



To: Environmental Impact Management Services (Pty) Ltd

Per email: block3b4b@eims.co.za

From: Natural Justice, The Green Connection and Masifundise Development Trust

Per: Allan Basajjasubi and Melissa Groenink-Groves, Natural Justice

Liziwe McDaid, The Green Connection

Carmen Mannarino, Masifundise Development Trust

Email: allan@naturaljustice.org; melissa@naturaljustice.org; liziwe@mweb.co.za;
Carmen@masifundise.org.za

8 February 2023

Dear Environmental Assessment Practitioner,

COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR THE PROPOSED AFRICA OIL SA CORP BLOCK 3B/4B OFFSHORE EXPLORATION

EIMS REF: 1570

PASA/DMRE REF: 12/3/339

INTRODUCTION

1. These submissions are made by Natural Justice, the Green Connection and Masifundise in response to the Draft Environmental Impact Assessment Report (DEIAR) published for comment by Environmental Impact Management Services (Pty) Ltd for the proposed exploration and environmental authorisation applications for Block 3B/4B.
2. 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 natural resources.

3. The Green Connection is a registered non-governmental organisation, that believes that economic growth and development, improvement of socio-economic status and conservation of natural resources can only take place within a commonly understood framework of sustainable development. The Green Connection aims to provide practical support to both the government and non-governmental/civil society sectors, which are an integral part of sustainable development.
4. Masifundise is a civil society organisation with a long track record in the small-scale fishing sector. Its aim is to promote and advance human rights and Food Sovereignty in small-scale fishing communities in South Africa, and globally. Masifundise empowers fishers and community-based activists to become agents of change in order to become agents of change within their own communities, organisations, and social movements, as well as facilitating and strengthening participatory governance, enabling fishing communities to secure their social, economic, and political rights and promoting principles of social, economic and environmental justice.
5. Natural Justice and The Green Connection submitted comments on the draft Scoping Report on 21 August 2023. In this comment, we set out our objection to the exploitation of oil and gas resources. We stand by those comments.
6. In this submission, we set our specific comments on the Draft Environmental Impact Assessment Report (DEIAR) dated 21 December 2023, and shared for public comment on 8 January 2024.

COMMENTS ON THE DRAFT BASIC ASSESSMENT REPORT

I. THE DEIAR'S OIL SPILL MODELLING FAILS TO MODEL A WORST-CASE SCENARIO

7. NEMA requires an environmental impact assessment to assess "each identified potentially significant impact and risk, including the probability of the impact and risk occurring."¹ A probability is the extent to which an event is likely to occur. Because a worst-case scenario has some probability of occurring, the DEIAR must assess the impacts of a worst-case scenario. For the Project, a worst-case scenario includes a blowout event that results in the release of hydrocarbons into the surrounding environment.
8. The DEIAR claims to have modelled a worst-case blowout scenario,² however this assertion is incorrect. In fact, the DEIAR and the Oil Spill Drift Modelling Technical Report ("Modeling Report") fail to properly assess the potential impacts of a worst case oil spill scenario for Block 3B/4B in three main ways. First, the Modeling Report fails to identify a worst-case release point for a blowout event. Second, the Modeling Report fails to model blowout scenarios of both condensate and crude oil releases using hydrocarbon profiles reflecting available data from nearby wells in the same basin.

¹ NEMA Regulations, Appendix 1, Section 3(1)(j)(iv).

² See, e.g., DEIAR at p. 405; HES, Africa Oil SA Corp South Africa Well Drilling in Block 3B-4B: Oil Spill Modeling Technical Report V03 ("Oil Spill Modeling Technical Report") at p. 2, 11.

Finally, the Modeling Report arbitrarily uses an optimistically short timeframe for the duration of a potential release. As a result, the modeled blowout event fails to represent a worst-case, conservative scenario as the DEAR and Modeling Report claim.³

9. The DEAR's failures to model a true worst-case blowout scenario are discussed in more detail below. The model will need to be updated to reflect a true worst-case scenario. This will require many of the DEAR's conclusions to also be adjusted to reflect the more significant risks to marine and coastal ecosystems and organisms.

The model's release point location does not reflect the worst case location.

10. The Oil Spill Drift Modeling Technical Report states that "The Release Point selected for the study scenarios represent the worst-case locations in the block" and "Usually a conservative case (worst-case) is chosen, showing for example the shortest time of impact to the coast, or the largest quantity of hydrocarbons to the coast."⁴ The release point used in the model does not meet the criteria for worst case since there are locations inside Block 3B/4B and the designated "areas of interest" that are closer to shore, protected areas, or critical biodiversity areas (see Figure 1 of modeling technical report included below). According to Google Earth, the release point (Point D in the figure) is about ~215 km from shore, while there are locations in the areas of interest that are just ~180 km from shore and other areas in Block 3B/4B that are only ~120 km from shore.
11. Similarly, there are areas of Block 3B/4B and the areas of interest that are much closer to the Childs Bank and Benguela Mud Marine Protected Areas (the dark green patches northeast and southeast of the areas of interest) than the selected release point. The boundary of the areas of interest comes within ~25 km of the Childs Bank MPA, while the block boundary comes much closer to both Childs Bank and Benguela Mud MPAs. Additionally, given the local currents and prevailing wind directions and the technical report's focus on whether spills would impact Namibian or International waters, a location at the northern end of the blocks and areas of interest could reflect more of a worst case scenario.
12. Block 5/6/7 is adjacent to Block 3B/4B and the "ESIA for Exploration Well Drilling in Block 5/6/7 off the South-West Coast of South Africa" published in 2022, modeled two different release points to ensure the worst case scenario was covered.⁵ The Block 3B/4B analysis would better reflect worst case scenarios by similarly modeling two release points, one at the northern edge of the areas of interest (closer to Marine Protected Areas and Namibian waters) and one at the southeastern edge of the areas of interest, closer to shore and nearby MPAs. (See example in Figure 2 below).

³ *Id.*

⁴ Oil Spill Modeling Technical Report at p. 11.

⁵ SLR, Final Environmental and Social Impact Assessment Report Volume 2 for Exploration Well Drilling in Block 5/6/7 off the South-West Coast of South Africa Volume 2: Technical Studies, Total Energies (December 2022), <https://cdn.sanity.io/files/b0ecix6u/production/47360bce717170ebe5374721c918690a997683d2.pdf>.

Figure 1. The figure below on the right is Figure 1 from the Oil Spill Drift Modeling Technical Report. Well location D was modeled as the release point. Figure 2 on the right shows the same information, with an approximate block outline added in red. The red point marks the release point used in the model. The two blue points illustrate examples of locations that would better illustrate a true worst-case scenario.

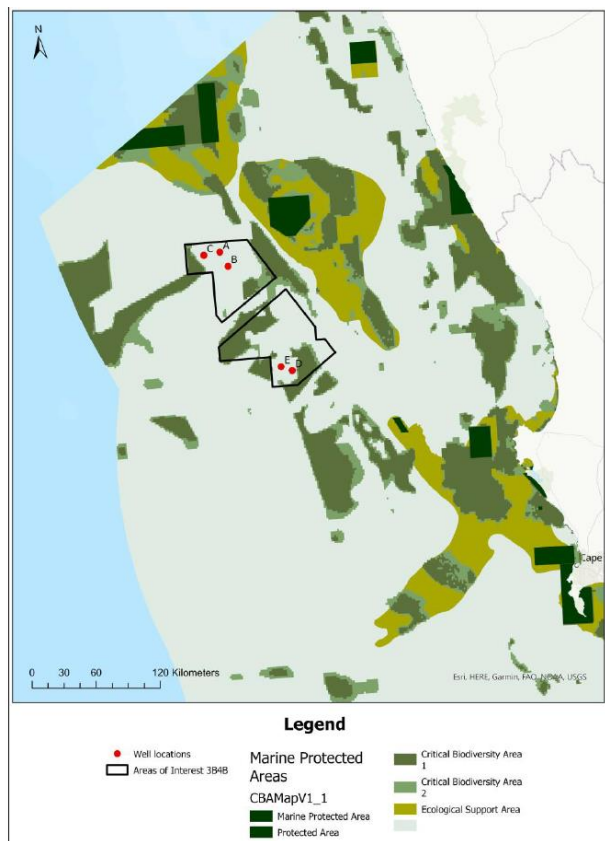


Figure 1: Release points locations, area of interest and sensitivity map, Oil Spill Drift Modeling Technical Report at 8.



Figure 2: Block 3B/4B Overlay on Release Points

The model's hydrocarbon profile assumption does not reflect the worst case scenario for Block 3B/4B.

13. The DEIAR states:

The oil was predicted to not reach the shore at the Release Point, regardless of the season. Sensitive nearshore and coastal receptors were thus not considered in the assessment. This, however, makes the crucial assumption that the released liquid hydrocarbon is ONLY condensate with no crude oil being present ...

14. There is a probability that the hydrocarbon resource targeted by the proposed exploration wells is condensate rather than crude oil ... In the event of the well producing oil, the potential blowout rate would be higher, but this information is not available.”⁶
15. These statements make it clear that there is a chance the well could produce oil, and if it did, the blowout rate would be higher, resulting in a larger total spill volume. This means that the worst case scenario was not properly modeled, since crude would persist in the environment longer and be released at a higher rate during a blowout. It also means DEIAR fails to analyze the full range of potential impacts of the Project, in violation of NEMA.
16. The assumption that only gas and condensates would be released during a blowout relied on an assumption that the hydrocarbon profile of Block 3B/4B would be similar to those of the Brulpadda/Luiperd fields. It is not clear why the Brulpadda/Luiperd fields were used as an oil type reference or “analogue reservoir” for spill releases. These fields are located roughly 600-700 km away from Block 3B/4B off the southern tip of South Africa in a different basin, while the Graff-1 and Venus-1 wells in Namibia are located roughly 150-200 km northwest of Block 3B/4B in the same basin (see Figure 2 below). Graff-1 and Venus-1 have yielded light oil while Brulpadda and Luiperd yielded gas condensates.

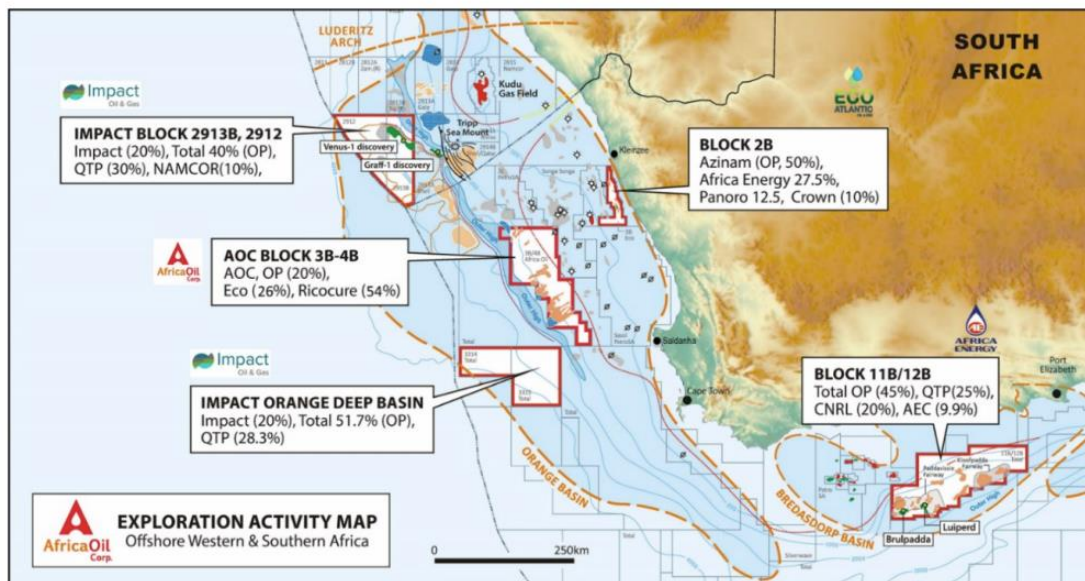


Figure 3: Location Map for Block 3B/4B and Africa Oil Assets from Prospective Resources report of independent qualified evaluator for Block 3B/4B, South Africa at 14, https://africaoilcorp.com/site/assets/files/1823/risc_-_africa_oil_corp_prospective_resource_report-_blo.pdf.

17. Block 5/6/7 is adjacent to Block 3B/4B, and the “ESIA for Exploration Well Drilling in Block 5/6/7 off the South-West Coast of South Africa” published in 2022, modeled releases of both crude oil and

⁶ DEIAR at p. 376.

condensate to determine which represented the worst case and based the crude oil profile on data from the Venus well.⁷ The ESIA for Block 5/6/7 provides the following rationale for analyzing releases of both crude and condensate: “At the present time, the basin modeling studies are not finished and even if it is more likely to find oil, the condensate case is not excluded. Thus, a comparison of a “crude oil” case versus a “condensate” case was performed.”⁸ After comparing both cases, the ESIA for Block 5/6/7 concluded “that the Crude Oil case is the most impacting (worst-case scenario).”⁹ Given the uncertainty about what types of hydrocarbons would be released, the Block 3B/4B model should have analyzed releases of both crude oil and condensate and should have based the hydrocarbon profile on the nearby Venus well located in the same basin rather than the more distant Brulpadda/Luiperd fields that are in a different basin.

18. Another reason to model both condensate and crude releases is that they pose different risks and behave differently in marine environments. Condensate tends to disperse and evaporate readily, resulting in less oiling on the water surface or shorelines. Highly toxic crude oil released during a blow-out would be much more persistent on the water surface, and much more likely to impact the shoreline. Crude oil affects marine fauna it comes in contact with, and should have been included in modeling of the worst-case scenario, especially considering the presence of ‘Endangered’ and ‘Vulnerable’ seabird species and ‘Critically Endangered’ and ‘Endangered’ species of marine turtles, cetaceans, and numerous fish species in the project area.
19. It is well known that oil on the water surface can smother seabirds, and that even small oil spots may affect them, as oil on their feathers can affect their normal insulation and lead to hypothermia. Oil droplets attract, entrap and kill many smaller-sized species, while larger fish species may ingest oil when trying to catch oil-trapped organisms, or they may inhale it or get it stuck on their gill membranes. High oil concentrations are fatal for marine organisms, and low oil concentrations affect molluscs, crustaceans, fishes and all other organisms that live and breathe in the water.¹⁰

The model’s release rate and duration do not reflect the worst case scenario.

20. As described above, the model should have examined a scenario where crude oil was released. Given that the DEIAR states: “In the event of the well producing oil, the potential blowout rate would be higher”, it is clear that the modeled release rate does not reflect the worst case scenario. It also is not clear why the DEIAR stated that the blowout rate for a crude spill “is not available”, given that the ESIA for nearby Block 5/6/7 was able to model releases of both condensates and crude oil. The

⁷ SLR, Final Environmental and Social Impact Assessment Report Volume 2 for Exploration Well Drilling in Block 5/6/7 off the South-West Coast of South Africa Volume 2: Technical Studies, Total Energies (December 2022) at 11, 35, <https://cdn.sanity.io/files/b0ecix6u/production/47360bce717170ebe5374721c918690a997683d2.pdf>.

⁸ *Id.* at p. 35.

⁹ *Id.* at p. 41.

¹⁰ Arne Jernelov, *The Threats from Oil Spill: Now, Then, and in the Future*, 39 AMBIO 353–366 (2010), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3357709/>.

EIA for Block 3B/4B and the ESIA for Block 5/6/7 used similar release rates for condensate (1,500 & 1,200 bbl per day respectively) and for the crude oil scenario the Block 5/6/7 ESIA modeled a value of 25,000 bbl of oil per day, roughly 21 times the rate of the condensate scenario.

21. The EIA modeled a release for condensate of 238.8 m³ /day, and a duration of 20 days under the assumption that a capping stack would be mobilized from Saldanha Bay and successfully deployed within that period of time. The DEAR states this is based on “the Oil Spill Contingency Plan (OSCP) prepared for exploration drilling campaign in Block 11B/12B”.¹¹ That plan’s estimate of 20 days includes the note “Provided no debris clearance requirement and suitable weather conditions.” Given this underlying assumption, it seems unlikely that 20 days represents the worst case release duration, since this area can experience periods of stormy weather and rough seas that can delay ship traffic.
22. Moreover, real-world examples demonstrate that 20 days does not represent a worst-case scenario. The IXTOC 1 exploratory oil well and the Macondo oil well (Deepwater Horizon) blowouts took nearly 10 months and 87 days respectively to cap. Other cases, such as Timor Sea in Australia, and Yum Il/Zapoteca, lasted 74 and 51 days respectively.¹²

II. THE DEAR DOES NOT INCLUDE RESPONSE PLANS FOR COMMENT

23. Whilst a separate oil spill modelling report is contained in DEAR, it does not include an Oil Spill Contingency Plan, an Emergency Response Plan, a Blowout Contingency Plan, a Well-Control Contingency Plan. These plans are essential mitigation measures, the details of which are necessary to inform the impact assessment, and without them, the EAP cannot reasonably evaluate the significance of an impact post mitigation.
24. Section 24N of NEMA requires that the EMPR include proposed mitigation and remedial measures, and measures to rehabilitate the environment affected by the undertaking of the activity. These plans must form part of the EMPR that is to be approved by the competent authority, and approval of the plans should not exist as discrete processes separate from the EMPR.
25. The DEAR also does not indicate how it will deal with a multiple block simultaneous blowout scenario, with all authorised projects relying on the same capping equipment based in Saldanha and Aberdeen.
26. These documents should deal with specific equipment that will be available (including any offshore drilling equipment should a relief well need to be drilled), as well as the logistics informing actual response time etc, such as – but not limited to - transport or shipping requirements for both the

¹¹ Total Energies, Oil Spill Contingency Plan for Block 11B/12B (August 2023), https://www.wsp.com/-/media/service/south-africa/2023-documents/oil-spill-contingency-plan/teepsa_block11b12b_oscp.pdf.

¹² D.S. Etkin et al., Oil Spill Science and Technology, Chapter 2: Quantification of Oil Spill Risk (2017), <https://www.sciencedirect.com/science/article/abs/pii/B9780128094136000023?via%3Dihub>.

Saldanha Bay and Aberdeen capping stack mobilisation scenarios, implications of attempting to install a capping stack at a deep sea location in potentially adverse and challenging weather conditions, implications of having to drill a relief well should capping fail, and associated time requirements for all scenarios.

27. The response is integrally connected to the mitigation of this impact.
28. The failure to make these plans available for comment by I&APs during the EIA process is procedurally unfair.
29. The DEIAR indicates that the assumption that the resource would only contain condensate arises from “information provided by the Applicant for the Oil Spill Modelling Study”. The DEIAR does not indicate whether any independent expert assessment has been undertaken to confirm the veracity of the Applicant’s assumption.
30. The DEIAR indicates that there is a possibility that a heavier hydrocarbon could be found, in which case, the oil spill modelling and risk assessment must be updated, together with the OSCP and other relevant documentation.¹³ This is to close the proverbial stable door after the horse has bolted. The EIA Regulations require that XXX, and consequently, all possibly impacts must be identified and assessed prior to any environmental authorisation being granted.

III. THE DEIAR MAKES INCONSISTENT ASSUMPTIONS ABOUT WHICH HYDROCARBON THE PROJECT WILL DISCOVER.

31. The DEIAR and the Oil Spill Modelling Report make inconsistent assumptions about the type of hydrocarbon that the Project will discover. Specifically, the DEIAR’s need and desirability section cites South Africa’s purported need for crude oil to justify the Project.¹⁴ However, the oil spill model assumes the Project will discover no crude oil, only gas and condensate,¹⁵ hydrocarbons that have fewer environmental risk in the event of a blowout.¹⁶ The DEIAR cannot have it both ways. If the EIA claims South Africa will accrue the economic benefits and energy stability of discovering domestic crude oil in the need and desirability section,¹⁷ then the DEIAR must also model the environmental risks associated with that discovery in its oil spill modeling. In contrast, if the DEIAR assumes no crude oil will be discovered, then the DEIAR’s need and desirability section must be updated to clarify that no crude oil will result from the Project and that South Africa’s purported need for domestic crude oil is no basis to justify the Project. Currently, the DEIAR is presenting an erroneous picture of the risks and benefits of the project, artificially inflating the benefits while minimizing the risk.

¹³ DEIAR at p. Xli.

¹⁴ DEIAR at p. 60.

¹⁵ Oil Spill Drift Modelling Technical Report at p. 16.

¹⁶ CapMarine, Fisheries Specialist Assessment (November, 2023) (“Fisheries Report”) at p. 146.

¹⁷ DEIAR at p. 60.

IV. THE DEIAR'S ASSUMPTION THAT ONLY CONDENSATE AND GAS WILL BE RELEASED DURING THE EVENT OF A BLOWOUT CONTRADICTS EVIDENCE IN THE DEIAR

32. The DEIAR's oil spill model assumes only gas and condensate will be released in the event of a blowout,¹⁸ which contradicts other evidence within the DEIAR indicating that crude oil or other oil might also be discovered. In fact, the DEIAR specifically acknowledges that crude oil might be discovered during the Project, stating "should a heavier hydrocarbon be encountered during the drilling activities (e.g. crude oil), it would be required that the associated oil spill modelling and associated risk assessment must be updated. This would also require updates to the OSCP and other relevant documentation."¹⁹ By that time, however, any updates would be too late to serve their purpose of identifying and mitigating harms from the activity and of assessing the need for the Project. Further, such retrospective oil spill modeling is not in alignment with the requirement to model the worst case scenario, and certainly not in alignment with the application of the precautionary principle.
33. It further contravenes NEMA in that it does not assess the potential consequences for or impacts on the environment.
34. In addition, the DEIAR indicates that a large portion of Block 3B/4B is "oil prone,"²⁰ which is inconsistent with the Oil Spill Model's assumption that most of the released hydrocarbon will be gas. The DEIAR bases its assumption that the discovered hydrocarbon will be condensate by using the Brulpadda/Luiperd gas fields, which are located 600-700 km from the Project site, as an analog reservoir. However, it is unclear why the DEIAR chose the Brulpadda/Luiperd fields as an analog, as there are closer wells within the same basin as Block 3B/4B that have yielded oil. The DEIAR's assumption that the Project will discover condensate rather than crude oil is thus not supported by the available evidence.

V. THE DEIAR FAILS TO ANALYSE IMPACTS ASSOCIATED WITH THE DISCOVERY OF CRUDE OIL

35. NEMA requires that EIAs include a "full description" of "the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of impacts, including the degree to which these impacts—can be reversed; may cause irreplaceable loss of resources; can be avoided, managed, or mitigated."²¹ The DEIAR states that "[t]here is a probability that the hydrocarbon resource targeted by the proposed exploration wells is condensate rather than crude oil."²² In other sections, the DEIAR seems to think there is not even a probability of discovering condensate rather than crude oil but only a "possibility."²³ This uncertainty makes

¹⁸ Oil Spill Drift Modelling Technical Report at p. 16.

¹⁹ DEIAR at p. 35.

²⁰ DEIAR at p. 18, Figure 22.

²¹ EIA Regulations, Appendix 1, Section 3(i).

²² DEIAR at p. 376.

²³ See, e.g., Fisheries Report at p. 146.

sense because this is an exploratory project and no one knows for sure what hydrocarbons will be discovered. However, this uncertainty means there is also a possibility that the targeted hydrocarbon may be something other than condensate, including crude oil. If discovering crude or other oil is a possibility as the DEIAR seems to indicate, then the DEIAR must include a “full description” of the nature, consequence, significant, extent, duration and probability of the impacts associated with a blowout that releases crude oil into the environment.²⁴ The DEIAR’s failure to do so violates NEMA, and undermines the DEIAR’s conclusions about the degree of impacts to marine ecology and fisheries as well as the DEIAR’s conclusions about economic benefits in the event of an oil spill.

36. For example, the Marine Ecology Report explains that its analysis of marine impacts from a spill is predicated on “the crucial assumption that the released liquid hydrocarbon is ONLY condensate with no crude oil being present.”²⁵ The Fisheries Report, which analyzes impacts to commercial fisheries in the event of a blowout, makes the same crucial assumption, even while admitting there is only a “possibility” that condensate rather than crude oil will be discovered.²⁶ If crude oil is discovered—which the DEIAR admits is a possibility²⁷—then the impacts to the marine ecology and commercial fisheries would be far greater.²⁸ Currently, however, neither the public nor the decisionmaker are aware of these potentially greater impacts because the DEIAR fails to describe them. This omission violates NEMA.
37. Similarly, the DEIAR concludes that an oil spill will benefit the economy.²⁹ This assumption is based on the premise that there will be no costs associated with an oil spill such as degradation of the coastline, costs to tourism, shoreline responses,³⁰ or costs to pay for clean up personnel and the associated health impacts to clean up personnel from toxic exposure, which can be serious.³¹ These costs will only be negligible if a blowout releases condensate and gas rather than crude oil and thus disperses relatively quickly. But again, this assumption is suspect and far from certain, as the DEIAR itself acknowledges.³²
38. Also, the DEIAR’s assertion that it can update the model and spill contingency plan later should oil be discovered³³ does nothing to cure the DEIAR’s failure to analyze impacts from a crude or other oil

²⁴ EIA Regulations, Appendix 1, Section 3(i).

²⁵ Marine Ecology Report at p. 220.

²⁶ Fisheries Report at p. 146.

²⁷ See, e.g., Fisheries Report at p. 146 (Stating “The release quantities for condensate are typically significantly lower and the persistence of the condensate at sea much lower than oil. The environmental impacts realised during a condensate blowout would therefore also be much lower.”).

²⁸ *Id.*

²⁹ DEIAR at p. 458.

³⁰ See, *infra*, Section X.B (The DEIAR underestimates or omits costs associated with oil spills in its economic modeling.).

³¹ See, e.g., Jennifer Rusiecki et al., *The Deepwater Horizon Oil Spill Coast Guard Cohort Study*, 75 OCCUPATIONAL ENV’T MED. 165, 165 (2017); Mark A. D’Andrea & G. Kesava Reddy, *The Development of Long-term Adverse Health Effects in Oil Spill Cleanup Workers of the Deepwater Horizon Offshore Drilling Rig Disaster*, 6 FRONTIERS IN PUB. HEALTH 1, 1 (2018).

³² DEIAR at p. 376; Fisheries Report at p. 146.

³³ DEIAR at p. 35.

spill in the first instance. Indeed, the very reason an EIA must include a full description of potential impacts is so the decisionmaker has all necessary information *before* deciding whether to approve or reject a project, and so appropriate mitigation measures can be identified. Withholding information and analysis until after that decision results in mitigation measures that do not address the true scope of a project's harms.³⁴

VI. THE DEIAR'S ANALYSIS OF CUMULATIVE IMPACTS IS FLAWED

39. Block 3B/4B lies within the Orange Basin, which extends from South Africa as far north as the Lüderitz Arch in Namibia. The Block has been subjected to multiple previous exploration activities, including 2D and 3D seismic surveys³⁵, and more than 38 exploratory wells have already been drilled on the shelf east of the Block.³⁶ The Scoping Report acknowledges the possibility of future exploration in nearby blocks, including further proposed exploration well drilling near PEL39, in the Namibian extent of the Orange Basin.³⁷ Beyond exploration, there is the intended realisation of production in Block 3B/4B if a significant discovery is made. The same holds true in other blocks in the Orange Basin in both South African and Namibian waters, meaning that the area could continue on a path to high offshore oil and gas industrialisation.
40. Despite the high volume of past, current, and potentially future oil and gas exploration activities in the region, the DEIAR fails to comprehensively assess the cumulative marine impacts of the project in conjunction with other activity the area and does not assess all “past, present and reasonably foreseeable future developments or impacts”. NEMA, together with the EIA Regulations, requires that EIAs include, amongst other things, an assessment of the nature, extent, duration and significance of the consequences for or the impacts on the environment of that activity, including the cumulative impacts.
41. The DEIAR expressly declines to assess the cumulative environmental impacts that could arise from further exploration or production activities in the area. Instead, the DEIAR maintains that “[a]s these cannot at this stage be reasonably defined, it is not possible to undertake a reliable assessment of the potential cumulative environmental impacts.”³⁸
42. The proposed exploration activities are likely to lead to full-scale production activities. Similarly, it is reasonably foreseeable that proposed or approved seismic surveys (TGS Orange Basin Reconnaissance Permit); exploration (Deep Water Orange Basin Licence Block 12/3/343;

³⁴ See, e.g., NEMA, Chapter 5, Section 23(1)-(2).

³⁵ DEIAR at p. 11.

³⁶ DEIAR at p. 14.

³⁷ DEIAR at p. 436. See also Melisa Cavcic, *Shell Makes Another Deepwater Oil Discovery Offshore Namibia*, OFFSHORE ENERGY (March 6, 2023), <https://www.offshore-energy.biz/shell-makes-another-deepwater-oil-discovery-offshore-namibia/>; *Shell Makes Another Oil Find in Namibia's Orange Basin*, PETROLEUM AFRICA (July 13, 2023), <https://www.petroleumafrica.com/shell-makes-another-oil-find-in-namibias-orange-basin/>.

³⁸ DEIAR at p. 436.

TotalEnergies EP South Africa Block 567; Sezigyn ER340; PEL39 in Namibian waters); and production (Sunbird and PetroSA Block 2A) could contribute, along with the proposed exploration, to additive stressors on marine life in the region. Inshore to Block 3B/4B in the Orange Basin, Eco (Atlantic) Oil & Gas has already commenced with exploratory drilling in Block 2B (as of October 2022).³⁹ The compounding effects of all these projects must be fully evaluated in the DEIAR.

43. A complete cumulative impact assessment must also evaluate the condition of existing well plugs. Concrete used in well casings and plugging degrades over time, especially in seawater. The DEIAR fails to account for the cumulative effects of the degradation of existing plugs resulting from prior exploration endeavours. These impacts should be taken into consideration alongside ongoing and forthcoming activities.
44. The cumulative impact of increased background anthropogenic noise levels in marine environments is an ongoing and widespread issue of concern. Impacts across large spatial scales or multiple species are rarely considered, but recent research indicates that repeat seismic surveys reduce cetacean occurrence across large marine ecosystems.⁴⁰ Repeat seismic surveys may also disrupt fish migration patterns, as is suspected in Southern Namibian tuna fishing grounds, where catches have severely declined since 2011, and in 2017 dropped off to non-commercial catch rates.⁴¹
45. The DEIAR must also assess the immediate and chronic impacts of cumulative sonar and seismic surveys and drilling activities in the area, not just from a singular exploration project. The DEIAR must carefully examine the full footprint of impacts from sonar surveys and drilling activities in the context of their additive nature.

VII. THE DEIAR LACKS SUFFICIENT BASELINE DATA TO EVALUATE ENVIRONMENTAL IMPACTS

46. Appropriate and up-to-date scientific information should be available to inform a comprehensive assessment of impacts, before a decision can be made whether to authorise a harmful activity. A comprehensive and accurate assessment of the potential impacts requires a robust understanding of the current state and potential stressors. Without a thorough understanding of the current state and potential sensitivities of marine ecosystems, it is not possible to evaluate the significance of future impacts accurately and to accurately assess the cumulative environmental effects.
47. Section 2(4)(a)(vii) of NEMA provides that sustainable development requires the consideration of all relevant factors, including “that a risk-averse and cautious approach is applied, which takes into

³⁹ *Africa Energy Commences Operations on Block 2B Offshore South Africa*, LUNDINGROUP (October 4, 2022), <https://thelundingroup.com/lundin-group-of-companies/africa-energy-corp/news/africa-energy-commences-operations-on-block-2b-off-122637/>.

⁴⁰ A. S. Kavanagh et al., *Seismic surveys reduce cetacean sightings across a large marine ecosystem*, 9 SCI. REP. 19164 (2019).

⁴¹ Russell, D., *Assessing the Impact of Seismic Surveys on South African Fisheries* (April 5, 2018) at p. 6. Available online at: www.rfalliance.org.za/wp-content/uploads/2018/10/Assessing-Impact-of-Seismic-Surveys-on-South-African-Fisheries-April-2018.pdf

account the limits of current knowledge about the consequences of decisions and actions”. In *WWF South Africa v Minister of Agriculture, Forestry and Fisheries and others*, the Court found that “[p]otential errors are ‘weighted in favour of environmental protection’, the object being ‘to safeguard ecological space or environmental room for maneuver.

48. The precautionary approach is applicable to limits on available information during both exploration and production phases, as confirmed by the court in *Sustaining the Wild Coast NPC and others v Minister of Mineral Resources and others*.⁴²
49. The proposed activity, along with other marine exploration, production, and mining activities off the West Coast, can significantly increase the intensity of environmental stressors on the broader regional ecosystem. This could alter the current risk status to marine biodiversity and climatic conditions, given the uncertainty and poor knowledge of the extent of species-level and ecosystem-level impacts.
50. The DEIAR should not rely on outdated information and data from previous environmental impact assessments for other marine exploration, production, and mining activities off the West Coast. If the DEIAR does not incorporate a comprehensive and up-to-date understanding of the regional environmental trends within the offshore areas demarcating the Orange Basin, there is a risk that it will miss critical interactions and fail to implement effective mitigation strategies.
51. The DEIAR contains no data on the benthic fauna in the project area, noting that “[i]nformation on the benthic fauna of the lower continental slope and abyss (beyond 1 800 m depth) is largely lacking due to limited opportunities for sampling.”⁴³ Instead, the DEIAR cites deep water benthic sampling from a separate project area in Namibian waters, hundreds of kilometres away from Block 3B/4B. The DEIAR goes on to acknowledge “that very few national IUCN Red List assessments have been conducted for marine invertebrate species to date owing to inadequate taxonomic knowledge, limited distribution data, a lack of systematic surveys and limited capacity to advance species red listing for these groups.”⁴⁴
52. The DEIAR contains no data on demersal cartilaginous species located beyond the continental shelf, citing the absence of survey data.⁴⁵
53. The DEIAR fails to include adequate baseline data for marine mammal populations, noting that “data [on] population sizes and trends for most cetacean species occurring on the west coast of southern Africa is lacking.”⁴⁶

⁴² *Sustaining the Wild Coast NPC and Others v Minister of Mineral Resources and Others* (3491/2021) [2022] ZAECKMHC 55.

⁴³ DEIAR at p. 96.

⁴⁴ *Id.*

⁴⁵ DEIAR at p. 98.

⁴⁶ DEIAR at p. 127.

54. Climate change is a measurable reality, and South Africa and its coastal waters are particularly vulnerable to its impacts.⁴⁷ This means that the baseline state for marine and coastal ecological systems in South Africa is changing. Animal migrations and feeding habits shift with changing environmental drivers. As an example, since 2011, super-groups of humpback whales ranging from 20 to 200 individuals have been observed in the coastal region of the Southern Benguela current between St Helena Bay and Cape Point. A feeding strategy of densely packed individuals is unprecedented in this region, and researchers have concluded that shifting oceanographic regimes are resulting in large phytoplankton blooms that precede super-group feeding strategy events.⁴⁸
55. Given how quickly cetacean distribution and feeding and breeding patterns are changing due to shifting ocean temperatures, currents, and resource availability, this substantial knowledge gap must be remedied by new surveys that cover all seasons over two years at minimum.
56. There is inadequate baseline data on beaked whales in the study area, as the DEIAR admits:
57. *There are almost no data available on the abundance, distribution or seasonality of the smaller odontocetes (including the beaked whales and dolphins) known to occur in oceanic waters (>200 m) off the shelf of the southern African West Coast. Beaked whales are all considered to be true deep-water species usually being seen in waters in excess of 1 000 – 2 000 m deep (see various species accounts in Best 2007). Presence in the project area may fluctuate seasonally, but insufficient data exist to define this clearly. Beaked whales seem to be particularly susceptible to man-made sounds and several strandings and deaths at sea, often en masse, have been recorded in association with naval mid-frequency sonar (Cox et al. 2006; MacLeod & D’Amico 2006) and a seismic survey for hydrocarbons also running a multi-beam echo-sounder and sub bottom profiler (Cox et al. 2006).*⁴⁹
58. Beaked whales and dolphins are commonly observed in Block 3B/4B by marine mammal observers (MMOs) during seismic surveys.⁵⁰ Beaked whales dive to great depths to forage and spend long periods of time deep underwater.⁵¹ The observations from MMOs at the surface, though numerous, are an underestimation of their abundance in the Block.

⁴⁷ Department of Environmental Affairs (DEA). Long-Term Adaptation Scenarios Flagship Research Programme (LTAS) for South Africa. Climate Change Implications for Marine Fisheries in South Africa; Department of Environmental Affairs: Pretoria, South Africa, 2013; 60p.; Intergovernmental Panel on Climate Change (IPCC). 2022: Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate; Cambridge University Press: Cambridge, UK, 2022.

⁴⁸ Subhra Prakash Dey et al., *Oceanographic anomalies coinciding with humpback whale super-group occurrences in the Southern Benguela*, 11 SCI. REP. 20896 (2021).

⁴⁹ DEIAR at p. 141-42.

⁵⁰ DEIAR at p. 134, Figure 65: Block 3B/4B (red polygon) in relation to the distribution and movement of cetaceans along the West and South Coasts collated between 2001 and 2020 (SLR MMO database).

⁵¹ Roanne Manzano-Roth et al., *Dive characteristics of Cross Seamount beaked whales from long-term passive acoustic monitoring at the Pacific Missile Range Facility, Kaua’i*, 39 MAR. MAMMAL SCI. 22–41 (2023); Hilary Kates Varghese et al., *Spatial analysis of beaked whale foraging during two 12 kHz multibeam echosounder surveys*, 8 FRONT. MAR. SCI. 1139 (2021).

59. The operating frequencies of the proposed single beam and multi-beam sonar falls into the high frequency kHz range, overlapping with cetacean's hearing sensitivity frequency range, particularly for cetaceans of High Frequency and Very High Frequency hearing groups⁵², which includes the beaked whales and dolphins known to be in the Block.⁵³ Such frequencies would be audible for long distances (tens of km) before attenuating to below threshold levels.⁵⁴
60. Given the lack of baseline information on cetacean distribution and seasonality in the Block, particularly for the most acoustically sensitive cetacean groups, a precautionary approach should be taken such that where the impacts of exploration cannot be accurately predicted, the activity should not be authorised.
61. The DEIAR also fails to include adequate baseline data regarding coastal sensitivity. A regional baseline for coastal sensitivity must be taken into consideration in the event of an oil spill. Without up-to-date sensitivity information, no impact assessment can be conducted or reviewed by the Competent Authority. The last coastal sensitivity map for the South African coastline was compiled by Jackson & Lipschitz (1984) and is thus mostly rooted in data collected forty years ago.⁵⁵ The DEIAR acknowledges this data deficit⁵⁶ and refers to newer data from the 2018 South Africa National Biodiversity Assessment that may be compiled into an online GIS reference, yet does not confirm if this represents recent sensitivity data that will be used in the assessment of oil spill impacts that could results from the project.⁵⁷

VIII. THE DEIAR'S MARINE ECOLOGY REPORT MISAPPLIES ITS STATED METHODS FOR ASSESSING THE SIGNIFICANCE OF IMPACTS BY ONLY CONSIDERING THE DURATION OF PROJECT ACTIVITIES, RATHER THAN THEIR IMPACTS ON THE ENVIRONMENT.

62. The DEIAR's Marine Ecology Report only considers the duration of the project's harmful activities in assessing the significance of environmental impacts, and not the duration of the impacts as South African law requires. As a result, the DEIAR consistently underestimates the significance of marine impacts.
63. The DEIAR states that its significance rating methodology is designed to determine environmental risk by considering the consequence of each *impact*, comprising its nature, extent, duration,

⁵² DEIAR at p. 362.

⁵³ Brandon L. Southall et al., *Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects*, 45 AQUAT. MAMM. 125–232 (2019).

⁵⁴ DEIAR at p. 362.

⁵⁵ Lynette F. Jackson et al., *Coastal sensitivity atlas of Southern Africa 1984: compiled for the Dept. of Transport of the Republic of South Africa* (1984).

⁵⁶ DEIAR at p. 158.

⁵⁷ Harris, L.R., Sink, K.J., Skowno, A.L. & Van Niekerk, L. (eds). 2019. South African National Biodiversity Assessment 2018: Technical Report. Volume 5: Coast . South African National Biodiversity Institute, Pretoria. <http://hdl.handle.net/20.500.12143/6374>.

magnitude, and reversibility.⁵⁸ This is in line with South African law, which mandates that an environmental assessment include “the nature, significance, consequence, extent duration and probability of the *impacts*.”⁵⁹ However, the Marine Ecology Report frequently considers only the duration of project activities in assessing the significance of environmental risks, and does not consider the amount of time impacts resulting from these activities would last in the marine environment. These duration estimates are used to assess the overall significance of project impacts through the following equation:

$$C = \frac{(E + D + M + R) * N}{4}$$

64. Where C is the consequence of the impact, E is the extent, D is the duration, M is the magnitude, R is the reversibility, and N is the nature (positive or negative). The DEIAR assigns impacts to one of five duration categories: IMMEDIATE (effects last less than 1 year), SHORT TERM (effects last 1-5 years), MEDIUM TERM (effects last 6-15 years), LONG TERM (“the impact will cease after the operational life span of the project), and PERMANENT (“no mitigation measure [or] natural process will reduce the impact after construction”).⁶⁰ Each category is assigned its own score, with PERMANENT impacts assigned a score of 5 and IMMEDIATE impacts only receiving a score of 1.⁶¹ The Consequence score is then multiplied by the probability of the impact in order to calculate environmental risk. If any of the variables are underestimated for an impact, this will lead to an erroneously low measure of environmental significance and risk.

65. All the DEIAR’s significance ratings should be reviewed to ensure that the extent, duration, reversibility, and probability values match the findings presented in the Marine Ecology Report. Several key examples of where the Marine Ecology Report’s conclusions conflicted with its findings are described below

65.1. **Helicopter Noise:** The Marine Ecology Report found that helicopter overflights could have significant long-term impacts on seabirds and marine mammals, but nevertheless categorized these impacts as “IMMEDIATE.” The report describes how helicopter flights over seabirds and marine mammals could have population-level effects. For seabirds, the ecology report notes that impacts could “include loss of usable habitat, increased energy expenditure, reduced food intake and resting time and consequently impaired body condition, decreased breeding success and physiological changes” and reduced “hatching success and recruitment

⁵⁸ EIMS, Environmental Impact Assessment Report: Proposed Africa Oil South Africa Corp Block 3B/4B Exploration Right (2023) (“DEIAR”) at p. 322.

⁵⁹ Environmental Impact Assessment Regulations, 2014 at Appendix 3, 3(h) [emphasis added].

⁶⁰ Marine Ecology Report at p. 292-293.

⁶¹ *Id.*

success.”⁶² For whales, the ecology report stated that “repeated or prolonged exposures to aircraft over flights have the potential to result in significant disturbance of biological functions, especially important nursery, breeding or feeding areas.”⁶³ The helicopter flight paths for the proposed project would fly over the Robben Island seabird colony and a Southern right whale calving and nursing area off the Cape Peninsula,⁶⁴ with the risk of long-term impacts to these populations. However, the helicopter noise impacts were characterized as of “IMMEDIATE” duration, based on the extent of time that flights would occur, which is a period of four months per well.⁶⁵ The Marine Ecology Report should have assessed how long overflight impacts on marine ecosystems, particularly sensitive seabird and marine mammal populations, would last. According to the report’s descriptions of potential impacts, especially the risk of the abandonment of nests or key calving/nursing areas, impacts could be PERMANENT and IRREVERSIBLE.

65.2. Damage to Benthic Ecosystems: The Marine Ecology Report also noted potentially PERMANENT and IRREPARABLE damage to benthic marine ecosystems, but nevertheless categorized these impacts as merely “LONG-TERM.” The report noted that drill cuttings and WBM’s discharged from the surface would result “in changes in sediment structure and possibly community composition within the fall-out footprint of the cuttings plume.”⁶⁶ The ecology report explicitly notes that in the “low-energy, deep-water environments, such as those in the Block 3B/4B, the effects of drilling discharges on benthic ecosystems can be more severe and long-lasting.”⁶⁷ The Marine Ecology Report notes that the impact is reversible “only by incurring prohibitively high time.”⁶⁸ Yet these PERMANENT impacts were characterized as only “LONG-TERM” and “PARTIALLY REVERSIBLE.”⁶⁹

65.3. Toxic Pollution: Additionally, the Marine Ecology Report found that toxic pollution from the discharge of drill cuttings will significantly change the health and composition of deep-sea benthic species, with cascading ecosystem effects. Specifically, the report found that “contamination gradients manifested themselves as reduced abundance and biomass of dominant faunal species that serve as food for demersal fish, declines in diversity and loss of sensitive macrofaunal species, with an increase in abundance of opportunistic species” and modelling results undertaken for the current project “predicted that the environmental risk

⁶² PISCES, Proposed Exploration Drilling in Block 3B/4B off the West Coast of South Africa: Marine Biodiversity Specialist Assessment (“Marine Ecology Report”) at p. 124.

⁶³ Marine Ecology Report at p. 123.

⁶⁴ Marine Ecology Report at p. 124-125.

⁶⁵ Marine Ecology Report at p. 125.

⁶⁶ Marine Ecology Report at p. 136.

⁶⁷ Marine Ecology Report at p. 137.

⁶⁸ Marine Ecology Report at p. 144-145.

⁶⁹ Marine Ecology Report at p. 144-145.

of contaminants in the sediments ... persists beyond five years after operations.”⁷⁰ These severe impacts to the long-lived, sensitive benthic ecosystems are PERMANENT and IRREVERSIBLE. Yet, the Marine Ecology Report concluded that “the duration for sediment toxicity is MEDIUM TERM.”⁷¹ At the very least, the Marine Ecology Report should have concluded that these impacts are LONG TERM, since (by the report’s own estimates) they will not “cease [until] after the operational life span of the project.”⁷²

65.4. **Underwater Noise:** According to the Marine Ecology Report, underwater noise could lead to changes in marine mammal behaviour and migration, including inundating a key breeding and feeding area with injurious levels of noise. The Marine Ecology Report describes how noise from drilling activities “could result in behavioural disturbance in cetaceans” up to 28 km away from the source, and “whales potentially associated with [the] Tripp Seamount located ~25 km north-west of the Area of Interest, may be affected.”⁷³ Changes in behavior and abandonment of important feeding or breeding areas for whales, such as the Tripp Seamount, have long-term impacts on the health of individual animals and the well-being of the population that will extend far beyond the actual duration of the drilling. Yet, the report concluded that “[t]he duration of the impact on the populations would be limited to the IMMEDIATE TERM (3-4 months per well).”⁷⁴ This conclusion ignores the likely population-level impacts of predicted avoidance behaviours.

65.5. **Light Pollution:** The Marine Ecology Report describes how light pollution from flaring can attract migratory pelagic species and impact their migration routes, including pelagic seabirds, turtles, fish, and cetaceans.⁷⁵ Specifically, the report describes how the bright light from the flare will “disturb and disorientate pelagic seabirds feeding in the area” and “may also result in physiological and behavioural effects of [sic] fish and cephalopods, as these may be drawn to the increased lighting at night where they may be more easily preyed upon by other fish, marine mammals and seabirds.”⁷⁶ Even slight changes in migration routes and shifts in predator-prey dynamics will have knock-on effects that reverberate throughout the populations of these migratory species and their ecosystems. These impacts are especially concerning, given that “[m]any of [the taxa most vulnerable to light disturbance] are considered globally ‘Critically Endangered’ (e.g. Leatherback turtle), ‘Endangered’ ...

⁷⁰ Marine Ecology Report at p. 156.

⁷¹ Marine Ecology Report at p. 160.

⁷² DEIAR at p. 323.

⁷³ Marine Ecology Report at p. 177.

⁷⁴ Marine Ecology Report at p. 178.

⁷⁵ Marine Ecology Report at p. 192.

⁷⁶ Marine Ecology Report at p. 193.

‘Vulnerable’ ... or ‘Near Threatened’.”⁷⁷ Yet, the report concluded that the duration of lighting impacts would be only “IMMEDIATE (4 days of flaring over a period of up to 14 days).”⁷⁸

66. In conclusion, the DEIAR’s Marine Ecology Report’s conclusions are based on an assessment of the duration of project activities, rather than their impacts. Therefore, the DEIAR fails to accurately assess the significance of the project’s impacts, as required by South African law.

IX. THE DEIAR FAILS TO ABIDE BY THE PRECAUTIONARY PRINCIPLE IN ASSESSING THE SIGNIFICANCE OF IMPACTS CHARACTERIZED BY HIGH LEVELS OF UNCERTAINTY

67. Where impacts are uncertain or there is a lack of evidence, South African law requires a precautionary approach.⁷⁹ Therefore, an environmental assessment should take a “risk-averse and cautious approach where there is uncertainty in order to encompass the full range of potential consequences of decisions and actions.” The Marine Ecology Report instead assumes the best-case scenario in cases of considerable uncertainty, leading to a DEIAR that substantially underestimates the potential risks of moving forward with the proposed project.

Deep-sea marine environments

68. For example, the Marine Ecology Report frequently recognizes how little is known about deep-sea marine environments, particularly the benthic environment in the Area of Interest. Specifically, the report describes how “sampling beyond 1000 m depth has not taken place ... [and] it is not known whether [fragile coral] communities may be expected in Block 3B/4B.”⁸⁰ Additionally, it notes that “[d]ue to limited opportunities for sampling, the benthic biota of the outer shelf, continental slope and beyond into the abyss are very poorly known, and quantitative data on the biota from depths beyond the shelf break are largely lacking.”⁸¹

69. In addition to a lack of knowledge on what species are present in the Area of Interest, there is even less knowledge about how these species may be affected by exploratory drilling. According to the report, “there is ... very little knowledge on the sensitivity of microfauna, epifauna, hyperfauna and coral and sponge communities to drilling discharges, and there is virtually no information of potential long term effects on benthic population and community functions such as production, reproduction, and trophic interaction.”⁸² Given this uncertainty, the report asserts that “the possibility of subtle,

⁷⁷ Marine Ecology Report at p. 192.

⁷⁸ Marine Ecology Report at p. 193.

⁷⁹ *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).

⁸⁰ Marine Ecology Report at p. 49.

⁸¹ Marine Ecology Report at p. 130.

⁸² Marine Ecology Report at p. 107-108.

cumulative effects from the operational discharges at population or ecosystem level cannot be ignored.”⁸³

70. The Marine Ecology Report nevertheless concludes that nearly all impacts of drilling to local benthic species would be of “LOW” impact.⁸⁴ It’s clear from the Marine Ecology Report that not enough information is available to conclude that exploratory activities would have a LOW impact, which the DEIAR defines as not having enough of an impact to “have a direct influence on the decision to develop in the area.”⁸⁵ The Marine Ecology Report and DEIAR claim that because benthic impacts are unknown, they do not exist. This logic is the reason why the DEIAR is able to claim that there is “no evidence of long-term negative change ... as a direct result of ... exploration drilling activities.”⁸⁶ There is no evidence because there has been no research, not because there is no damage. The DEIAR’s claim of “no impacts” despite considerable uncertainty will allow projects to continue to destroy benthic ecosystems before they are even discovered.

Marine Mammals

71. Another example of the DEIAR’s failure to abide by the precautionary principle is its treatment of impacts to marine mammals. There is a paucity of information available regarding the population sizes and distribution of South Africa’s marine mammal species. As the Marine Ecology Report notes, “[t]he offshore areas have been particularly poorly studied with most information from deeper waters (>200 m) arising from historic whaling records,” and “data population sizes and trends for most cetacean species occurring on the west coast of southern Africa is lacking.”⁸⁷ There have also been a number of recent mass stranding events of marine mammal species in South Africa with “unknown” causes.⁸⁸
72. Additionally, there is a lack of information about the long-term effects of noise pollution on marine mammals. As the report describes: “if a disturbance displaces a species from an important feeding or breeding area for a prolonged period, impacts at the population level could be significant. Information on the population trends of resident species of baleen and toothed whales is unfortunately lacking, and the potential effects of exploration activities on such populations remains unknown.”⁸⁹
73. However, the Marine Ecology Report concluded that noise from the proposed project’s sonar, VSP, and drilling activities would be of only “LOW” impact on cetaceans, meaning that these impacts

⁸³ Marine Ecology Report at p. 108.

⁸⁴ Marine Ecology Report at p. 202-205.

⁸⁵ Marine Ecology Report at p. 297.

⁸⁶ Marine Ecology Report at p. 206-207.

⁸⁷ Marine Ecology Report at p. 69.

⁸⁸ See Marine Ecology Report at p. 84 (describing recent kogiid strandings in South Africa and stating that [t]he cause of the strandings is unknown.”); *Id.* at p. 89 (describing an “unprecedented mortality event” for Cape fur seals in South Africa, and noting that the “underlying causes of the mortality event remain uncertain.”).

⁸⁹ Marine Ecology Report at p. 197-198.

should not “have a direct influence on the decision to develop in the area.”⁹⁰ However, the fact that project noise may have population-level effects on local marine mammal species or could contribute to existing pressures on species already experiencing mass stranding events should, at the very least, influence the decision to proceed with activities in the area. These unknown and uncertain population-level impacts are especially concerning given the fact that the Area of Interest is frequented by several Critically Endangered and Endangered cetacean species, including the Fin whale, Blue Whale, and Sei Whale.⁹¹ The Marine Ecology Report never considers whether project impacts could contribute to the extinction of these specific sensitive cetacean species. The potential for exploration projects to lead to the extinction of a species is not merely a hypothetical; oil and gas development in the U.S. Gulf of Mexico is recognized as a primary threat to the continued existence of the endangered Rice’s whale.⁹² The DEIAR should explain how South Africa’s whale species, many of which are still struggling to recover from existing pressures,⁹³ will not also be pushed further towards extinction by the Project’s additional impacts on their habitats.

X. THE DEIAR WRONGLY CONCLUDES THAT AN UNPLANNED OIL SPILL WILL RESULT IN ECONOMIC BENEFITS FOR SOUTH AFRICA

74. The DEIAR concludes that an unplanned oil spill would be economically beneficial for South Africa, because the clean-up response “could have a sizeable impact on the receiving economy by generating additional economic output.”⁹⁴ However, this conclusion is based on a flawed economic analysis that conflates economic activity with economic welfare. It also underestimates or ignores many other likely economic costs. As a result, the DEIAR ignores the potentially severe economic consequences that could result from approving the proposed project.

The DEIAR erroneously equates economic activity with economic welfare

75. The DEIAR’s Economic Impact Assessment Report (“Economic Report”) estimated that an unplanned oil spill would result in “an overall gain for the economy, contributing approximately R1.7 billion in

⁹⁰ Marine Ecology Report at p. 204; *Id.* at p. 297.

⁹¹ Marine Ecology Report at p. 72.

⁹² NOAA, Endangered and Threatened Wildlife and Plants: Notice of 12-Month Finding on a Petition To List the Gulf of Mexico Bryde’s Whale as Endangered Under the Endangered Species Act (ESA), 81 Fed. Reg. 88,639, at 88,641 (Dec. 8, 2016), *available at* <https://www.govinfo.gov/content/pkg/FR-2016-12-08/pdf/2016-29412.pdf>; NOAA, Recovery Outline, Rice’s Whale (Sept. 2020), *available at* <https://media.fisheries.noaa.gov/2021-08/RIWH-Recovery-Outline-Final-508-Compliant.pdf.pdf>; *see also*, NPR, *Only 51 of these U.S. whales remain. Little has been done to prevent their extinction*, <https://www.npr.org/2023/11/16/1212690111/only-51-of-these-u-s-whales-remain-little-has-been-done-to-prevent-their-extinct> (Nov. 16, 2023); Yasmin Dahnoun, *Rare whales face extinction due to oil extraction*, *Ecologist* (Oct. 14, 2022), *available at* <https://theecologist.org/2022/oct/14/rare-whales-face-extinction-due-oil-extraction>.

⁹³ Department of Environmental Affairs Notice No. 476 (30 May 2017).

⁹⁴ DEIAR at p. 429

additional business sales and R929.0 million in gross domestic product over the two-month period.”⁹⁵ This conclusion is based on an assumption that 25% of the total cost of the Oil Spill Response Strategy, or roughly R343 million, would be spent in South Africa. However, the Economic Report provides no support or explanation for its estimates of the total cost of recovery, for its assumption that 25% of this spending will occur in South Africa, or for how less than R350 million in spending will result in over R1 billion in economic growth. Therefore, the DEIAR’s estimate of economic gains from an oil spill is dubiously large.

76. More importantly, it is well-accepted that these measures of economic benefits are fundamentally misleading and can lead to the absurd conclusion that disasters such as oil spills,⁹⁶ hurricanes,⁹⁷ pandemics,⁹⁸ and wars⁹⁹ are good for a country’s economy. The pitfall of mistaking the impacts of spending on disaster recovery efforts with economic growth was debunked by economists centuries ago.¹⁰⁰ GDP is simply the sum of the value of final goods and services produced within a country. It ignores many things associated with well-being, including damage to health and natural capital. While disasters appear to boost the economy through increased spending, jobs, and business, these metrics ignore the fact that the spending is directed at replacing existing losses.¹⁰¹ Additionally, all expenditure is relative to an alternative. Money spent on an oil spill clean-up could have been spent on more valuable ends in the absence of a spill. For this reason, recovery costs are often included on the negative side of cost-benefit balance sheets – not as positives. If we are to believe the report’s flawed logic, it would be in the South African government’s best interest to create new oil spills to boost the economy.
77. The DEIAR’s estimates of the economic gains from oil spill recovery efforts are flawed and misleading to understanding the true impacts of an unplanned oil spill.

⁹⁵ Economic Report at p. 132

⁹⁶ Andrew Leach, *Oil spills boost the economy? That’s as dumb as it sounds*, MACLEAN’S (May 4, 2014), <https://macleans.ca/economy/economicanalysis/saying-oil-spills-boost-the-economy-is-even-dumber-than-it-sounds-leach/>.

⁹⁷ Eric Boehm, *As Hurricane Irma Bears Down on Florida, the Broken Window Fallacy is Back*, REASON (Sep. 10, 2017), <https://reason.com/2017/09/10/as-hurricane-irma-approaches-florida-the/>.

⁹⁸ Ryan Bourne, *A Pandemic Broken Windows Fallacy?*, CATO INST. (Jan. 14, 2022), <https://www.cato.org/blog/pandemic-broken-windows-fallacy#:~:text=Even%20if%20measured%20GDP%20does,us%20much%2C%20much%20worse%20off.>

⁹⁹ Peter Pham, *Is War Good for Economies?* FORBES (Nov. 6, 2017), <https://www.forbes.com/sites/peterpham/2017/11/06/is-war-good-for-economies/?sh=31aac60c4d9d>.

¹⁰⁰ The illusion of economic growth from destruction was famously debunked by economist Frédéric Bastiat in 1850, and has since been dubbed the “broken windows fallacy” based on the parable Bastiat used to illustrate this mistake. See Michael D. Tanner, *No, Hurricanes Are Not Good for the Economy*, CATO INST. (Sep. 6, 2017), <https://www.cato.org/commentary/no-hurricanes-are-not-good-economy>.

¹⁰¹ Eric Boehm, *As Hurricane Irma Bears Down on Florida, the Broken Window Fallacy is Back*, REASON (Sep. 10, 2017), <https://reason.com/2017/09/10/as-hurricane-irma-approaches-florida-the/>.

The DEIAR underestimates or omits costs associated with oil spills in its economic modeling.

78. In addition to inappropriately assessing economic benefits, the DEIAR's economic models underestimate or omit many of the likely costs associated with unplanned oil spills. The DEIAR only analyzed the potential negative impacts of a well blow-out scenario on the commercial fishing industry and the maritime logistics industry. This decision to only analyze impacts to these two sectors was justified by the predicted footprint of an oil spill, which the report concludes "could primarily affect ocean oriented industries such as fishing, shipping and tourism."¹⁰² However, this spill footprint was based on an erroneously narrow oil spill model which assumed that the source would not contain any crude oil. Additionally, in focusing only on these two industries, the Economic Report ignores many other likely and foreseeable economic costs. Potential costs that were not considered by the DEIAR, and have been considered by other Environmental Impact Assessments in South Africa include:

- 78.1. Costs of restoration activities beyond capping that are necessary to remove oil from the environment;
- 78.2. Pressure on national, regional, and local public services and facilities as part of any oil spill response;
- 78.3. National, regional, and local collapse in public trust and increased conflict from the environmental and social impacts from a spill;
- 78.4. Costs associated with health impacts from the cleanup, including the inhalation of toxic gases associated with the spill;
- 78.5. Increased insurance premiums;
- 78.6. Losses in ecosystem services due to the long-term environmental impacts of oil spills.

79. Further, the cost estimates the DEIAR presents for commercial fisheries and shipping are likely underestimated. For example, the DEIAR calculates economic impacts to the fishing industry by concluding that the "commercial fishing industry could, for a temporary period of between 1 to 2 months, loose [sic] operational efficiency by not having access to the areas of interest affected by a well blow-out event,"¹⁰³ and calculating the lost catch that would result from this temporary displacement. In reality, displacement is one of many likely economic impacts of an oil spill to commercial fisheries. In fact, the DEIAR's fisheries report notes several significant long-term impacts on commercial fisheries that were not assessed by the economic report, including:

- 79.1. "Oil contamination of mobile finfish species, in particular of juveniles in nursery areas could result in displacement of species from normal feeding and protective areas as well as

¹⁰² DEMACON, Africa Oil South Africa Corp's Block 3B/4B Offshore Exploration Economic Impact Assessment Report (Dec., 2023) ("Economic Report") at p. 126.

¹⁰³ Economic Report at p. 126.

possible physical contamination and/or physiological effects such as clogging of gills, both of which would lead to fish mortality [and reduced catch];”

79.2. “Oiling of passively drifting spawn products (eggs and larvae) would result in their contamination and mortality ... leading to reduced recruitment and loss of stock;”

79.3. “Gear damage due to oil contamination.”¹⁰⁴

80. Reduced recruitment due to the toxic effects of spilled oil would last longer than the 1-2 month timespan assumed by the economic report. Fisheries closures would also last much longer. Following the Deepwater Horizon Oil Spill, fisheries were not fully reopened until years after the spill,¹⁰⁵ and even after these moratoria were lifted, “uncertainty about the contamination of fishing grounds continued for fishers and seafood workers.”¹⁰⁶ Therefore, it was unjustified for the Economic Report to assume that oil spills would only lead to short-term impacts on commercial fisheries.

81. In conclusion, by overstating an oil spill’s economic benefits while underestimating its likely costs, the DEIAR misrepresents the economic risks posed by the proposed exploratory drilling project.

XI. THE CLIMATE IMPACTS OF THE PROJECT ARE NOT ADEQUATELY ASSESSED

82. In our comments on the Draft Scoping Report, we set out that the assessment should include a full life cycle assessment of the impacts that would result not only from the exploration process, but also from the exploitation and downstream combustion of hydrocarbons that would be produced should the project move forward into its next phases.

83. However, the CCIA only evaluates Scope 1 emissions associated with its proposed exploration activities.

84. NEMA seeks to ensure “the integrated environmental management of activities” (section 23 of NEMA), to 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, and to ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them. NEMA and the EIA Regulations further require consideration of cumulative impacts of proposed activities and associated activities. This demonstrates quite clearly that NEMA requires an assessment of the potential impacts of exploration, as well as production, as a reasonably foreseeable impact of an associated activity.

85. The processes for exploration and production are intrinsically intertwined. From an environmental perspective, it is artificial to consider them as separate from each other. They are discrete stages in

¹⁰⁴ Economic Report at p. 144.

¹⁰⁵ Sandifer et al., *Human Health and Socioeconomic Effects of the Deepwater Horizon Oil Spill in the Gulf of Mexico*, 34 *Oceanography* 174, 181 (2021).

¹⁰⁶ *Id.* at p. 179.

a single process that culminates in the production and combustion of oil and gas and the emission of greenhouse gases that will exacerbate the climate crisis.

86. The obligation to consider reasonably foreseeable associated impacts, as required by NEMA, from the proposed exploration would also denote an obligation to consider estimated GHG emissions from production in the context of SA's domestic and international climate commitments.
87. The DEIAR further fails to consider how the project might aggravate the impacts of climate change in the area, both on people and marine and coastal ecosystems. Impacts of the project beyond its eventual greenhouse gas (GHG) emissions may operate as a threat multiplier, either reducing the resilience of communities 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 spawning, recruitment, and fitness, while the project's planned noise pollution, drilling and produced water discharges, unplanned but catastrophic oil spill impacts may further reduce fish breeding and juvenile success. Importantly, the Benguela Upwelling Zone is home to several MPAs and CBAs that serve as nurseries for fish and shellfish.
88. The risk that the project poses to adaptation is regarded as a "non-issue" because of the temporary and short nature of the exploration activities.¹⁰⁷
89. However, no consideration is given to how an unplanned event, such as a spill, could aggravate the surrounding marine environment's resilience and adaptation to climate change. In other words, there has been no assessment of the compounding effects of a spill on the ecological infrastructure that is important in South Africa's resilience to climate change - such as the marine species that are important for food security - in circumstances where the marine environment is already being impacted by climate change.
90. The extent to which proposed activities in an EIA may impact upon the climate adaptation of the surrounding environment is a relevant factor for consideration under section 24O(1)(b) of NEMA, and is necessary to ensure that a project is resilient to the impacts of climate change, and also that it is environmentally and socially responsible. 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.
91. The Consultation on Intention to Publish the National Guideline for Consideration of Climate Change Implications in Applications for Environmental Authorisations, Atmospheric Emission Licences and Waste Management Licences supports this position and calls for consideration of the impacts of proposed activities on infrastructure that is important for climate adaptation and resilience, in EIAs.¹⁰⁸

107 Page 35 of the CCIA.

108 Para 1.ii.

92. The CCIA does not describe how the project will interact with and potentially exacerbate these vulnerabilities. The cumulative harm of the additional emissions on the natural environment and the livelihoods of people in South Africa who rely heavily on natural resources must be evaluated.
93. The CCIA also indicates that “the details of venting and flaring are not yet certain”, but does not explain why this is the case.¹⁰⁹
94. As a result, the assessment of climate change impacts is incomplete and does not fully describe the impacts of the proposed project, as well as the full lifecycle of the project.

XII. THE DEIAR FAILS TO CONSIDER CHILDREN’S RIGHTS IN THE CONTEXT OF CLIMATE CHANGE

95. NEMA places a duty on the state to ensure participation of all interested and affected parties, including the vulnerable and disadvantaged in environmental governance, recognise the vital role of women and youth in environmental management and promote their full participation therein.¹¹⁰ Section 28(2) of the Constitution also places a duty on the state to consider the best interests of children as paramount in every matter that concerns them. This principle is also repeated in the Children’s Act.¹¹¹ Despite these legislative requirements, the report fails to consider the impact that this project will have on children.
96. Recently, the United Nations Committee on the Convention on the Rights of the Child published a general comment¹¹² wherein it stresses the importance of considering the impact of climate change on children and the need to consider children’s rights when making decisions that may impact the environment. According to the general comment, children have the right to participate in environmental impact assessments that are child friendly. Some of the child rights that must be considered in the context of climate change is children’s right to leisure, play, recreation and health. The report makes no mention any possible impact on these rights and how such impact will be mitigated.
97. The fact that climate change affects children in different parts of the globe differently and that such impacts are unique from those on adults, is undisputed.¹¹³ The difference in how climate change affects children is thought to be largely influenced by the preexisting social and economic disparities, and geographical variabilities.¹¹⁴ The impacts are uniquely different for children compared to adults

¹⁰⁹ Page 39 of the CCIA.

¹¹⁰ Section 2(4)(f) and (q).

¹¹¹ Section 9.

¹¹² UN Committee on the Rights of the Child General Comment No.26

¹¹³ Sheridan Bartlett “Understanding the impacts for children of factors related to climate Change” 2008; Sheffield P E and Landigan P J “Global Climate Change and Children's Health: Threats and Strategies for Prevention” 2011; Currie J and Deschênes O “Children and Climate Change: Introducing the Issue” 2016; Akresh R “Climate Change, Conflict and Children” 2016.

¹¹⁴ See above footnote.

because of the vulnerability of their developing bodies.¹¹⁵ The warm spells and heat waves caused by climate change exposes children to heat stress, respiratory and vector-borne diseases, and malnutrition with long term implications. Heavy precipitation events and intense tropical cyclones put children at higher risk of death than adults, exposes them to water-borne /water washed illnesses and malaria, reduces their options for play and social interaction etc. Furthermore, extreme high sea levels may increase the risk of death and bad health for children.¹¹⁶

XIII. THE DEIAR FAILS TO ADEQUATELY ACCOUNT FOR RELEVANT INTEGRATED COASTAL MANAGEMENT CONSIDERATIONS

98. The DEIAR identifies the National Environmental Management: Integrated Coastal Management Act, 24 of 2008 (NEM:ICMA), as a relevant law,¹¹⁷ but does not include any interrogation or assessment of the requirements of the Act, including the applicant companies' compliance with similar authorisation and whether the project would be contrary to the interests of the whole community. This is a fatal flaw.

XIV. THE DEIAR DOES NOT ASSESS TRANSBOUNDARY IMPACTS

99. NEM:ICMA requires DMRE to manage any activity in coastal waters "in accordance with the Republic's obligations under international law."¹¹⁸ South Africa has two key obligations with respect to environmental authorisations for coastal activities with transboundary impacts: first, the decision-making authority must ensure that any transboundary impacts are adequately assessed and second, the authority must consult with any other relevant authorities.

100. The International Court of Justice's decision in the *Pulp Mills* case establishes that the assessment of transboundary impacts is not solely a treaty-based obligation but a requirement under general international law. This decision, taking into account Principle 17 of the Rio Declaration on Environment and Development and Article 7 of the International Law Commission's draft articles on transboundary harm, confirms that a transboundary EIA should be conducted before implementing a project that may cause significant harm across borders.

101. The DEIAR recognizes, to a limited extent, that the proposed project may have transboundary impacts, but impermissibly confines its assessment of impacts within domestic borders.

102. Additionally, the DEIAR does not include any evidence that relevant foreign authorities were consulted in the development of the ESIA or EMPR, as required by South Africa's international obligations.

¹¹⁵ Sheridan Bartlett "Understanding the impacts for children of factors related to climate change" 2008.

¹¹⁶ See above footnote.

¹¹⁷ Page 43 of the DEIAR.

¹¹⁸ NEM:ICMA Section 21(b)

103. South Africa and Namibia are a signatory to the Benguela Current Convention (BCC) and the Abidjan Convention both of which would require meaningful consultation if marine ecosystems are potentially threatened. These conventions play a significant role in ensuring environmentally responsible industrial development, cooperation, and the protection of biodiversity. The Abidjan Convention, which covers a vast marine area from Mauritania to South Africa, imposes an obligation on states to avoid transferring damage or hazards from one area to another. The Benguela Current Convention commits Angola, Namibia, and South Africa to prevent and eliminate pollution, conduct environmental impact assessments, protect vulnerable species, enhance scientific information exchange, and reverse habitat alteration and loss. This convention requires a cooperative approach to activities such as seabed mining and oil and gas exploration to ensure that one country's actions do not harm the marine environment of another. As a signatory, South Africa is obligated to promote a coordinated regional approach to the conservation and sustainable use of the Benguela Current Large Marine Ecosystem, including the territorial waters of Namibia.
104. However, there is no evidence of such consultation or notification in the record, which constitutes a flaw in the consultation process and a violation of South Africa's international obligations.

XV. THE DEIAR'S NEED AND DESIRABILITY ASSESSMENT IS FLAWED

105. The DEIAR expressly posits the possible discovery of oil and gas as the project's objective. It notes that the demand for crude oil within South Africa has increased significantly and that most of it is imported. The DEIAR conveniently highlights the fact that the project is only for exploration activities and not production, thus only impacts resulting from the exploration activities are assessed. On the other hand, the DEIAR makes it clear that production of oil and gas within South Africa is expected to contribute positively towards the economy of South Africa and that this could present investment opportunities. The DEIAR repeatedly makes reference to the future production opportunities for oil and gas to boost its "need and desirability" arguments for the proposed exploration. Specifically, it mentions the need to secure gas for the country's energy mix in the future and a general and that this need is driven by the expectation that natural gas may act as a transition fuel. Notably, it further mentions green energy as something that will only mature in the distant future and makes no reference to South Africa's JET IP which contains near future plans for green energy.
106. Whilst explicitly limiting the scope of the assessment of impacts to the exploration phase, the DEIAR goes on to extensively motivate for the project by its ostensible positive impact associated with exploitation, and without further consideration for the negative impacts that would accrue from such exploitation.
107. Accordingly the need and desirability assessment is flawed for the above mentioned and the following reasons:

The assumption of oil and gas as a positive contributor to South Africa's economy is flawed

108. The DESIA makes an uninformed assumption about the economic benefits of production of more oil and gas within South Africa. A direct quotation of the assumption reads as follows:

"Producing more oil and gas within South Africa is expected to contribute towards a lower current account, more stable prices, create new jobs and industries in the upstream and downstream oil and gas industry supply chain and sectors, and counter volatility related to instabilities in major oil producing regions"¹¹⁹

109. This assumption is misleading and baseless. The costs of extraction, infrastructure, and environmental damage could offset any potential gains that the DEIAR assumes is likely to follow from a successful find. The long-term economic viability of new oil and gas projects is questionable, given the increasing pressure to reduce fossil fuel dependence and the potential of stranded assets. A gas-based energy industry requires an extremely expensive, multi-decade infrastructure dedicated to exploration, processing, transport (e.g. expensive, unreliable pipelines) and combustion. Offshore extraction entails many marine conservation risks, and methane leaks are a major source of greenhouse gases. The International Institute for Sustainable Development¹²⁰ estimated infrastructural costs associated with the most basic attempts to provide methane gas infrastructure – including gas plants, floating storage and regasification units. Even without cost and time overruns and other drawbacks, the infrastructure would quickly assume the status of stranded asset, given the need to halt methane gas emissions.¹²¹ The long-term economic viability of the project needs careful evaluation, considering future energy market trends and potential carbon pricing mechanisms such as the Carbon Border Adjustment Mechanism.

110. It has become increasingly vital to consider a full range of costs – including adverse downstream economic implications – along with benefits when it comes to fossil fuel emissions. One simple reason to engage in broad-based accounting is the point made by President Cyril Ramaphosa in late 2021, explaining the danger to the economy of further greenhouse gas emissions which have not been adequately assessed within the full-life cycle assessment of this project. Ramaphosa (2021) referenced the 'Carbon Border Adjustment Mechanism' (CBAM) that will be imposed by Western importers of South African goods, in a Presidential newsletter advocating a low-carbon economy and Just Transition for affected workers and communities, he noted: *"As our trading partners pursue the goal of net-zero carbon emissions, they are likely to increase restrictions on the import of goods produced using carbon-intensive energy. Because so much of our*

¹¹⁹ DEIAR at p. 60.

¹²⁰ International Institute for Sustainable Development 2022. South Africa: No Need for Gas. Cape Town. <https://www.iisd.org/system/files/2022-03/south-africa-no-need-for-gas.pdf>

¹²¹ Bond. P. 2023. Resource Extraction Cost-benefit Debates in South Africa: Contesting the Environmental Economics of Offshore Gas Extraction. Alternation 30,1 at page 52

industry depends on coal-generated electricity, we are likely to find that the products we export to various countries face trade barriers and, in addition, consumers in those countries may be less willing to buy our products”¹²²

111. Climate-related trade disincentives will include increased carbon taxation based on high-CO₂ components of local production as well as the distance travelled by goods either through shipping or air transport.¹²³
112. Failing to assess these risks leaves South Africa and its citizens exposed to significant dangers as the world transitions to renewable energy. A balanced need and desirability assessment must consider both the claimed benefits of increased oil and gas production and the potential downsides, such as:
 - 112.1. Limited impact on the current account deficit: Increased domestic production may not significantly reduce South Africa's overall deficit.
 - 112.2. Unstable long-term prices: Oil and gas prices are volatile and may decline in the long term, jeopardizing claimed price stability.
 - 112.3. Missed opportunity for renewables: Investing in fossil fuels could hinder development of South Africa's abundant renewable resources.
113. Only by comprehensively evaluating both benefits and risks can decision-makers make informed choices about South Africa's energy future, particularly in the context of being offered well supported conclusions to inform reasonable and justified decisions.

Gas-based energy solutions for South Africa are not sustainable

114. The DEIAR seems to conclude that exploration of hydrocarbons in deep offshore locations is necessary and desirable “to determine whether a viable gas or oil resource is present. The outcomes of this could provide insight into potential alternative supply options to inform the future energy planning and policy for South Africa”.¹²⁴ South Africa has already committed to transitioning to renewable energy sources. Investing in exploration for new fossil fuels contradicts this commitment and locks the country into a high-carbon future.
115. According to Kemfert *et al*:¹²⁵

¹²² Ramaphosa, C. 2021. From the Desk of the President. The Presidency, 11 October. <https://www.gov.za/blog/desk-president-88>

¹²³ Bond, P. 2023. Resource Extraction Cost-benefit Debates in South Africa: Contesting the Environmental Economics of Offshore Gas Extraction. *Alternation* 30,1 at page 52

¹²⁴ DEIR. Section 5 at page 60.

¹²⁵ Kemfert, C., Präger, F., Braunger, I. *et al*. The expansion of natural gas infrastructure puts energy transitions at risk. *Nat Energy* 7, 582–587 (2022). <https://doi.org/10.1038/s41560-022-01060-3>.

From a methodological perspective, quantitative model-based scenario analyses are a valuable tool to assess energy systems transitions.^{126 127} Importantly, however, the implications of a given scenario depend on the underlying assumptions and accuracy of the models. To avoid poorly designed energy policies, new research on the climate impact of methane (for example, via leakage), non-business as usual assumptions and non-economic factors,¹²⁸ should be included in scenarios. In many of the scenarios referred to by natural gas proponents, these aspects remain largely unexamined.

116. Which appears to be the case with regards to assumptions made and incorporated in the IRP 2019, particularly with regards to the likely GHG emissions that will arise from the implementation of gas infrastructure for energy production.
117. The need and desirability assessment's reliance on energy policies such as the IRP 2019, the Gas Master Plan and the Upstream Petroleum Development Bill are not anchored on new research on the climate impact of methane (for example, via leakage), non-business as usual assumptions and non-economic factors, particularly with regards to gas, with these aspects largely remaining unexamined. According to the IPCC, global gas demand must decrease by between 21 and 61 percent from 2020 levels by 2050 in scenarios limiting warming to 1.5, with no or limited overshoot.¹²⁹ The current global gas infrastructure already supplies the gas volumes required to meet demand within these future scenarios, and any additional infrastructure is at risk of becoming stranded assets. In addition to this modelling, the International Energy Agency (IEA) has found that no new oil and gas exploration is needed to achieve net zero emissions by 2050.¹³⁰
118. Considering the above, the assumption that the outcomes of the proposed exploration could offer insights into potential alternative supply options for informing South Africa's future energy planning and policy appears unreliable. This assumption fails to account for the swift cost decline and growing feasibility of renewable energy solutions, consequently impeding South Africa's transition towards clean energy. These alternatives are not considered. Moreover, juxtaposing new data from fossil fuel exploration with the rapidly advancing landscape of low-carbon alternatives creates a misleading equivalence, disregarding the transformative potential of renewable energy sources.

¹²⁶ Cherp, A., Vinichenko, V., Jewell, J., Brutschin, E. & Sovacool, B. Integrating techno-economic, socio-technical and political perspectives on national energy transitions: a meta-theoretical framework. *Energy Res. Soc. Sci.* **37**, 175–190 (2018).

¹²⁷ Grubler, A. Energy transitions research: insights and cautionary tales. *Energy Policy* **50**, 8–16 (2012).

¹²⁸ Hoffart, F. M., Schmitt, E.-J. & Roos, M. Rethinking economic energy policy research—developing qualitative scenarios to identify feasible energy policies. *J. Sustain. Dev. Energy Water Environ. Syst.* **9**, 1–28 (2021).

¹²⁹ IPCC, 'Climate Change 2022 - Mitigation of Climate Change', (2022), IPCC, <https://doi.org/10.1201/9781003264705-7>

¹³⁰ IEA (2023), *Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach*, IEA, Paris <https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach>, Licence: CC BY 4.0

119. In light of this consideration and other emerging data on supply options, coupled with the rapid technological advancements within the energy sector, particularly in low-carbon alternatives, it becomes imperative to consistently reassess and revise South Africa's energy planning to ensure the formulation of the most suitable and sustainable strategy, grounded in the best available scientific insights and robust scenario modelling. Section 6 of the National Energy Act, 34 of 2008, requires just this through an annual revision of the Integrated Energy Plan, recognising that in a transitioning world, the national energy mix requires regular revision.
120. The necessity to scrutinize energy plans guided by policy lies in the obligation to review the latest climate science and energy modelling. The objective is to discern the optimal and appropriate focus for accelerating the transition to renewables, rather than using it to rationalize further exploration of fossil fuels. This assumption made at page 50, distorts the true purpose of the need and desirability assessment.
121. For this reason, optimizing energy planning for South Africa necessitates a thorough exploration of research focused on the feasibility and transition pathway modelling towards achieving 100% renewable energy systems—a field that has significantly evolved since the 2000s. Numerous publications across diverse jurisdictions have demonstrated the technical feasibility of attaining 100% renewable energy.¹³¹ Adopting a cross-sectoral perspective encompassing the entire energy system, with a strategic integration of fluctuating and dispatchable renewables, along with various sources of flexibility such as energy storage options, demand response, and sector coupling, forms the bedrock for the realization of 100% renewable energy systems.
122. Therefore, technological advancements in renewables could very quickly outpace any potential fossil fuel discoveries, making them obsolete and economically unviable.
123. Lastly, the competent authority is not bound by any policy and must independently apply its mind to the need and desirability of the proposed project from a NEMA perspective. Rigid adherence to policy in making an administrative decision fetters the decision-maker's discretion, in violation of basic principles of just administrative action (it is a fundamental rule of administrative law that the decision-maker vested with a discretionary power may not fetter its discretion by rigid adherence to a pre-determined policy). What is required of an administrator is that he or she is independently satisfied that the policy is appropriate to the circumstances of the particular case. In *Earthlife Johannesburg and Another v. Minister of Energy and Others*¹³² the court found that "[p]olicy instruments developed by the Department of Energy cannot alter the requirements of environmental legislation for relevant climate change factors to be considered".¹³³ The decision-maker cannot elevate principles or policies into rules that are considered to be binding with the result

¹³¹ Hansen, K., Breyer, C. & Lund, H. Status and perspectives on 100% renewable energy systems. *Energy* **175**, 471–480 (2019).

¹³² *Earthlife Johannesburg and Another v. Minister of Energy and Others* 2017 2 All SA 519 (GP)

¹³³ See above at para 97.

that no discretion is exercised at all. While policies in keeping with the empowering legislation may be used to assist decision making, they may not inevitably determine the outcome of the decision, lest they “preclude the person exercising the discretion from bringing his mind to bear in a real sense on the particular circumstances of each and every individual case coming up for decision.”¹³⁴

Conclusion

124. In scrutinizing the DEIAR's propositions surrounding deep offshore hydrocarbon exploration, it becomes evident that the suggested necessity and desirability of such ventures clash with South Africa's international climate commitments and its commitment to transitioning towards renewable energy. The reliance on outdated assumptions and models, notably in the IRP 2019, the Gas Master Plan, and the Upstream Petroleum Development Bill, perpetuates a high-carbon trajectory, undermining the country's broader goals.
125. The assumption that deep offshore exploration could unveil alternative supply options for South Africa's future energy planning proves unreliable. It neglects the swift decline in renewable energy costs and the growing feasibility of sustainable solutions, hindering the nation's clean energy transition. The juxtaposition of fossil fuel exploration data with advancements in low-carbon alternatives creates a misleading equivalence, overshadowing the transformative potential inherent in renewable energy sources.
126. Continual reassessment of South Africa's energy planning is essential, necessitating alignment with the latest climate science and energy modelling. The current trajectory, which leans towards fossil fuel exploration, contradicts global targets highlighted by the IPCC and the International Energy Agency, which assert that decreasing gas demand is imperative for achieving net-zero emissions by 2050.
127. Optimizing energy planning for South Africa involves a thorough exploration of research focused on transitioning to 100% renewable energy systems. Technological advancements in renewables are progressing rapidly, potentially outpacing any fossil fuel discoveries and rendering them economically unviable. The call for genuine sustainability echoes through the conclusion, emphasizing the need to align energy policies with evolving scientific insights and to prioritize a clean energy future that safeguards both environmental and economic well-being.

The climate assumptions in the need and desirability assessment are flawed.

128. Within the DEIAR, there seems to be a limitation in the scope of assessing climate change impacts associated with greenhouse gas (GHG) emissions. The focus appears confined to exploration, omitting a comprehensive examination of the full-life cycle GHG impacts. This broader consideration

¹³⁴ Richardson v Administrator, Transvaal 1957 (1) SA 521 (T) at 530.

is crucial as it encompasses not only emissions from drilling but also those arising from production activities. This limitation becomes evident in the statement on page 60.

“Considering that the life-cycle of the project would be limited to the exploration activities only (i.e. identification of resources only – and does not necessarily imply actual further production of oil and gas resources), there are limited GHG emissions directly related to the proposed activity and a very low climate change vulnerability risks, mainly since the project will be of limited duration”¹³⁵

129. While it’s true that exploration activities generate fewer emissions than full-scale oil and gas production, the assumption of limited climate impact and risk is flawed for the following reasons:

129.1. Exploration activities can contribute to methane leaks and fugitive emissions, potent GHGs with significant warming potential. These emissions are difficult to quantify and mitigate, posing underappreciated climate risks. The latest research on methane emissions related to natural gas production and transport has found that the actual methane leakage rates far exceed previous estimates.¹³⁶¹³⁷ The greenhouse gas (GHG) emissions advantage of natural gas over coal becomes marginal if approximately 3.2%.¹³⁸ to 3.4%¹³⁹ of the gas produced escapes into the atmosphere before being burned. The total global average leakage rate is estimated to be around 2.2%.¹⁴⁰ However, some studies that investigated individual gas fields even found fugitive emission rates of up to 6% of the total amount of natural gas produced. In addition to overall fugitive emission, unintended processing conditions along the supply chain of natural gas release huge amounts of methane from point sources. They are caused by malfunctions and equipment failures, and lead to disproportional emissions effects.¹⁴¹ They are caused by malfunctions and equipment failures, and lead to disproportional emissions effects.¹⁴² Given the limited GHG budget left, mitigation measures such as those proposed in this DEIR for example— leakage controls— cannot replace a sustainable and cost effective mitigation measure such as strong reduction in natural gas consumption. Natural gas is still a fossil fuel that emits large amounts

¹³⁵ DEIR. Section 5 at page 60

¹³⁶ Schwietzke, S. et al. Upward revision of global fossil fuel methane emissions based on isotope database. *Nature* **538**, 88–91 (2016).

¹³⁷ MacKay, K. et al. Methane emissions from upstream oil and gas production in Canada are underestimated. *Sci. Rep.* **11**, 8041 (2021).

¹³⁸ Alvarez, R. A., Pacala, S. W., Winebrake, J. J., Chameides, W. L. & Hamburg, S. P. Greater focus needed on methane leakage from natural gas infrastructure. *Proc. Natl Acad. Sci. USA* **109**, 6435–6440 (2012).

¹³⁹ Schwietzke, S., Griffin, W. M., Matthews, H. S. & Bruhwiler, L. M. P. Natural gas fugitive emissions rates constrained by global atmospheric methane and ethane. *Environ. Sci. Technol.* **48**, 7714–7722 (2014).

¹⁴⁰ Schwietzke, S. et al. Upward revision of global fossil fuel methane emissions based on isotope database. *Nature* **538**, 88–91 (2016).

¹⁴¹ National Academies of Sciences, Engineering, and Medicine et al. *Improving Characterization of Anthropogenic Methane Emissions in the United States* (National Academies Press, 2018); <https://doi.org/10.17226/24987>

¹⁴² National Academies of Sciences, Engineering, and Medicine et al. *Improving Characterization of Anthropogenic Methane Emissions in the United States* (National Academies Press, 2018); <https://doi.org/10.17226/24987>

of CO₂ during combustion, in addition to fugitive methane emissions, and therefore remains at risk of continuing global warming rates.¹⁴³ Therefore the use of natural gas, even as a temporary substitute for coal, may lead to an additional short-term temperature increase.¹⁴⁴

129.2. Finding commercially viable resources can and often has incentivized future gas and oil production, even if not explicitly planned currently. This “lock-in” undermines South Africa’s emission reduction goals and is likely to create stranded assets if demand for oil and gas rapidly decreases requiring a rapid shift towards renewables.

129.3. Approving limited exploration sets a precedent for potential future expansion, especially if resources appear promising. This will very likely cause a slippery slope towards increased GHG emissions and will undermine South Africa’s climate change commitments.

129.4. Ignoring the potential long-term impacts of exploration on future generations raises ethical concerns. The South Africa government, most specifically the Department of Mineral Resources and Energy as well as the Department of Forestry, Fisheries and the Environment have a responsibility mandated by the s 24(b) of Constitution¹⁴⁵ and NEMA particularly with regards to responding effectively to climate change mitigation, sustaining South Africa’s ecosystems and managing a just transition. These departments and the government holistically have a responsibility to minimize climate risks for future generations, not exacerbate them.

Conclusion

130. The DEIAR's apparent confinement of its need and desirability assessment solely to the exploration phase, as evidenced on page 60, presents a critical limitation.

131. Ethical concerns arise as the potential long-term impacts of exploration on future generations are ignored. The South African government, guided by constitutional mandates and environmental stewardship responsibilities, must prioritize minimizing climate risks for future generations rather than exacerbating them. The conclusion emphasizes the urgency to reevaluate the incomplete

¹⁴³ According to the latest figures from the Intergovernmental Panel on Climate Change, the global warming potential (GWP) of methane is up to 87 times greater than that of CO₂ in the first 20 years after emission, and up to 36 times greater in the first 100 years

¹⁴⁴ Zhang, X., Myhrvold, N. P., Hausfather, Z. & Caldeira, K. Climate benefits of natural gas as a bridge fuel and potential delay of near-zero energy systems. *Appl. Energy* **167**, 317–322 (2016).

¹⁴⁵ 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.

climate assessment, advocating for a more comprehensive and ethically grounded approach to guide South Africa's energy planning and policy.

XVI. THE DEIAR FAILS TO ADEQUATELY ASSESS THE IMPACTS ASSOCIATED WITH DECOMMISSIONING AND WELL CLOSURE

The DEIAR fails to quantify all decommissioning costs

132. A 2021 forecast by IHS Markit estimated that global offshore decommissioning spending could cost nearly USD 100 billion between 2021 and 2030, a period that S&P Global Commodity Insights has described as a potential “decade of offshore decommissioning.”¹⁴⁶ In the face of increasing demand for decommissioning, some have predicted that decommissioning costs may increase significantly.¹⁴⁷ It appears the DEIAR does not take into account nor quantify the costs that will be incurred by proponent, or the state for decommissioning in the face of a rapid phase out of fossil fuels such as coal, oil and gas to renewable energy facilitated by the Just Transition.
133. Anticipated decommissioning costs are subject to significant changes over the decades from a project's inception to its decommissioning. Estimating these expenses at the project's outset is inherently challenging and prone to inaccuracies. Surprisingly, the DEIAR, detailed in pages 450-451, does not address or quantify the potential value fluctuations in decommissioning expenses, particularly in the context of South Africa's potential rapid phasing out of fossil fuels in anticipation of the just energy transition.
134. The lack of consideration and quantification regarding how decommissioning expenses might be affected by the risks posed by a swift transition away from fossil fuels, creates uncertainty for decision-makers. This ambiguity within the DEIAR and the specialist report at section 4.5.2¹⁴⁸ and 4.5.3¹⁴⁹, is particularly concerning when considering the inaccuracies inherent in estimations. Such oversight poses a potential risk for the government, especially if early decommissioning becomes a legal or public policy imperative, such as outlined in the JEPT plan, or in the event of a global rapid phase-out of oil and gas technology and reserves. The absence of clarity on the potential impact of decommissioning expenses adds an element of uncertainty to the overall need and desirability assessment of this project.

¹⁴⁶ Christian de los Reyes Ullevik, Are We Entering a Decade of Offshore Decommissioning?, S&P GLOBAL COMMODITY INSIGHTS (Oct. 5, 2021), <https://www.spglobal.com/commodityinsights/en/ci/research-analysis/decade-of-offshoredecommissioning.html>

¹⁴⁷ Andrew Reid, Offshore Energy: Are Decommissioning Costs Set to Spiral?, OFFSHORE ENGINEER (Mar. 1, 2022), <https://www.oedigital.com/news/494667-offshore-energy-are-decommissioning-costs-set-to-spiral>

¹⁴⁸ Final Rehabilitation, Decommissioning and Closure Plan Specialist Report. Section 4.5.2, at page 28

¹⁴⁹ See above at section 4.5.3 at page 28.

Long-term well integrity risks have not been addressed

135. The DEIAR outlines the proposed plan for decommissioning as part of the closure and rehabilitation program. In it addresses the obligations of well sealing and plugging by stating the following¹⁵⁰:

“Once drilling and logging have been completed, the exploration wells will be sealed with cement plugs, tested for integrity and abandoned according to international best practices. The integrity of cement plugs can be tested by a number of methods. The cement plugs will be tag tested (to validate plug position) and weight tested, and if achievable then a positive pressure test (to validate seal) and/or a negative pressure test will be performed. Additionally, a flow check may be performed to ensure sealing by the plug. Once the well is plugged, seawater will be displaced before disconnecting the riser and the BOP”

136. Although the DEIAR makes mention of the adoption of tag testing and weight testing of cement well plugs for the purposes of sealing and preventing leaks or blow-outs, thorough testing measures such as the ones proposed in the DEIAR and the specialist report¹⁵¹ at pages have limitations. Tag and weight tests only confirm location and weight, not absolute seal integrity. Pressure tests may miss micro-fractures or bypass channels. Flow checks are also likely to have limitations depending on fluid type and pressure.

137. Furthermore, long term monitoring of abandoned wells is expensive and technically challenging. Detecting small leaks or gradual seal deterioration can be difficult particularly in risky and an unpredictable areas such as deep offshore where emergency response may not arrive in suitable time to mitigate any leaks or spills unplanned or planned. Whilst referring to the number of wells that have been drilled off the coast already, the DEIAR does not disclose whether these wells are being properly monitored, what the results of such monitoring has shown, the current integrity of the wells, and whether any are leaking.

138. The traditional practice of using conventional cement plugs for well decommissioning is progressively outdated, given the emergence of newer technologies and methodologies that promise more secure and enduring solutions. However, the specialist report and the DEIAR have yet to assess these alternatives, leading to an identified closure plan gap. Specifically, the specialist report does not define the plug material, and the DEIAR fails to evaluate the location of the plug barriers. This omission raises concerns about the comprehensiveness of the closure plan and the

¹⁵⁰ DEIAR. Section 10.1, at page 450.

¹⁵¹Final Rehabilitation, Decommissioning and Closure Plan Specialist Report. Section 4.5.2, at page 27-28

efficacy of the chosen decommissioning approach, highlighting the need for a more thorough examination of advanced technologies for well decommissioning.¹⁵²

139. Given the inherent uncertainties and potential long term risks associated with abandoned wells, even with “best practices”, applying the precautionary principle might suggest prioritizing renewable energy options that avoid creating these potential liabilities in the first place.

Conclusion

140. The DEIAR articulates a comprehensive plan for decommissioning within the closure and rehabilitation program, primarily focusing on the sealing and plugging obligations of exploration wells. The proposed methodology involves cement plugs, subjected to various integrity tests, including tag testing, weight testing, and pressure testing, with additional measures like flow checks.
141. However, a critical evaluation reveals limitations in the proposed testing measures, as tag and weight tests confirm only location and weight, leaving uncertainties about absolute seal integrity. Pressure tests may overlook micro-fractures or bypass channels, while the efficacy of flow checks depends on fluid type and pressure.
142. Moreover, long-term monitoring of abandoned wells in deep offshore areas poses challenges in cost and technical feasibility. Detecting small leaks or gradual seal deterioration becomes intricate, especially in remote and unpredictable environments where emergency response may face delays.
143. The reliance on conventional cement plugs for decommissioning is scrutinized for its increasing obsolescence, given emerging technologies offering more secure solutions. The absence of an assessment of these alternatives, as noted in both the specialist report and the DEIAR, points to a closure plan gap, questioning the comprehensiveness and efficacy of the chosen decommissioning approach.
144. Considering the inherent uncertainties and potential long-term risks linked to abandoned wells, even with the application of “best practices,” a cautious approach is advocated. The precautionary principle suggests prioritizing renewable energy options that sidestep the creation of potential liabilities associated with offshore well decommissioning. In navigating these uncertainties, the call for a more thorough examination of advanced technologies becomes imperative to ensure a prudent and sustainable course of action in offshore energy practices, particularly given the pervasiveness of offshore activities related to exploration and most likely production.

¹⁵² Final Rehabilitation, Decommissioning and Closure Plan. Appendix 6 Specialist Report. Section 4.5.2, at page 27-28

I. THE DEIAR FAILS TO ADEQUATELY AND COMPREHENSIVELY ASSESS ECONOMIC IMPACTS

145. In addition to the comments we have made above regarding the false claims associated with a positive economic impact arising from an oil spill, we set out below that the economic impact assessment, as incorporated into the DEIAR, does not adequately assessment economic impacts.
146. In making these comments, we rely on input from Gillian Hamilton, an economist working as Principal Consultant - Sustainability, Climate Change at Twig Consulting and as a researcher for Green Connection. Gillian has over 15 years of experience in the development sector, and holds a Masters and a BPhil (cum laude) in Sustainable Development from Stellenbosch University, and an Honours Degree in Economics (Trade and Development) from the University of Johannesburg. These comments are based primarily on expert input from Hamilton.

General comments

147. Regarding the Legislative and Policy Framework, none of the policies and laws mentioned (i.e. the National Development Plan (page 28); the Industrial Policy Action Plan (IPAP) (page 29); Integrated Resource Plan (IRP) 2019 (page 29); and the Integrated Energy Plan (IEP) 2016 (page 30); Operation Phakisa (2014)) are aligned to our international commitment to the Paris Agreement. Furthermore, the [White Paper on Biodiversity Conservation and Sustainable Use](#) - approved by Cabinet in April 2023 and South Africa's commitment to 30 x 30 should be included in economic decisions regarding oil and gas exploration.
148. Moreover, most of the abovementioned plans are out of date and not aligned to South Africa's Just Energy Transition or to the most recent scientific evidence of methane gas as a contributor to greenhouse gas (GHG) emissions. Of economic concern, is that the establishment of an oil and gas industry in South Africa poses significant transition risk, trade risk and will result in stranded assets. All of these will negatively impact our fiscus and experience from other African countries indicates increased sovereign debt levels and underperforming economic growth as oil and gas exploration takes place, also known as the pre-source curse.
149. Although the Economic Impact Assessment notes that current supply levels are becoming insufficient to accommodate demand for gas (page 39), this information is out of date as Renergen is currently producing gas in South Africa (<https://www.renergen.co.za/renergen-projects/virginia-gas-project/>). Thus, there is no need for additional gas supply in SA.

Quantitative Economic Impact Assessment

150. Regarding the data, it is concerning that 'No cost data has yet been provided and therefore an estimated cost has been calculated' (page 99). The EIA estimated the drilling per well at approximately US\$35 000 000 and an estimated 25% of all capital expenditure will be in South Africa. This number is substantially higher than previous estimates for Capex by other exploration projects – and this in turn falsely inflates the projected benefits such as the operational expenditure and the

GDP for South Africa. On page 19, it is noted that operational supplies such as 'Drilling materials, such as casings, mud components and other equipment and materials will be brought into the country on the drilling unit itself or imported via a container vessel directly to the onshore logistics base from where the supply vessels will transfer it to the drilling unit. Cement and chemicals will be sourced locally.' This indicates that the operational expenditure costs may also be inflated.

151. As noted in the analysis, four sectors which may be affected by the exploration activities during normal operations were identified, namely commercial fishing; maritime logistics; tourism and telecommunications. While the impact on Maritime Logistics is estimated as substantially larger than the impact on the commercial fishing industry, there is insufficient quantitative and qualitative understanding of what a temporary closure on the fishing industry would result in. It is likely that the repercussions for the entire economy will be more substantial than the calculations estimate as the fishing industry is a primary industry and the workers in this industry will lose their jobs while various secondary and tertiary industries would also feel the repercussions. Neither the mitigation measures nor the expected benefits from the exploration activities will likely mitigate these repercussions.
152. At the same time, the Economic Impact Analysis (EIA) rightly identifies the Negative impacts at the local level such as:
 - 152.1. Increased pressure on infrastructure in onshore logistics base and areas of base operation
 - 152.2. Increased demand from backward linking suppliers and the potential needs required to support operations
 - 152.3. Potential skill mismatches and temporary attraction of migratory workers (page 93).
153. However, these impacts are not quantified and included in the economic calculations or the mitigation strategies – we know from extensive literature that the negative impacts of the oil and gas industry are more directly felt at local rather than national levels – and tend to be wider than these three impacts that were identified - and these calculations must be quantified to develop a true understanding of the externalities.
154. From a macroeconomic perspective, the concern around the oil and gas exploration is that we are further concentrating the economy rather than diversifying the economy and this concentration makes us more susceptible to shocks.

Jobs and Livelihoods

155. According to the economic analysis, the exploration activity is expected to stimulate about 4 960 temporary formal and informal employment opportunities, but the fishing and maritime logistics industries may witness a temporary decrease in the demand for jobs (approximately 905 employment opportunities during the exploration period). In terms of increasing livelihoods, the exploration activity is projected to temporarily stimulate additional compensation for temporary jobs (approximately R1.0 billion) and increase household incomes by R2.0 billion during the four-month

period. However, compensation of employees in basic sectors such as fishing and logistics may be temporarily disrupted, potentially leading to a temporary burden on the community in terms of access to services and amenities. The exploration activity could also result in the temporary subtraction of around R184.1 million in employee compensation from the national economy and more than R362 million from household incomes.

156. However, both international research and the Economic Impact Analysis for two other exploration sites indicate that these employment numbers are likely highly inflated. On page 19, this analysis notes that 'Core specialist and skilled personnel would arrive in South Africa onboard the drilling unit and the rest of the personnel will be flown to Cape Town'. The specialised nature of the survey vessels and drilling unit is such that they are not available locally and are sourced from international contractors. The technical nature of the operations means that the survey vessels and drilling unit are crewed by highly skilled personnel, who are part and parcel of the contract. It is more likely that the direct formal employment numbers will be closer to 200. Moreover, the demand for local services will be largely limited to crew accommodation, meals, basic goods, and refuelling, provided at the onshore logistics base in Cape Town or Saldanha.

157. Due to the lack of transparent information regarding the economic costs, we are drawing on modelling used in the EIAs for both Block 11B/12B and Block Deep Water Orange Basin (DWOB) also known as Block (12/3/343 ER). The economic modelling for these indicates that only income spend in South Africa should be modelled as investments abroad or good and services that are imported should be excluded from the modelling.

	Block 3B/4B	Block 11B/12B	DWOB
Estimated number of wells to be drilled	5 wells	5 wells	up to ten wells in total
Estimated number of months for the exploration activity	Estimated at 20 months		Estimated at 3 to 4 months/ site. i.e. 30 - 40 months
Estimated total cost of the exploration	'No cost data has yet been provided and therefore an estimated cost has been calculated' The total cost to undertake and complete exploration drilling each exploration well location is estimated at approximately US\$35 000 000	During the exploration well drilling phase, a total of USD\$136.4 million will be spent, or USD\$19,4 million per annum over the exploration period. Or \$136 400 000 i.e. R498.4 million per well.	Not included in the SEIA.

	An exchange rate of R18.27/ US\$ was used. The total cost per well is therefore estimated at approximately R639.5 million.		
Estimated % of total capital expenditure to be spent locally	25% or R799.3 million	It was assumed that the project would capture a similar local content spend to similar projects (19% of total project costs), which equates to USD\$25.9 or R425 million.	Not included in the SEIA
GDP	R2 167 557 675 (R216.7million)	R219.7million	
Estimated local number of jobs or Total Formal (Direct) Employment	4 196	205	177 as per reasoning below: The majority of the workforce will be highly specialised skilled staff on the drilling unit and support vessels, with the numbers on board depending on drilling operations – but estimated at about 140 at any one time). These are employees provided by the drilling unit. It is estimated that additional employees will be shore based. Of these, local content plans indicate that about 177 South African staff would make up the complement within this staff number. A limited number of local staff would also be employed at the

			onshore base for up to six months for an appraisal well (including mobilisation and demobilisation).
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Conclusion

158. In conclusion, the economic impact assessment is flawed for the following reasons:

158.1. The identified benefits of this exploration seem to be inflated with the negative externalities underestimated.

158.2. This analysis has substantially over-estimated the number of direct employment opportunities the exploration would create, without considering the full impact of the loss of jobs, especially in the fishing industry.

158.3. This analysis has underestimated the impacts and risks to the economy of a well blowout.

II. THE DEIAR FAILS TO ADEQUATELY AND COMPREHENSIVELY ASSESS IMPACTS ON CULTURE AND HERITAGE

159. Despite having been advised to do so by NJ and TGC through their comments¹⁵³ on the Draft Scoping Report, the DEIAR still does not reflect adequate and comprehensive assessment of the project's impact on culture and heritage. The report contains extensive research on the Khoi-San communities but falls short insofar as other communities (fishers, traditional healers, religious communities etc.) are concerned.¹⁵⁴ No consultation with or research conducted on traditional healers and religious communities, was done. Small scale fisher cooperatives were also not interviewed.¹⁵⁵

160. The report extensively traces the rich history of fishing tradition in coastal areas of South Africa.¹⁵⁶ According to the report, this tradition starts from the 17th century to the 20th century and the intangible cultural heritage embedded within this tradition is acknowledged.¹⁵⁷ However, despite this knowledge on the coastal communities' rich fishing tradition, only few individuals (allegedly fishers) were interviewed about the project that will have (according to the specialist report)

¹⁵³ See NJ and TGC comments on the draft scoping report dated August 2023.

¹⁵⁴ See EIA Report dated December 2023.

¹⁵⁵ See above footnote.

¹⁵⁶ See paragraph 8.8.3.3 of the EIA Report dated December 2023.

¹⁵⁷ See above footnote.

significantly high impact on the intangible culture and heritage of many communities living in the coastal area where the project is located.

161. The report expressly acknowledges the existence of the intangible cultural heritage of indigenous communities, and the significance of the project's impact on this intangible cultural heritage is found to be high without mitigation. It proposes participatory forums (for ritual events to be presented) as mitigation against the impact on intangible cultural heritage. This implies that the ritual events are merely procedural activities that only have the effect of mitigating the impact on the intangible cultural heritage. A rejection of the project by "ancestors" is not seen as a possible outcome of the ritual event. The report does not contain views or comments from religious communities precisely because they were not consulted and no research was done on their spiritual connection to the ocean.
162. The report acknowledges the "cultural proximity"¹⁵⁸ that small scale fishers have with the ocean but reduces it to something that must be considered with other "desires" and needs for South Africa's coastal areas. This contrast is problematic and demonstrates lack of appreciation for the nature of the relationship that fishers have with the ocean. According to the report, more than 50 percent of fishers that were interviewed expressed concerns about the effects of offshore oil and gas operations on fish stock. These concerns are especially valid considering what the specialist report says about the impact the project will have on the following receptors: spirituality, tangible heritage, sense of place, livelihoods, and health.
163. The specialist study report sums up the overall sensitivity to the above-mentioned receptors and the magnitude of the impact as high prior to mitigation and medium post mitigation.¹⁵⁹ It is not clear from the report as to what the extent of the medium impact of drilling operations (on sensitive receptors) will be. However, what is clear is that the significance of the impact is high. Evidently, the impact of drilling operations on sensitive receptors cannot be sufficiently mitigated and will consequently have a negative impact on the culture and heritage of the affected communities.
164. The report constantly refers to traditional leaders or leaders as stakeholders that must be consulted, particularly in relation to mitigation measures. This is problematic as it implies that a traditional leader's views on the project represent the views of the entire community which the traditional leader belongs to.
165. It is for the above-mentioned reasons that it is submitted that the report fails to adequately and comprehensively consider impact on culture and heritage.

158 These words are also misleading. The nature of the connection that small scale fishers have with the ocean is actually spiritual. They believe that the sea is sacred. See in this regard Sunde 2014.

159 Culture and Heritage Impact Assessment Report dated November 2023.

III. PUBLIC PARTICIPATION HAS NOT BEEN MEANINGFUL AND EFFECTIVE

166. The public participation process has so far failed to achieve meaningful consultation, given the bombardment of offshore and coastal activities to which coastal communities and small-scale fishers, as well as other members of the public, have had to respond in a short period of time. It must be noted that the right to public participation is enshrined in the Constitution which places obligations on both the State and corporations due to both the vertical and horizontal application of the Constitution.
167. There has been an overwhelming number of offshore oil and gas related application processes running in parallel, particularly those which may impact the south-west and west coast of South Africa. In the previous year, interested and affected parties were called upon to respond to no less than seven (7) EIA processes, without taking into account the other related legislative public participation processes, such as the Upstream Petroleum Resources Development Bill, the Climate Change Bill as well as consultations around the draft Marine Spatial Plans. This often creates confusion within communities on which project is being undertaken, especially when the same consultants are working on numerous projects within geographical area.
168. In addition to the oil and gas application processes that ran throughout the year of 2023, small scale fisher co-ops were also engaged in discussions and meetings with the Department of Forestry, Fisheries and Environment on various concerns around their fishing quotas. The outright rejection of certain processes within fishing communities and "participation fatigue" reveals a fundamental disconnect between the community and the decision-making mechanisms. It raises questions about the effectiveness and inclusivity of past engagement efforts. Furthermore, overlapping meetings with the Department of Fisheries and Forestry and Environment create scheduling conflicts, highlighting the need for streamlined coordination to avoid sidelining key stakeholders due to conflicting agendas. This was illustrated on the 25th of January in which Small-scale fishers were unable to attend the public meeting for this project due to a clash with the DFFE co-op meeting in the Cove. We are of the opinion that where this occurs, another meeting should be re-run to not prejudice small-scale fishers who would have liked to participate.
169. The consistently poor attendance at meetings, as seen in Lambert's Bay for example, points to a disconnect between the community and the issues at hand. It highlights that these companies have failed to obtain a social license in which to operate.
170. It is inconceivable that affected coastal communities are able to respond to each of these processes in a meaningful way. The ocean-based livelihoods of many coastal communities, in particular small-scale fishers, is recognised in the DEIAR. This means that fishers must fish for a living, requiring them to be out at sea daily or for extended periods of time. Even if they wish to do so, they do not have the time or resources to attend multiple public meetings, engage with voluminous technical information and provide comments and appeals. It is further notable that historic barriers

to accessing education and the impacts of Apartheid means that these communities have significantly lower levels of literacy making engagements with voluminous documents almost impossible.

171. The result, even if unintended, is that those who have less resources, are required to be out at sea to make their livelihoods, or are unable to fully understand the different proposals and processes, are significantly prejudiced by the onslaught of applications, and are not able to engage meaningfully in each process.
172. In light of these challenges, it is evident that the current public participation processes require a comprehensive revaluation factoring in the extent to which the international law principle of free prior, informed, consent has been given effect to throughout the entire public participation process, and the extent to which there has been a genuine attempt to engage with the issues raised by I&APs, particularly coastal communities. Moving forward, there is a pressing need for an approach that not only acknowledges and addresses community concerns but also fosters an environment of trust, inclusivity, and genuine collaboration with relevant stakeholders.