated above, require consideration of the no-go option – *“the option of not implementing the activity”*.
229. In the December 2022 comments the Appellants noted that according to the DEIR the negative environmental impacts of the project have been found to be minimal. Against this, the socio-economic benefits of securing the electricity supply allegedly far outweigh the negative impacts and the no-go option was therefore not recommended.
230. The FEIR contains a number of incorrect and misleading assertions in relation to the no-go alternative. For example it states that, *“the opportunity to utilise gas as a cleaner, greener fuel in the just transition from coal and more polluting energy sources will remain unexplored”*. The Appellants already address above why the contention that gas is a “cleaner, greener fuel” is factually false. Furthermore, this contention incorrectly assumes that this Karpowership project is the *only* gas power project in South Africa, stating that if it does not proceed the opportunity to rely on gas will be “unexplored”. This deliberately ignores and misrepresents the reality in which there are a number of proposed, and authorised gas power projects in South Africa which are also and already “exploring” this “opportunity”, including another two Karpowership power projects.

²⁹⁷ Recommendations from the PCC on South Africa’s Electricity System, May 2023 at https://cisp.cachefly.net/assets/articles/attachments/90770_may_2023_-_pcc_-_electricity_planning_recommendations_report.pdf.

231. In short, the FEIR again completely skews and misrepresents facts and realities around the impacts of the project in the context of the consideration of the no-go alternative, stating that not proceeding with the project would have negative impacts for South Africa's economy and climate. Again, the Appellants must emphatically object to this approach which assumes that there are no alternative electricity supply options available to South Africa other than Karpowership or extremely emission-intensive coal. The no-go alternative analysis incorrectly assumes that renewable projects would not replace the Karpowership projects in filling the short-term electricity supply gap. This assumption allows the FEIR to list a slew of unwanted consequences.
232. Further, the deficiencies in the analysis of environmental impacts and their impacts on the socio-economic conditions of small-scale fishers and beyond mean that at this stage a proper analysis of the no-go option is not possible.²⁹⁸
233. Had the FEIR considered the plethora of alternative electricity supply options and projects in the pipeline for South Africa, and had renewable energy options with flexible generation been adequately considered as an alternative to the project, the FEIR – and consequently the Chief Director - would have reached different conclusions.
234. The FEIR continues in its failure to meet the EIA Regulations' requirement for the assessment of alternatives and the no-go option and therefore the FEIR report, as it currently stands is incomplete and is not an adequate basis for decision-making.

SIXTH GROUND OF APPEAL: INADEQUATE CONSIDERATION OF SOCIO-ECONOMIC IMPACTS

235. The FEIR includes, in Annexure 9 a 'Supplementary report to: Socio-economic impact assessment report for the proposed power Powership project at the Port of Saldanha Bay, Saldanha Bay Municipality, Western Cape' dated January 2023 ("**the SEIA**"). The SEIA, *inter alia*:

235.1. notes a limited negative impact on marine ecology;²⁹⁹

²⁹⁸ P87, December 2022 comments.

²⁹⁹ P11, SEIA, Appendix 9 to the FEIR.

- 235.2. anticipates small, but negative socio-economic impacts on fishermen and mariculture;³⁰⁰
- 235.3. states that *“there is opportunity for the small-scale fishers and the rest of the community to benefit from corporate social investments, skills development, and supplier and enterprise development because of Karpowership SA’s local content commitments (medium-low impact). In addition, there will be jobs created associated with the construction and operational phases of the project (low impact)”*;³⁰¹
- 235.4. states that the socio-economic impacts on tourism are expected to be positive due to increased electricity provision, and the possibility of industrial tourism;³⁰²
- 235.5. states, in relation to climate change, that no direct negative socio-economic impacts are anticipated due to the distributed nature of GHG emissions. It anticipates long-run positive socio-economic impacts due to the support for greater energy diversity and deployment of renewable energy;³⁰³ and
- 235.6. concludes on the value of the Karpowership project as a near-term replacement for coal and solution to loadshedding.³⁰⁴
236. In the December 2022 and September 2023 comments, the Appellants critiqued the socio-economic impact assessment for the project. We stand by the assertion that this assessment is inadequate. It makes no attempt to provide details on overall costs or broader economic impacts of the project to the people of South Africa; or to the external costs that will be imposed on society and communities living in the project area. Importantly, it downplays and misrepresents a number of significant socio-economic impacts associated with the project activities, such as impacts for fishing communities. These issues are addressed in further detail below.

³⁰⁰ P12, SEIA Appendix 9 to the FEIR.

³⁰¹ P416, SEIA, Appendix 9 to the FEIR.

³⁰² P11, SEIA Appendix 9 to the FEIR.

³⁰³ P12, SEIA Appendix 9 to the FEIR.

³⁰⁴ P416, SEIA, Appendix 9 to the FEIR.

237. The overall theme in the FEIR when it comes to the socio-economic impacts of the project is that it would address the impacts of rolling black-outs in South Africa. The FEIR includes an entire report titled ‘The economic impacts of rolling blackouts in South Africa: Shaping the Context’ of October 2022 by Afro Development Planning (Pty) Ltd (**“the Afro Development Planning report”**), attached to the FEIR as Appendix 8.3.³⁰⁵ The negative economic impacts of loadshedding are not disputed but it is disputed that this particular project is the best means (socio-economically and environmentally) of addressing the negative impacts of South Africa’s electricity crisis.
238. The Minister’s August 2022 appeal decision denying the Karpowership’s initial environmental authorisation application was extremely critical of the Socio-Economic Impact Assessment report for the project, finding that it had fatal gaps, limitations, and inconsistencies.³⁰⁶ The Minister stated that *“neither socio-economic needs nor procurement considerations can elevate the recommendation in a Socio-Economic Impact Assessment report above the holistic consideration of the actual and potential risks, and impacts on the geographical, physical, biological, social, economic, and cultural aspects of the environment.”*³⁰⁷
239. The Minister’s position here is correct as NEMA requires a weighing up of economic and environmental considerations. Guidelines for the application of the EIA Regulations make clear that environmental integrity may never be compromised and that social and economic development must take a certain form and meet certain specific objectives in order to be considered justifiable.³⁰⁸ Development must not exceed ecological limits in order to secure ecological integrity, while the proposed actions of individuals must be measured against the short-term and long-term public interest in order to promote justifiable social and economic development.³⁰⁹

³⁰⁵ This report, however, does not present results of macro-economic modelling of the economic impacts to the South African economy for instance, nor does it make any recommendations toward resolving the challenge of loadshedding. It merely serves to provide the economic- and energy context to which the EIA application has significant relevance and does so through a literature review. At p1.

³⁰⁶ Para 2.119.2.

³⁰⁷ Para 2.11.4.

³⁰⁸ S5, p24, Need and Desirability Guideline.

³⁰⁹ S3, p16, Need and Desirability Guideline.

240. **The concerns raised by the Minister in her August 2022 appeal decision remain unaddressed in the FEIR. The FEIR continues to rely on generalised statements on the economic benefits of short-term power solutions, without delving into the specifics of the socio-economic impacts of this particular project.**
241. Further, the Appellants contend that the SEIA fails to meet the NEMA requirements for a full assessment of each potentially significant impact and risk. It is not possible to draw any conclusions on the economic impacts and alleged benefits of the project with such crucial information missing.³¹⁰ In any event, any alleged economic benefits would be far outweighed by the harms of the project, including socio-economic harms.
242. A number of negative socio-economic impacts have not been adequately considered in the FEIR. These negative socio-economic impacts include, *inter alia*:
- 242.1. Negative economic impacts due to high electricity tariffs – which will affect already high electricity prices – the SEIA makes no mention of this;
- 242.2. Negative impacts on livelihoods of fishing communities; and
- 242.3. Negative external costs that are unaccounted for in the FEIR.

The project would have negative economic impacts, due inter alia, to its high costs

243. The three proposed Karpowership projects are anticipated to cost South Africa between R200 and R500 billion – this is not a trivial sum and has gained wide media traction.³¹¹
244. The Mallinson report³¹² attached as **Annexure E**, confirms that it would be **possible to integrate projects under a risk mitigation procurement process at a tariff of less than one half of those of the Karpowerships.**³¹³ In other words, it is entirely possible for South Africa to obtain emergency electricity capacity that is far cheaper than the Karpowership project.

³¹⁰ NEMA s24O(1)(b) and Appendix 3, section 3(1)(h) and (j), EIA Regulations, 2014.

³¹¹ See <https://mybroadband.co.za/news/energy/491991-karpowerships-could-cost-south-africa-half-a-trillion-rand.html>; <https://www.biznews.com/interviews/2023/05/23/karpowership-deal-cost-r200-billion-mileham>; and <https://www.news24.com/fin24/economy/karpowership-sa-how-much-again-20210709>.

³¹² Clyde Mallinson, 'The South African Risk Mitigation Power Producers Procurement Programme (RM4P): A techno-economic evaluation of the underlying design of the request for proposals (RFP) and the resultant impact on the outcomes of the RM4P' at 1 (27 Aug. 2021).

³¹³ Mallinson RMI4P Report at 12.

245. The reasoning explained by Mallinson relates to the design and requirements of the Risk Mitigation Independent Power Producer Procurement Programme (“**RMIPPP**”) Request for Proposals (“**RFP**”): the “*restrictions, terms and conditions*” of the RFP process “*have little to no impact on gas-dominated projects,*” but they raise the bid tariffs for renewable energy “*on average by more than 50%.*”³¹⁴ In short the RMIPPP RFP contains several design flaws which resulted in bid tariffs that are untethered to the realities of an electricity system and do not reflect true technology costs. In particular, the prohibition on storing energy outside the dispatch window and requirement that energy storage systems be co-located with the renewable generation capacity “*result in the need to unnecessarily oversize[] storage systems, increasing the costs for renewable projects and thus increasing the tariffs that were bid.*”³¹⁵
246. The Appellants do not raise this in order for the Minister to delve into the merits of the RMIPPP process, in deciding this appeal, but simply to highlight that any allegations of economic benefits from competitive, least-cost power supplied by the Karpowerships are unfounded, as well as unsubstantiated.
247. In support of the cost-effectiveness of the Karpowership projects, Karpowership appended a report by PESA (Appendix 8.1 to both the DEIR and FEIR) titled ‘Gas to Power Projects and the Just Energy Transition from Fossil Fuels in the South African Political Economy’. PESA’s main finding is that “*The Karpowership projects despite their shortcomings, are the quickest way to provide South Africa with the much-needed dispatchable power.*”³¹⁶ In reaching this finding, PESA dismisses several reports by Meridian Economics and the Council for Scientific and Industrial Research (“**CSIR**”), which have been leading much of the modelling and research on electricity systems for South Africa.
248. PESA asserts that Meridian’s and other studies that compare the least cost energy between renewables and gas are inappropriate because “*they leave out the cost of service from the tariff ..., [which] includes frequency and voltage control, transmission, synchronous power, dispatched ramping, system balancing and last mile connections. ...*”

³¹⁴ Mallinson RMI4P Report at 4.

³¹⁵ Mallinson RMI4P Report at 7.

³¹⁶ Appendix 8.1 to the FEIR at 5 (PDF p7).

Moreover, these types of studies make factually inaccurate comparison between the cost of gas-to-power (which includes the total cost of evacuation and distribution) against the incomplete estimations about the cost of renewables".³¹⁷ PESA, though, does not itself submit its own cost calculations.³¹⁸ Instead, PESA submits that "[t]he closest the system costs have been reflected was with the RMIPPPP tariffs, which included energy, dispatchability, voltage stability and storage costs."³¹⁹ PESA's arguments are fundamentally flawed:

248.1. The 2020 Meridian and CSIR modelling *does* incorporate costs of service based on the parameters of the Integrated Resource Plan for Electricity, 2019 ("**IRP 2019**") model, but reflects updated demand, existing fleet performance, and technology costs, and assumes "*no carbon emissions constraint, no forced-in new-build technologies, and no annual new-build constraints on any technologies*."³²⁰ The renewables pricing assumptions in Meridian's report, 'Resolving the Power Crisis Part A: Insights from 2021 – SA's Worst Load Shedding Year So Far'³²¹ are also based on actual bid prices from the Renewable Energy Independent Power Producer Programme, accounting for inflation.³²²

248.2. PESA's reliance on the RMIPPPP as the best existing standard for determining technology costs is also misplaced, given that the restrictions imposed in the RFP made gas projects "*seemingly, but erroneously, cost-competitive*", as confirmed in the Mallinson report referred to above.³²³

249. Despite the addition of the PESA and the Afro development Planning reports to the EIR, the project proponent has not demonstrated that the project would produce economic benefits in the form of affordable and least-cost emergency power.

³¹⁷ Appendix 8.1 at 21 (PDF p23).

³¹⁸ Appendix 8.1 at 21.

³¹⁹ Appendix 8.1 at 21.

³²⁰ CSIR & Meridian Report at 60.

³²¹ Meridian Economics, Resolving the Power Crisis Part A: Insights from 2021 – SA's Worst Load Shedding Year So Far at iii (June 2022), <https://meridianeconomics.co.za/wp-content/uploads/2022/06/Resolving-Load-Shedding-Part-A-2021-analysis-01.pdf>.

³²² Resolving the Power Crisis Part A at 33.

³²³ Clyde Mallinson, The South African Risk Mitigation Power Producers Procurement Programme (RM4P): A techno-economic evaluation of the underlying design of the request for proposals (RFP) and the resultant impact on the outcomes of the RM4P at 1 (27 Aug. 2021).

250. Authorising a project that would result in higher than necessary electricity prices over the 20-year period of the PPA would certainly not be in the public interest. This renders the environmental and climate harms of the project even more unjustifiable and contrary to the NEMA principles and requirements.

The negative impacts on livelihoods of fishing communities

251. The Minister in her August 2022 appeal decision found that the Socio-Economic Impact Assessment report *“did not include an analysis of the actual and potential risks and impacts,”* based on the following: *“2.45.1 The local economy base for fishing in Saldanha was not assessed- the author thereof was not even aware of the details of the approximate number of small-scale fishers, where they dock, or where and what they fish. 2.45.2 Local fishermen expressed their worries about the impact of the proposed Project on the fish and on fishermen in general, given that fishing is their only form of livelihood. Saldanha Coastal Connection representing small scale fishermen indicated that the fishermen use the Port because they (fishermen) utilise very small vessels that cannot go out further to sea. They are therefore worried about their fish stocks. ... 2.45.4 The socio-economic assessment did not assess all the sensitivities on fish and marine life in the area.”*
252. These concerns remain largely unaddressed in the FEIR. On the face of it, the FEIR therefore does not adequately assess the impacts of the project on local fishing communities.
253. In the first appeal ground, the Appellants set out the many significant impacts that the project is likely to have on the marine environment in Saldanha Bay, in an environment that is already subject to severe cumulative pressures. For example the impacts on the Bay could trigger the collapse of local fisheries, including white stumpnose. These ecosystem impacts will have cascading impacts on the fishing communities who rely on marine resources for their sustenance and livelihoods. This is further explained in the first appeal ground. However, because the ecosystem impacts have been downplayed, ignored or otherwise remain inadequately considered in the FEIR, the full extent of socio-economic livelihood impacts have similarly not been considered.

254. In particular, the small-scale fishing community of Saldanha, is dependent on the marine environment for a livelihood. A large majority of the fishers rely on fishing not only as a means of sustenance but also for economic means.
255. The expert report by Dr Tonin attached as **Annexure D**, confirms that the FEIR fails to assess potential marine contamination from the operation of the project, that could, in turn, impact the local ecosystem and in particular the release of toxic copper, which is known to occur in antifouling hull coatings and seawater reticulation systems in discharge water.³²⁴ This could have severe consequences for communities who depend on fishing for their livelihoods. Dr Tonin's expert report records that this issue is dismissed as of no concern and excluded from assessment in the FEIR.³²⁵
- 255.1. Further, given the proposed placement of the powership in a bay with a significant black mussel cultivation – an industry which is already an important contributor to the local economy and employment, and is set to expand significantly – analysis of a potential toxic threat to the mussels takes on an elevated significance. A recent Swedish study on copper toxicity in ship cooling water discharge³²⁶ notes that *“a copper concentration of 4-10,8 µg/l¹ was proven to induce mortality for half the population of mussels. The blue mussel population has decreased significantly in Scandinavian waters, but the reason for this is not yet completely known”*. The problem of declining mussel production is widespread and not restricted to Scandinavia.³²⁷ One of the key reasons is the reduction in seed mussel availability. The role of copper as a contributory agent in this decline cannot be ignored, and all anthropogenic origins of contaminating copper need to be identified and quantified.
- 255.2. Evidently the project poses major risks of socio-economic harms for small-scale fishers on the west coast. Their livelihoods and socio-economic interests have

³²⁴ Tonin Expert Report at 5-8.

³²⁵ Tonin Expert Report at 8.

³²⁶ Jonatan Alexanderson & André Sjöström, *Copper load to the marine environment from Impressed Current Anti-Fouling (ICAF) systems*, 2021, <https://odr.chalmers.se/items/bfd55adb-e70c-45c0-b87e-b9cbb51a0de0>.

³²⁷ Peter S. Petraitis & S. R. Dudgeon, *Declines over the last two decades of five intertidal invertebrate species in the western North Atlantic*, 3, *Commun Biol*, 591 (2020), <https://www.nature.com/articles/s42003-020-01326-0>.

not been adequately considered in the FEIR at all (see also the public participation ground of appeal below).

The negative external costs of the project are unaccounted for in the FEIR

256. External costs include, *inter alia*, costs of climate change, and loss of biodiversity, which are typically borne by society – and not by the project proponent. The SEIA and consequently the FEIR make no attempt to assess the economic costs that the project will impose on society. As such the FEIR has neglected to adequately assess the economic impacts of the proposed activities.
257. Healthy ecosystems and human communities are economically important because they provide goods and services that make important contributions to the well-being of individuals, families, communities, and society as a whole. Economists globally have recognised that, to understand the overall consequences of fossil-fuel projects, such as the proposed project, decision-makers and the public must have the results from an analysis that provides a full, unbiased assessment of the external costs.
258. The SEIA in the FEIR needed to provide the Chief Director, and interested and affected parties, with the necessary information on external costs in order to determine the project's overall economic consequences.
259. External costs that are unaccounted for include:
- 259.1. **The social cost of carbon:** this is relevant given the anticipated high GHG emissions of the project. Recent analyses have found that, when assuming that the social cost of carbon dioxide added to the atmosphere is \$190 per metric ton, the carbon dioxide emissions resulting from operation of a gas-fired electricity generator impose costs on society that totally outweigh the value of the electricity.³²⁸ This conclusion is reinforced by research that shows the actual

³²⁸ The U.S. Environmental Protection Agency (USEPA) completed an analysis that shows the social cost of carbon dioxide in the atmosphere is about \$190 per metric ton, assuming a discount rate of 3% per year, but recognized that, with a lower discount rate, the value would be \$340 per metric ton [Interagency Working Group on Social Cost of Greenhouse Gases, United States Government. 2021. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990]. See also Barnard, M. 2023. 'EU's Guidance for Carbon Price Through 2050 is Staggering'.

social cost from adding carbon dioxide to the atmosphere far exceeds \$190 per ton.³²⁹

- 259.2. **External costs and negative impacts on biodiversity:** to satisfy applicable principles and standards, the FEIR ought to have fully described and assessed the anticipated costs to society from the proposed project's impacts on the supply, benefit, and value of ecosystem services in the project area. This means the SEIA should have incorporated these costs into its analysis of net economic benefits (or costs).
- 259.3. **Potential costs to society in the event of a spill:** The FEIR fails to inform decision-makers and provide the public with sufficient quantitative information about the potential economic damage that could result if implementation of the project were to result in an accident with damage to infrastructure and the surrounding environment such as a pipe rupture (see second ground of appeal on inadequate consideration of major hazard installation impacts). This would entail costs, for example, for ecosystem rehabilitation, damage to coastal communities and small-scale fishers, and who would likely have to bear the brunt of these externalities.
260. The above are anticipated to be high costs, which would far outweigh any economic benefits from the project. This is crucial information which ought to have been before the Chief Director before authorising the project, and as such the above-mentioned requirements of NEMA and the EIA Regulations have not been met.
261. Based on the above, the negative socio-economic impacts of the project, if it proceeds, would be significant and no evidence has been provided to show that they would or could be mitigated. On this basis the EA should have been refused.

SEVENTH GROUND OF APPEAL: INADEQUATE CONSIDERATION OF CULTURAL AND HERITAGE IMPACTS

262. In the December 2022 comments, the First and Second Appellants called upon the EAP to ensure that an assessment of the impact of the project on people's culture and

³²⁹ Ibid.

spiritual connection to the ocean is done properly.³³⁰ The FEIR dated September 2023 acknowledges the cultural and spiritual connection of coastal communities with the sea **but does not sufficiently assess the potential impacts of the project on this connection.**³³¹

263. The FEIR states that *“It is crucial to understand that no fishing is permitted within the port area. As an active port and industrial zone, Transnet National Port Authority (TNPA) does not grant access for fishing. DFFE have also confirmed that there are no registered small scale fishing cooperative associated within the port.”*³³² This misconstrues the cultural and spiritual connection that coastal communities have with the ocean as something that coastal communities only experience through fishing. Consequently, no assessment of the impacts that the project might have on the cultural and spiritual connection that people have with the ocean was done.
264. The FEIR fails to provide a clear and adequate profile of the small-scale fishers in the area who stand to be affected by the project, and to interrogate the potential negative impacts on them. It fails to make provision for their cultural histories and their rights.
265. The small-scale, traditional fishers of Langebaan and Saldanha have a distinctive cultural history that extends back to the days when their ancestors, many of them freed slaves or descendants of the indigenous peoples of the Cape, settled along the shores of the Lagoon and Saldanha Bay. The ancestors of the present Langebaan Lagoon traditional fishers have been fishing on this lagoon and in the adjacent Saldanha Bay since the 18th century. These early residents of the lagoon regarded the waters of the lagoon as their common property and over time established a local system of customary fishing rules to regulate their interactions with each other. There is considerable evidence in the Cape Archives to confirm this.³³³ Their customary system of rights was acknowledged by the Provincial Administration of the Cape and regulations that recognised this customary system were introduced as early as 1909 with Proclamation 385 of 1909.³³⁴

³³⁰ GC and NJ December 2022 comments.

³³¹ P192 – 193, FEIA Report September 2023.

³³² P192, FEIR of September 2023.

³³³ Sunde 2014.

³³⁴ Cape Archives Pan A 120/36 Vol 1,1.

266. As a result of this lengthy history, the fishing communities in this area have a very detailed local knowledge of the lagoon ecosystem that has been handed down across generations of fishers. Rights to fish that were recognised within their customary system of net-fishing are regarded as family rights and have also been handed down within families, despite the introduction of an individual permitting system by the fisheries authorities in the 1980s. The traditional net fishers of the region have a unique cultural history and their fishing practices form the basis of their identity and culture. Any impact on this fishing practice risks undermining this living cultural heritage, which is already threatened by the industrialisation of the Bay area and an exclusionary permitting system, which undermines the fact that the local fishers fish for their livelihoods (not tourism or recreation).
267. The first ground of appeal (marine impacts), sets out that the impacts of this project on the marine ecosystem in the area could be significant. The FEIR, however, fails to take cognisance of the potentially significant negative knock-on effects that the project's impacts on marine life could have for culture and heritage, and it dismisses this issue by stating that no fishing is permitted in the project area, therefore no negative socio-economic impact is established.³³⁵ This, however, misconstrues the nature of cultural and heritage impacts which have a wide scope when it comes to connection with the ocean and marine environment.
268. What the FEIR implies about impacts on people's culture and heritage - with specific reference to their connection to the ocean where the project is located - is that a deeper assessment of impacts on culture and heritage is not necessary because even if there will be negative impact on marine life, people will not be affected because they are not permitted to fish or access the area where the project is located.
269. The FEIR fails to consider the implications of the establishment of such a small-scale fishing zone as proposed in the Marine Living Resources Act amendments and how this will interact with the proposed Karpowership location.

³³⁵ P192, FEIR.

270. The FEIR further fails to adequately make provision for, and assess, small-scale fishers' culture, including the species that they target when they fish, and their local ecological knowledge of the area that is part of their culture.
271. The NEMA section 2 principles require, *inter alia*, that environmental management place people and their needs at the forefront of its concern and serve their physical, psychological, developmental, **cultural**, and social interests **equitably**.³³⁶ The assumption that because DFFE has not granted any small-scale fishers a right to fish where the project is to be located, that such rights do not exist in relation to the project area, undermines customary law.
272. In the case of *Gqongose*,³³⁷ the High Court found that legislation does not extinguish communities' customary rights to access a resource despite providing for the Minister as the custodian of all resources and requiring access rights to be granted by the Minister. Like the finding of the Constitutional Court in *Tongoane*,³³⁸ the High Court envisions customary law as a system of law that gives rise to rights parallel to the statutory framework and that should be considered, incorporated and regulated by the legislature when designing resource governance systems. The point here is that whether or not communities are permitted to fish in the direct vicinity of the project, their cultural rights and heritage would still be impacted by the project.
273. In 2007 The Equality Court ordered the then Minister of Environment and Tourism to recognise the socio-economic rights of traditional fishers including the Langebaan and Saldanha Bay fishers³³⁹ and the Department began engaging in a small-scale fisheries policy development process culminating in a Policy for Small-scale Fishers ("**SSF**"). These fishers have collectively been referred to as the small-scale fisheries sector. Lists of those who have applied to be recognised are now in the public domain and this process is underway.

³³⁶ S2(2), NEMA.

³³⁷ *Gongqose and Others v S; Gongqose and Others v Minister of Agriculture, Forestry and Fisheries and Others* [2016] ZACMHC 1.

³³⁸ *Tongoane and Others v National Minister for Agriculture and Land Affairs and Others* (CCT100/09) [2010] ZACC 10; 2010 (6) SA 214 (CC); 2010 (8) BCLR 741 (CC).

³³⁹ *Kenneth George and others versus the Minister of Environment Affairs and Tourism* (437/05 , 437/05) [2006] ZASCA 57; 2007 (3) SA 62 (SCA) (18 May 2006).

274. In 2016 the Western Cape High Court found in favour of the Langebaan Small-scale Fishers in the case of *Coastal Links Langebaan v the Minister and Others*³⁴⁰ (“**Coastal Links Langebaan case**”) and highlighted the importance of consulting these fishers and including information about their histories and traditions in decision-making on issues that would impact their rights in terms of the Policy for the SSF.
275. Consequently inadequate consideration has been given to the potential impacts of the project on the rights of these communities to their culture³⁴¹ as well as to their rights to access food³⁴² and to their occupation.³⁴³ There is no reference to the many affidavits that these fishers have made in the *Kenneth George* case or the subsequent court cases that found in their favour (even though these are public documents and would have been readily available to the EAP).
276. The FEIR does not provide sufficient information on the cultural and heritage impacts of the project, to enable a decision-maker to assess the relative potential impacts of the Karpowership project on the affected fishing communities’ rights to their culture.

EIGHTH GROUND OF APPEAL: INADEQUATE PUBLIC PARTICIPATION

277. The ground of appeal on public participation is twofold:

277.1. We submit that Karpowership failed to comply with the minimum requirements for public participation in terms of the applicable legal requirements under NEMA,³⁴⁴ and additionally, that

277.2. Karpowership and its environmental assessment practitioners (“EAP”) misrepresented the findings of the public participation process that was conducted for its first EIA, in order to claim compliance with the second EIA process undertaken in 2022.

278. The importance of public participation during the EIA process cannot be overstated. The legal requirements and policies specifically relating to public consultation in the

³⁴⁰ (11907/13) [2016] ZAWCHC 150; [2017] 2 All SA 46 (WCC) (31 October 2016).

³⁴¹ Sections 30 and 31 of the Constitution.

³⁴² S27 of the Constitution.

³⁴³ Section 22 of the Constitution.

³⁴⁴ Regulation 41 of the EIA Regulations.

environmental sphere are clear. NEMA, the EIA Regulations as well as the public participation guidelines are the relevant laws to consult when conducting public participation.

279. Section 2(4)(f) of NEMA provides the overarching principle that, ***“The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.”*** Special weight is given to the participation of particular groups in Section 2(4)(q) which provides that, ***“The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.”*** (emphasis added)
280. Whilst this appeal relates to the most recent decision, granted on 14 November 2023, the below timeline and history of the public participation process are material to this ground of appeal.
281. On 23 June 2021 the DFFE refused to grant Karpowership an EA on various grounds including that there were gaps in information and a defective public participation process, and that these could not be reconciled through the appeal process. The DFFE specifically mentioned the failure of KPS to consult the small-scale fishing community. The Appellants maintain that these irregularities persist and have not been remedied in the second EIA process.
282. The 2021 decision concluded that in light of the evidence provided:
- “The minimum requirements, specifically with regard to public participation, were not met. The purpose of public participation is not only to promote informed decision making, but also to promote the legitimacy and acceptance of an outcome or decision and to promote participatory democracy”***³⁴⁵ (emphasis added).
283. These concerns, that were raised in the decision to refuse the EIA in the first EIA process, remain unaddressed in the second EIA. As such the public participation process followed

³⁴⁵ P17 at I, DFFE Record of Refusal, 23 June 2021. At KM_C654e-20210623174823 (dffe.gov.za).

in the EIA process that led to the granting of this environmental authorisation is prima facie fundamentally flawed.

The irregular and defective public participation process relied on in the first EIA process is again relied on in the second EIA process, which renders this public participation process defective

284. In 2021, during the public participation process for the first EIA, the EAP held a meeting with a group of four women involved in small-scale fishing. This meeting was attended by Ms Solene Smith, Ms Camelita Mostert, Ms Taitum-Lee Manuel and Ms Natalie-Jane Van Wyk. The Confirmatory affidavits of Ms Smith, Ms Mostert and Ms Van Wyk (“**the attendees**”) are attached to this appeal as **Annexure H**.
285. This initial meeting took place in Langebaan in 2021 at a restaurant. The attendees, namely Ms Smith, Ms Mostert, Ms Manuel and Ms Van Wyk were also accompanied by the Mayor of Saldanha at the time. This meeting was termed the “focus-group meeting” by the consultant.
286. As detailed in the attached affidavits, whilst the attendees were all active members of the West Coast fishing communities, they expressed to the EAP that **they could not make decisions on behalf of the fishing community of the West Coast** and further, that they do not hold mandates to consent to projects along the West Coast on behalf of the communities in which they reside.
287. The attendees further raised concerns regarding the potential noise from the Karpowership project and how this may impact fishing. Additionally, it must be noted that whilst the EAP had relayed that all the documents relevant to this project were available in a cupcake shop in Saldanha, the acoustics report was not finalised at this point in time.³⁴⁶ This is recorded in Appendix D14 “Small-scale fisher engagements”.³⁴⁷
288. Ms Van Wyk specifically requested a follow-up meeting with small-scale fishers and expressed that this meeting did not constitute adequate public participation with

³⁴⁶ It must be noted that what is required in the public participation process is meaningful engagement. This cannot take place if I&A parties are not provided with the relevant information.

³⁴⁷ https://drive.google.com/file/d/1pDfR6fxh_QPunOGc-xzrLL4ZdbyotJ2E/view?usp=drive_link

fishers. Her affidavit details that there was no follow-up meeting set up particularly to address the concerns of fishers, nor did she receive any correspondence related to this.

289. The DFFE refused to grant Karpowership an EA in its decision of 23 June 2021 on various grounds including the lack of public participation with fishers. The details of the only meeting with small-scale fishers are contained in the paragraphs above.
290. The Minister's August 2022 appeal decision also confirmed that the public participation process followed in respect of the first EIA had been inadequate.³⁴⁸
291. Accordingly, the EIA was remitted back to the competent authority so that the various gaps in information and procedural defects in relation to the PPP that led to the rejection of the EA application could be addressed, during the reconsideration and re-adjudication of the EA application, provided that the timeframes prescribed by the EIA Regulations in respect of the EIA process were adhered to by Karpowership.
292. Essentially, after failing to comply with the requirements in the first EIA process, Karpowership was given a second opportunity to resubmit its EIA to remedy the gaps and deficiencies, to meet public participation requirements, in addition to other provisions of NEMA, that had not been complied with. All of the gaps were clearly identified in the initial DFFE decision and the Minister's August 2022 appeal decision, and thus Karpowership was at all times, aware of what gaps needed to be addressed, and by when.
293. The defective public participation process and in particular the "focus-group meeting", is used numerous times throughout the FEIR and the comments and response document as the attempt to state that fishers were consulted, despite the objections initially raised.
294. As detailed in the affidavits of Ms Mostert, Ms Smith and Ms Van Wyk, whilst they come from their respective fishing communities, at the time of the meeting in 2021, none of them held mandates to represent the communities they resided in. Even if they had had mandates, a meeting with three people certainly does not constitute engagement with a vast constituent of stakeholders whose livelihoods and cultures would be affected by

³⁴⁸ P70 – 74, Minister's August 2022 Appeal Decision.

this project. Therefore, this initial meeting cannot be construed as engagement with the fishing communities of the West Coast.

295. There was an explicit request to the EAP for another meeting with small-scale fishers in April 2021 and this did not materialise. This is significant as the EAP claims throughout the comments and response document that “*representatives from coastal links were contacted*”. The Appellants reiterate that these representatives cannot make decisions on behalf of their constituencies, and this is confirmed in the supporting affidavits.³⁴⁹ Furthermore, simply contacting representatives from Coastal Links does not constitute meaningful engagement.

Additional defects in the public participation process for the second EIA

Inaccurate statements in the FEIR regarding fishing communities

296. The FEIR of 6 January 2023 states two important points related to consultations with the small-scale fishers – neither of which are correct. The first is that numerous attempts were made to conduct workshops with small-scale fishers and the second is that notwithstanding this, the small-scale fishers should not be concerned as the area in which the ships will be moored is not an area in which small-scale fishers are permitted to fish.³⁵⁰
297. The Appellants highlight that not only do small-scale fishers have the right to public participation as interested and affected parties, but also due to their history, culture and tradition which is invariably linked to the rights to culture,³⁵¹ access to food³⁵² and equality,³⁵³ which rights all stand to be affected by this project. There is a higher burden placed on the EAP to ensure that they are meaningfully engaged. This is aligned with section 41(6) of the EIA Regulations. As such the consultants should have gone further to ensure that a dedicated meeting with them during the second EIA public participation process took place.

³⁴⁹ Appendix D9: at page 197, ...

³⁵⁰ FEIAR: page 132

³⁵¹ S31, the Constitution.

³⁵² S27, the Constitution.

³⁵³ S9, the Constitution.

298. A submission by Dr Jackie Sunde, attached as **Annexure I (“the Sunde submission”)**, addresses the contention in the FEIR that the location of the ships do not overlap with the fishing area of the small-scale fishers – thus refuting the claim that fisher communities would not be directly affected by the project.³⁵⁴ In her submission, Dr Sunde provides evidence that there are fishers who are legally permitted to utilise the area in Big Bay south and east of the jetty where the Karpowership location has been proposed.³⁵⁵ Dr Sunde further states that the location of the ships may have potential impacts on the roll-out of the implementation of the small-scale fishers policy, in accordance with the Marine Living Resources Act, as the DFFE considers historical ties to the area and the permitting of fishers to fish in Saldanha bay.
299. This was not considered or addressed in the FEIR, or in response to the First and Second Appellants’ comments on the DEIR. Had the EAP properly consulted with small-scale fishers, this kind of information would also have been shared in that forum and consequently formed part of the assessment.
300. The absence of meaningful engagement with fishing communities is evident from the FEIR which fails to understand the history, culture, heritage and rights of small-scale fishers (see ground of appeal on the inadequate consideration of cultural and heritage impacts). They are a distinct community whose interests are marginalised. Had the EAP conducted meaningful engagement with small-scale fishers, there would have been a better understanding on the impacts of this project on their interests, livelihoods and rights.

Inadequate advertisement and notification of the project for the second EIA phase

301. The DEIR documents related to the second EIA process for this project were placed in areas where fishers do not frequent. This was raised in the Sunde submission, in which she emphasised that small-scale fishers “*were not identified as an I&AP interest group that must be directly informed. They do not buy and read the Cape Times or the Argus.*”

³⁵⁴ Submission by Dr Sunde to the consultants on 13 December 2022

³⁵⁵ The Socio-Economic Report and supplementary report fail to put this information in the Environmental Impact Assessment. No list of these Interim Relief fishers is attached nor is the fishers who have applied to DFFE for recognition as SSF fishers in these two towns and the reports make no reference to these lists.

They do not frequent 'Cup of Cake Restaurant: 37 Main Rd, Saldanha' nor do they have online data or internet facilities to access large documents online via the Triplo4 Offices (Suite 5, The Circle, Douglas Crowe Drive, Ballito); or Triplo4 Website: www.triplo4.com. These traditional fishers are not in the same category as fishers working in the industrial fisheries sector of Saldanha such as Sea Harvest workers. These fishers do not frequent the sites that were identified for the distribution of the translated flyers namely:

- Club Mykonos, Langebaan;*
- Pienaar Brothers at Trisano Centre, Saldanha Bay;*
- Protea hotel, Saldanha Bay; and*
- Blue Bay Lodge and Resort, Saldanha Bay*

They do not walk the transmission line regularly” (the transmission line being where the advertisement notices were placed).

302. The consultant’s response to the issue raised above is recorded in appendix D9 as the following:

“The fishers’ limitations and constraints are acknowledged however Coastal link representatives were included in the PPP process and a focus group meeting took place on 12 April 2021. An informative discussion took place with the Socio-Economic specialist in attendance to so that potential concerns could be understood and assessed” ³⁵⁶

303. **Once again, the consultant relies on the initial defective “focus group meeting”, which was ruled inadequate by the DFFE** as a reply to significant procedural issues with the public participation process. It is detailed in the supporting affidavit for Ms Van Wyk that she did not read the documents that were made available at Cup of Cake in Saldanha as she does not frequent the shop.

304. It was further raised by Dr Sunde in the Sunde submission, that, in her experience of working more than two decades as a coastal researcher with the communities on the West Coast, the levels of illiteracy and schooling mean that virtual meetings and written comments are not an appropriate form of communication for the majority of the traditional, small-scale fishers. In Dr Sunde’s experience, the majority of fishers with

³⁵⁶ Appendix D 9: page 201.

whom she has interacted with have not completed schooling past grade 6. This is largely due to the apartheid-era schooling system in which black South Africans were denied access to education. Dr Sunde submits that oral submissions and **an opportunity to engage properly in dialogue , to ask questions and be answered, would have been an appropriate and more adequate form of consultation**, and aligned with EIA regulation 41(2)(e).

305. The response from the consultant to this recommendation is to once again point to the “focus group meeting” of April 2021 in which the attendees emphasised that there needs to be meaningful engagement with the fishing communities.³⁵⁷

Absence of any engagement with small-scale fishers

306. There is a significant difference between the interests of the general public and the more specific interests of a defined group of stakeholders whose rights stand to be directly affected by the project, such as small-scale fishers of the West Coast. The history and traditions of the Langebaan Lagoon traditional small-scale fishers and their right to be consulted in relation to any development that impacts them have been acknowledged by courts in South Africa.³⁵⁸
307. The lack of consultation with small-scale fishers was one of the reasons the DFFE and the Minister (in her August 2022 appeal decision) refused to provide Karpowership with the authorisation initially applied for in 2021. Yet there was no engagement with small-scale fishers specifically, as part of the second EIA public participation process.
308. In the report that is Annexure 9 D1.1 to the FEIR, titled ‘Engagement with the Small-scale Fisheries’ on the engagement conducted by Steenkamp and Rezaei (2022), they refer to an engagement with the fishers that allegedly took place on 3 October 2022. The heading of the report relates to a workshop with “small-scale fishers”, however the

³⁵⁷ Appendix D9: page 199.

³⁵⁸ Judge Sher in his judgement in favour of the Langebaan fishers in Coastal Links versus the Minister and others 11907/2013.

subsequent information under this heading states that it was commercial fishers in attendance (not small-scale fishers)³⁵⁹

309. In 2022, when Karpowership began its EIA consultation process again, none of the attendees from the initial meeting with the EAP in 2021, were made aware of the specifically requested “fisher focus group meeting” to be held on Monday 3 October 2022.

310. As a registered interested and affected party, Ms Van Wyk received the general notice of a public meeting taking place in Saldanha on the 21st of November 2022. The summary of the public participation process contained in Appendix 3 states as follows:

“Public and Stakeholder Meetings:

As part of the public participation process, two public meetings were conducted - an in-person meeting and a virtual meeting - and were independently facilitated. The in-person meeting was held on the 21st November 2022 at the White City Multi-purpose Centre in Saldanha Bay at 10am to 2:30pm. The virtual meeting was held on an online meeting platform, Airmeets, at 5pm to 8pm on the 21st November 2022. The meeting link was shared closer to date of the meeting. The same information was presented at both sessions and registered I&APs received the presentation, transcripts, and comments and responses for both sessions.”³⁶⁰

311. On the same day, 21 November 2022, the Western Cape experienced a taxi strike which was widely reported as being violent and many commuters were advised to stay away from other public transport options and even using private vehicles.³⁶¹ This is detailed in Ms Van Wyk’s affidavit at paragraph 15.

312. Due to the above circumstances, the EAP should have rescheduled the public meeting. Virtual platforms are not suitable for consultation with certain groups of people and

³⁵⁹ Steenkamp, T. and Rezaei, S.A.S. (2022). Stakeholder Engagement Report: Small Scale Fishers at the Port of Saldanha, Western Cape, South Africa. Karpowership SA, Environmental Impact Assessment, 2022. Afro Development Planning Pty Ltd, eThekweni, South Africa.

³⁶⁰ Appendix 3: Summary of Public Participation Report

³⁶¹ [WATCH | Buses torched as taxi strike gets under way in Cape Town \(timeslive.co.za\)](https://www.timeslive.co.za/news/south-africa/2022/11/21/watch-buses-torched-as-taxi-strike-gets-under-way-in-cape-town/)

especially poor coastal communities such as the one in Saldanha. Small-scale fishers often do not have access to wifi, nor are many of them able to afford the costs of data for the purposes of attending a public online meeting.

313. By the consultants' (from AfroDevelopment Planning) own account, they admit that the poor attendance by small-scale fishers could have also been due to the snoek run.³⁶² It seems misplaced to arrange a meeting with fishers during the snoek run, which makes up a large part of their livelihoods.

314. Despite the poor attendance due to the taxi strike (which the EAP and the consultants must have come to know about) and the snoek run, no effort was made for a follow-up meeting at a more appropriate time and place to ensure that the engagement took place. This process for the November 2022 meeting was therefore flawed and excluded the participation of small-scale fishers in direct violation of the requirements for public participation outlined in NEMA.

315. Notwithstanding the above, the consultants stated numerous times throughout the summary of the public participation process document that *"An enhanced Public Participation Process was also undertaken as per Chapter 5 of the EIA report that included various notification methods, individual workshops with small scale fishers and stakeholder meetings as identified and requested."*

316. Furthermore, in comment 7.2. of the Public Participation report in the FEIR, the facilitator, Ms Steenkamp, states in reply that *"We have done a number of engagements with the local communities. I know that didn't come through in the PowerPoint presentation and it isn't in the agenda. We have engaged with the small-scale fishers at each of the sites."*³⁶³ The consultants however do not provide evidence of this.³⁶⁴

317. On the contrary, the FEIR states that the socio-economic assessment for Saldanha Bay **did not undertake a dedicated stakeholder engagement with the small-scale fishers.**³⁶⁵

This is particularly puzzling considering that there was a specific request for a dedicated

³⁶² Page 2. Appendix D1.1.

³⁶³ Appendix 3: Public participation report at page 465.

³⁶⁴ Appendix 3: Public participation report

³⁶⁵ FEIA: p191

stakeholder engagement with small-scale fishers in the first EIA refusal and the Minister's August 2022 appeal decision.

318. According to the register of the alleged "small-scale fisher meeting" on 3 October 2022, none of the attendees identified themselves as small-scale fishers, as recognised by the Department.³⁶⁶ Instead, according to their self-declarations on the attendance register, the attendees were directors, and owners or officials in the aquaculture industry, with the exception of one person who comes from the Commercial Pelagic sector. A copy of the register was included in the small-scale fisher report.³⁶⁷
319. The self-identification as 'small-scale fishers' is relevant, as this is the term that small-scale fishers use to identify themselves, and the Department recognises this when discussing fishing rights for this group of fishers. It is the term contained in the policy on small-scale fishers and is widely known within the sector. The consultants state that *"There are no registered small-scale fishing cooperatives associated with any of the ports. At the time of compiling this report, the understanding of this dynamic was informed by formal comment received by DFFE indicating that there are no declared small-scale fishers in the Western Cape."* This is substantively untrue and is an indication of the lack of understanding of the importance and impact that this project will have on small-scale fishers.³⁶⁸
320. The Sunde submission highlighted a significant number of issues regarding the small-scale fisher engagement. She highlights that none of the attendees who the consultants have purportedly used to claim that there was consultation with small-scale fishers, are in fact small-scale fishers.

³⁶⁶ Appendix 9 of the FEIAR: D1.1.: Small-scale Fisher Engagement at pages 23-24. We note that on the first page of the register "Small-Scale Fisher Engagement" is scratched out, however the register is provided as proof of such engagement that did not take place with Small-Scale Fishers.

³⁶⁷ This complaint was based on the conduct of the EAP during public participation and sought to highlight prejudice on the small-scale fishers of Saldanha. The EAP had a meeting with small scale fishers on 19th April 2021, on that day the EAP was aware of the recommendations of the Marine Specialist study (February 2021) and however did not disclose this to the fishers. This means that the EAP failed to disclose crucial information during this meeting thereby resulting in a failure to carry out the duties and legal requirements prescribed by NEMA for EAPs.

³⁶⁸ The Minister of DFFE, is aware that the process of officially recognising small-scale fishers in the Western Cape has been delayed as she took the previous Minister's decision on review in the Western Cape High Court in 2022.

321. The inevitable result of this is that none of the attendees were able to talk about the actual small-scale fisher fishing activities as they are not small-scale fishers. It is therefore not surprising that they might have presented a more positive approach to the Karpowership project and the possibility of job creation and other opportunities. In contrast, the Interim Relief – soon to be small-scale fishers from both Saldanha and Langebaan have repeatedly stated on record that they do not support this project. There are numerous interviews and media statements of this nature in the public domain.³⁶⁹
322. The above paragraphs demonstrate that despite the DFFE highlighting to Karpowership that they had initially failed to meet the legal requirements for adequate public participation, in particular with small-scale fishers, the public participation process relied upon in relation to the second EIA process remains inadequate. The EAP repeatedly points to the inadequate meeting of April 2021 as a ‘cure’ and ‘defence’ against any legitimate public participation issue raised by I&A parties in the second EIA process, which was supposed to “fix” the flaws of the previous process.
323. The small-scale fishers have further interests and rights, beyond a right to be consulted, in relation to the ocean as it forms part of their cultural heritage, identity and livelihood. The EAP ought to have gone further than all the meetings and purported consultation processes mentioned above. It can be concluded from the above that the public participation process (or lack thereof) concerning **the small-scale fishing community**, which led to the EA being refused in the first EIA process, was not cured by the consultants in the second EIA process.
324. It is clear that the revised FEIR therefore fails to provide a clear and adequate profile of the small-scale fishers or to interrogate the potential negative impacts of the project on them. The supplementary public participation report by Afrodevelopment Planning is acknowledged as not representing small scale fishers but in the FEIR, yet the EAP draws on it to support the conclusion that Karpowership project will have little impact on small-scale fishers.

³⁶⁹ [Small-scale fishers fear powership plan could spell disaster | Business \(news24.com\)](#)

325. To the extent that impacts are not, or cannot be, adequately assessed, it stands to reason that the project authorisation should be refused. This is in line with the NEMA requirements and principle that requires a risk-averse and cautionary approach.³⁷⁰

NINTH GROUND OF APPEAL: INADEQUATE CONSIDERATION OF AIR POLLUTION AND HEALTH

326. The Appellants' primary objections to the Atmospheric Impact Assessment specialist study ("**AIR**") in the FEIR are the following:

326.1. It has not adequately assessed the cumulative impacts of upcoming projects in the area and the additive contributions of this project to a more realistic baseline – and, importantly, what this could mean for the health and wellbeing of the communities in Saldanha Bay, and compliance with National Ambient Air Quality Standards ("**NAAQS**"); and

326.2. It has failed to account for a number of pollutants that pose risks of harm to human health.

Failure to adequately assess cumulative air pollutant emissions

327. The FEIR states that *"Ambient monitoring data for 2017 to 2019 at Saldanha Bay is analysed for SO₂, NO₂, and PM₁₀. Monitored SO₂ data show ambient levels for the monitoring period, with no exceedances of NAAQS. Monitored NO₂ concentrations are elevated with higher concentrations observed in winter (i.e. June to August). Monitored PM₁₀ concentrations are elevated year-round with limited exceedances of NAAQS in January 2017. An estimated background concentration of 5 to 10 µg/m³ is observed"*.³⁷¹

328. It uses the annual average monitored concentrations of SO₂, NO₂ and PM to conclude that *"the predicted maximum concentrations are very low and are well below the respective NAAQS"*.³⁷²

329. The baseline being relied upon to determine the impact of the project's air emissions on ambient air concentrations is outdated and does not account for future or potential added air pollution sources from projects that are expected to come online in the future,

³⁷⁰ section 2(2)(2)(vii) NEMA.

³⁷¹ P142, FEIR.

³⁷² P28, Atmospheric Impact Report, October 2022, Appendix 9 to the FEIR (

particularly in light of the designation of the Saldanha Industrial Development Zone (“IDZ”). These include, but are by no means limited to:

- 329.1. The Saldanha IDZ access road completed in 2022;
 - 329.2. Expansion of the Sunrise Energy LPG Terminal;
 - 329.3. The Vortum (CCGT) 800MW Thermal Power Plant situated on Portion 6 of the Farm Langeberg 188, Malmesbury Road anticipated to commence construction soon referred to in the FEIR’s Aquatic Assessment;³⁷³ and
 - 329.4. Any other proposed projects for the Saldanha IDZ,³⁷⁴ which could have negative impacts for air quality and health.
330. NEMA section 24O(1)(b) states that a decision-maker must take into account relevant factors which may include “*environmental degradation likely to be caused if the application is approved or refused*” (emphasis added).
331. NEMA therefore requires an assessment of all *likely* impacts which may arise from the project. This requires a ‘worst-case scenario’ air quality assessment, which accounts for proposed and authorised projects all coming online in the Saldanha Bay Area, and at least a more up to date air quality baseline assessment that takes into account projects that have come online since 2019, in order to determine the project’s potential additive contributions to air quality and health impacts in the area. The FEIR has not done this.
332. The conclusions that the additive effect of the emissions from the Karpowership project on ambient concentrations is small and will not result in significant increases in ambient concentrations in Saldanha Bay, or in exceedances of the NAAQS, therefore cannot be relied on.

The AIR fails to consider important pollutants that harm human health

333. The AIR does not assess impacts from PM2.5, ozone, ammonia, volatile organic compounds (“VOCs”), methane, and carbon monoxide, despite these being relevant pollutants that would emanate from the project activities and harm human health.

³⁷³ 3.6 Cumulative Impacts associated with similar projects, p10, Karpowership Saldanha Bay Port Aquatic Assessment, October 2022, Appendix 9 to the FEIR.

³⁷⁴ See <https://sbm.gov.za/industrial-development-zone-idz/>.

334. Recent studies³⁷⁵ show that there is no safe amount of air pollution. Treating reference NAAQS and the minimum emission standards as a license to pollute up to those concentrations and a free pass to allow continued emissions below those concentrations cannot be accepted. This renders it even more unacceptable that a number of pollutants, which have impacts on human health, such as those listed above, have simply been omitted from the FEIR.
335. Insofar as the AIR purports to assess the anticipated health impacts of the project in terms of air quality, it has failed to do so by omitting any assessments of the potential health impacts of the above excluded pollutants.

TENTH GROUND OF APPEAL: THE EA CONDITIONS AND REQUIREMENTS ARE IRREGULAR AND UNLAWFUL

336. Material information is listed in the environmental authorisation as being absent from the EIA and has been deferred to later approval. This includes the Environmental Management Programme (“**EMPr**”) for the gas to power powership facility, which has not been approved, and key material information, which is absent from the EA – namely the final site layout plan and map. This is contrary to the requirements of NEMA and the EIA Regulations, 2014, which state the following:

- 336.1. In relation to requirements for an EIA: the EIA Regulations require that an EIA include *“a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale”*.³⁷⁶ This must have informed the decision to grant the environmental authorisation, it cannot be approved after the fact.
- 336.2. In relation to the minimum requirements for an EA: NEMA provides that *“Every environmental authorisation must as a minimum ensure that-(a) adequate provision is made for the ongoing management and monitoring of the impacts of the activity on the environment throughout the life cycle of the activity; (b) the property, site or area is specified; and (c) provision is made for the transfer*

³⁷⁵ Marks, ‘Misuse of Pollution Reference Standards: No Safe Level of Air Pollution’, 2022 May 1; 205(9): 984–985. At <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9851491/>.

³⁷⁶ S3(1)(c), EIA Regulations, 2014.

*of rights and obligations.*³⁷⁷ It is not possible to make adequate provision for monitoring and management in the EA as required, in the absence of an approved EMPr. Further, the site layout plan and map have not been approved in this EA – affecting the extent to which the site could have been specified as required by NEMA.

- 336.3. In relation to an EMPr: “(1A) ... *the Minister, the Minister responsible for mineral resources or an MEC must require the submission of an environmental management programme before deciding an application for an environmental authorisation*”³⁷⁸ (emphasis added). This presupposes that an approved EMPr must exist alongside an approved EA, as the EMPR must be part of the information considered in an EIA and inform the decision on whether or not to grant the EA. NEMA section 24N(6) states that “*The Minister, the Minister responsible for mineral resources or an MEC may at any time after he or she has approved an application for an environmental authorisation approve an amended environmental management programme*”. Again the reference to an amended EMPr presumes that there must have been an approved EMPr to begin with. At present, the project does not have an approved EMPr. An EMPr cannot be amended if it has not been approved, and therefore does not formally exist.

337. To provide more detail on the problematic provisions of the EA, the EA states that:

- 337.1. “*the final site layout plan(s) for the gas to power via powership and its associated infrastructure, as determined by the detailed engineering phase and micro-siting, and all mitigation measures as dictated by the final site layout plan, must be submitted to the Department for approval prior to construction. A copy of the final site layout map must be made available for comments to registered interested and affected parties and the holder of this Environmental Authorisation must consider such comments. Once amended, the final development layout map must be submitted to the Department for written*

³⁷⁷ S24E, NEMA.

³⁷⁸ S24N, NEMA.

approval prior to the commencement of the activity. All biodiversity information must be used in the finalisation of the layout map” (emphasis added).³⁷⁹ It proceeds to list what the layout map must indicate – namely: the position of the powerships and floating regasification unit; berthing and mooring positions of the powerships and FSRU; the transmission lines final route alignment; the switching station; the gas pipelines; all associated infrastructure; all sensitive features; all no-go and buffer areas.³⁸⁰ This is key site-related information that ought to have been before the decision-maker and ought to have informed any decision to approve the activities. It is also required by the EIA Regulations, 2014, as stated above.

- 337.2. *“The Environmental Management Programme (EMPr) for the gas to power powership facility, submitted as part of the EIAR is not approved and must be amended to include measures as dictated by the final site lay-out map(s) and micro-siting, and the provisions of this Environmental Authorisation. The EMPr must be made available for comments to registered interested and affected parties and the holder of this Environmental Authorisation must consider such comments. Once amended, the final EMPr must be submitted to the Department for written approval prior to the commencement of the activity.”*³⁸¹

The EA then proceeds to list what the EMPr ‘amendment’ must contain, including:³⁸²

337.2.1. An open space management plan, rehabilitation plan, and alien invasive management plan;

337.2.2. A dune rehabilitation plan, which must be developed by a specialist prior to commencement of construction;³⁸³

337.2.3. An erosion management plan;

³⁷⁹ Para 12, EA.

³⁸⁰ 12.1 – 12.7, EA.

³⁸¹ Para 14, EA.

³⁸² Paras 15.1 – 15.10, EA.

³⁸³ Paras 15.3 and 34, EA.

337.2.4. A traffic management plan, which must include measures to minimise impacts on local communities e.g. limiting construction vehicles travelling on public roadways during the morning for example; and

337.2.5. An effective monitoring system to detect any leakage or spillage of any hazardous substances during their transportation, handling, use or storage. This must include precautionary measures to limit the possibility of oil or other toxic liquids from entering the soil or storm water systems.³⁸⁴

337.3. The Reasons for the Decision in the EA are contradictory in that they state that the procedure followed for impact assessment is adequate for decision-making process,³⁸⁵ yet it calls for additional information that still requires approval by the Department before the activities can commence.

338. The fact that the EMPr is not approved and must be amended to “*include measures as dictated by the final site lay-out map(s) and micro-siting*” is highly irregular, as this is information which ought to have informed the EIA decision-making process, as required by the EIA Regulations and NEMA. An EMPr is not meant to be used as a vehicle to remedy shortcomings in the EIA process.

339. The absence and requirement for, *inter alia*, the inclusion of an effective monitoring system to detect any leakage or spillage of any hazardous substances, and to include precautionary measures to limit the possibility of oil or other toxic liquids from entering the soil or storm water systems is also highly concerning. These are impacts and mitigation measures which ought to have been in an EIA and EMPr, to inform a decision to grant an EA.

340. Further, comments from stakeholders on key information such as the site layout plan and map; and the EMPr must be taken into account by the decision-maker and inform the decision on an environmental authorisation **prior** to it being granted (not after). This is required by NEMA s24O(1)(b)(vi). Yet the EA seeks to prescribe a process of further

³⁸⁴ Para 15.8, EA.

³⁸⁵ Para 3, Annexure 1 (Reasons), p20, EA.

impact assessment and public participation and approval after the fact. This approach is highly prejudicial, irregular and incorrect in law.

341. This is also not aligned with the section 2 National Environmental Management Principles, including the principle that *“a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge.”*³⁸⁶ These principles must guide decision-making and apply to the actions of all organs of state that may significantly affect the environment.
342. To support the Appellants’ position, a 2023 judgment from the Pretoria High Court in *Eloff Landgoed v Ministry of Forestry, Fisheries and the Environment*,³⁸⁷ addressed the question of whether conducting an agro-economic assessment after the approval of a project, was permissible as a condition of the environmental authorisation. The court held that assessments should have been conducted **before** the environmental authorisation could have been granted, and that *“it cannot be a condition in a sense that compliance with it will enable the construction of the mine to proceed. It is rather a further issue to be explored before...the mine could be considered for the environmental authorisation...it would make no sense if mine construction could go ahead while a better appreciation of the mines’ impact on agriculture in the surrounding area is assessed further.”* Further *“a condition mandates further study of one of the impacts had to be captured and assessed before the authorisation was granted, I do not see how the condition could be consistent with a risk adverse and cautions approach...to characterise it as a condition of the authorisation, rather than as a vital material that must be considered before the authorisation can be issued, fatally undercuts the rationality of the Regional Manger’s and the Minister’s decision”*.
343. Without the final site layout plan and map and with an unapproved EMPr confirmed to be deficient, an informed decision could not have been made to authorise the project. On the face of it, the inclusion of these conditions amounts to a concession by the Chief Director that the EIA was inadequate and failed to meet the requirements of NEMA and the EIA Regulations.

³⁸⁶ S2(2)(2)(vii), NEMA.

³⁸⁷ 45 (21525/2020) [2023] ZAGPPHC 434 (19 June 2023).

ELEVENTH GROUND OF APPEAL: THE COMMENTS AND RESPONSES REPORT HAS NOT BEEN MADE AVAILABLE TO THE PUBLIC

344. Regulation 41(6) of the EIA Regulations requires the EAP to ensure that *“information containing all relevant facts in respect of the application or proposed application is made available to all potential interested and affected parties”*. Appendix 3 to the EIA Regulations requires that the environmental impact assessment report contains copies of supporting documents and inputs from the public participation process, as well as a summary of the issues raised (and an indication of the manner in which the issues were incorporated, or the reasons for not including them).
345. Whilst the FEIR includes a section summarising the issues raised, and Appendix 3 contains notices of advertisements etc, the actual comments and responses of I&APs, either submitted in writing or made orally in any meetings, have not been provided to the public. Records of correspondence with the CA or other organs of state have also not been disclosed.
346. The Appellants submit that the comments of other I&APs constitutes relevant information which is crucial to inform their own understanding of the project. Issues or concerns raised by other I&APs or stakeholders, this information should be included in the documents made available for public comment. It is curious that this information is deliberately not included in the documents for public comment, as is standard practice.
347. In the Reasons for the Decision attached to the EA, it is recorded that the Department took into consideration *“the comments received from interested and affected parties as included in the final EIAR dated September 2023”*. It is unknown whether the First and Second Appellants’ comments, or comments submitted by other I&APs for that matter, have been included in the FEIR submitted to the Department for decision-making. They are not contained in the FEIR documents made available on the EAP’s website.
348. We acknowledge that the responses to the previous comments of The Green Connection and Natural Justice were sent directly to the organisations, but there is no evidence in the public domain that these comments were actually before the decision-maker.

349. The First and Second Appellants raised this issue in their September 2023 comments, and yet the FEIR available on the EAPs website does not include a full Comments and Responses Report.

350. Failure to make all relevant information available to I&APs renders the EIA process procedurally unfair.

TWELFTH GROUND OF APPEAL: FAILURE TO CONSIDER THE REQUIREMENTS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: INTEGRATED COASTAL MANAGEMENT ACT (“NEM:ICMA”)

351. Section 63(1) of NEM:ICMA requires a competent authority to take account of specific factors when deciding whether or not to grant an environmental authorisation under NEMA for “coastal activities”.³⁸⁸ The authorised activity is located on coastal public property, and consequently is a coastal activity and therefore subject to the considerations of section 63.

352. By virtue of this section, the decision maker ought to have appreciated that in deciding whether to grant an environmental authorisation or not, he or she was required to consider additional factors specified in section 63 of NEM:ICMA³⁸⁹ and whether or not the proposed project “*would be contrary to the interests of the whole community*”. This required an eco-centric consideration of the impacts of the proposed project in an area that must be afforded a particularly high standard of protection given the natural functioning of the dynamic coastal processes.

353. Section 12 and 21 of NEM:ICMA further set out the State’s obligation in relation to the management of the coastal zone, which must be taken into account in taking a decision in respect of this zone.

354. The FEIR contains no evidence that the factors set out in section 63 were considered or assessed. In fact, the FEIR fails to identify the applicability of section 63 at all. Set out below is Table 4-7 of the FEIR, which sets out the application of NEM:ICMA to the

³⁸⁸ “coastal activities” means activities listed or specified in terms of Chapter 5 of the National Environmental Management Act which take place—

(a) in the coastal zone; or

(b) outside the coastal zone but have or are likely to have a direct impact on the coastal zone.

³⁸⁹ S 63(1)(c), s 63(1)(h)(i), s 63(1)(h)(iv) and s 63(1)(i).

project. Whilst the FEIR clearly identifies that the activity is proposed to take place on coastal public property, it does not identify section 63 as applicable to the assessment:³⁹⁰

Table 4-7: National Environmental Management: Integrated Coastal Management Act 24 of 2008

Legislation	Section	Relates to
National Environmental Management: Integrated Coastal Management Act 24 of 2008 as amended by the National Environmental Management: Integrated Coastal Management Amendment Act 36 of 2014	Section 2	Provides for the preservation, protection and enhancement of the status of coastal public property, and secure equitable access to the opportunities and benefits of coastal public property.
	Section 13	Persons right of reasonable access to coastal public property as well as the entitlement to use and enjoy coastal public property.
	Section 58	Duty to avoid causing adverse effects on coastal environment
	Section 69	Stipulate requirements for permits to discharge effluent that originates from a source on land into coastal waters.
Relevance to the Proposed Project, Compliance and Response:		
The discharge of cooled water from the Powership operations is from the moored Powership into the sea, i.e. there is no discharge from land-based activities, therefore a coastal waters discharge permit is not required. Measures to protect the coastal environment by mitigating impacts and responding to emergency incidents are contained in the EMPr.		
Further, discharge temperatures will conform to the current guideline, the South African Water Quality Guidelines for Coastal Marine Waters, Volume 1, Natural Environment and Mariculture Use (2018), i.e. the impact of the discharge temperatures must be assessed and impacts on receptors defined in the EIA		

355. Consequently, there was no factual investigation as required by section 63, including a determination of whether the coastal public property and the coastal protection zone would be impacted, and if so, to what extent the proposed activity is consistent with the goal of establishing or protecting those areas. The management plans that are relevant in these areas, like the Coastal Management Programme for the Western Cape Province,³⁹¹ have also not been taken into consideration. Further, the ESIA does not, at any point, consider the interests of the affected human and marine communities in any collective way. Consequently, the interests of the whole community have not been presented to the decision-maker in the ESIA.

³⁹⁰ Page 99 of the FEIR.

³⁹¹ Western Cape Coastal Management Programme: 2016 available at <https://cer.org.za/wp-content/uploads/2009/12/Western-Cape.pdf>

Draft Western Cape Coastal management Programme 2022 – 2027 available at <https://www.westerncape.gov.za/eadp/files/atoms/files/DRAFT%20Western%20Cape%20Provincial%20Coastal%20Management%20Programme%202022-2027.pdf>.

356. The Chief Director's decision also makes no mention of NEM:ICMA, and without evidence of specific consideration of these interests in the Reasons for the Decision, the Appellants are drawn to a conclusion the decision-maker has also not evaluated these interests in their decision to grant environmental authorisation.
357. Notably, the EAP's attention was drawn to this fatal flaw in their assessment in the First and Second Appellants' comments in December 2022. Clearly, this comment was ignored.
358. As set out elsewhere in this appeal, the Karpowership project will have highly significant impacts on the fishing communities and on the marine environment. The Appellants submit that it is not in the interests of the whole community (from and intra- and inter-generational perspective, as well as having regard to potential impacts on living organisms in South Africa's coastal waters³⁹²) to authorise this powership project.
359. The failure to identify the application of 63 of NEM:ICMA and to conduct the assessment required of this section is a fatal flaw, rendering the EIA process as fatally defective.

CONCLUSION

360. The Appellants have sent out in this appeal a number of grounds on which the decision to grant environmental authorisation to Karpowership was fatally flawed. The decision to authorise the project is consequently unlawful, in that it failed to comply with, *inter alia*, the Constitution and NEMA.
361. For all the reasons set out in this appeal, the Appellants submit that the appeal should succeed and that the environmental authorisation granted to Karpowership by the Chief Director should be set aside.

³⁹² In terms of the National Environmental Management: Integrated Coastal Management Act 24 of 2008 (NEM:ICMA), the 'interests of the whole community' is defined as meaning the collective interests of the community determined by:

- (a) prioritising the collective interests in coastal public property of all persons living in the Republic over the interests of a particular group or sector of society;
- (b) adopting a long-term perspective that takes into account the interests of future generations in inheriting coastal public property and a coastal environment characterised by healthy and productive ecosystems and economic activities that are ecologically and socially sustainable; and
- (c) taking into account the interests of other living organisms that are dependent on the coastal environment. (emphasis added)

LIST OF ANNEXURES

ANNEXURE	DOCUMENT DESCRIPTION	AUTHOR OR DEPONENT
Annexure A	Popper Expert Report 2023	Dr Arthur Popper
Annexure B	Fournet Acoustics Report_KPS_Dec2022_Final	Dr Michelle Fournet
Annexure C	Weiskel and Popper Report	Dr Heidi Weiskel and Dr Arthur Popper
Annexure D	Karpowership Saldanha Bay FEIAr Assessment 2023	AFG Tonin
Annexure E	Mallinson Report	Clyde Mallinson
Annexure F	RMI Report	Rocky Mountain Institute
Annexure G	Network Capacity Report	Zoe Lincoln
Annexure H	The Attendees	Ms Smith, Ms Mostert and Ms Van Wyk
Annexure I	Expert Report	Dr Jackie Sunde