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Date: 8 November 2023

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT THE PROPOSED OFFSHORE PRODUCTION RIGHT AND ENVIRONMENTAL AUTHORISATION APPLICATIONS FOR BLOCK 11B/12B

REF NO: 12/4/13 PR

COMMENTS ON THE DRAFT ESIA

INTRODUCTION

1. These submissions are made by The Green Connection and Natural Justice in response to the Draft Environmental and Social Impact Assessment published for comment by WSP Group Africa (Pty) Ltd for the proposed offshore production right and environmental authorisation applications for Block 11B/12B on 22 September 2023.
2. The Green Connection is a registered non-governmental organisation, that believes 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. It aims to provide practical support to both the government and non-governmental/civil society sectors, which are an integral part of sustainable development.

3. 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 support to local and indigenous communities impacted by the ever-increasing demand for land and natural resources.
4. The organisations have an interest in this project, in the interests of the protecting the environment, in the interests of protecting the local and indigenous peoples and communities who will be impacted, as well as in the public interest.

COMMENTS ON THE DRAFT ESIA

5. In our previous comments on the Draft Scoping Report, we set out our general objection to the exploitation of oil and gas resources. We set out below our further comments on the Draft ESIA. In our view, upon full and proper assessment, the impacts associated with production will be found to be highly significant and unacceptable, and the environmental authorisation should be refused.
6. We note that the DESIA documents are extremely voluminous, technical and cover many issues. They also cover both exploration and production activities. In the timeframe available to us, we have prepared the comments which follow. However, we have not commented on each and every impact and finding, because it has not been possible to do so in the timeframe. Consequently, where we do not address specific impacts or conclusions of the DESIA or specialist reports, it should not be construed that we agree with those findings. We reserve our rights to deal with any impacts or findings not contained in this comment on appeal.

I. MARINE BIODIVERSITY IMPACTS

7. The area in which the production activities are proposed is an extremely biodiverse area, with a multitude of species, including many threatened, endangered and critically endangered species. In their comments, WildTrust scientists confirm the ecological sensitivity of the area and the damage that the project will cause, whether there is a blow-out or not. Although submitted independently, we also attach a copy of their comments as **Annex A**.
8. The Marine Fisheries Impact Assessment identifies the risks associated with an oil spill as Very High before mitigation, and High with mitigation. Impacts include “direct, indirect and cumulative effects on marine fauna (and associated habitats) with knock-on effects on ecosystem firm and function in the offshore, nearshore and coastal environment. The impacted areas include marine protected areas and the highly significant Knysna estuary. These impacts are long-term and have cascading generational ecosystem and community impacts, which is not addressed in the specialist report.

8.1. The Marine Fisheries Assessment Report is used as a basis for other reports, such as the estimation of oil spill damages. It is therefore critical that detailed, comprehensive information is included in this assessment. We request specifically that the Inclusion of fish species harvests of small-scale fishers are considered, separate to the commercial total allowable catch

9. Despite the acknowledgement by the specialists of the biological significance of the affected marine environment, the significance rating given by the specialist in relation to oil spills, the DESIA downplays the impacts on marine and coastal ecosystems. In the final chapter 13, which sets out the conclusions and recommendations, the incompatibility of the project's normal operations within a biodiversity sensitive area is not highlighted as a main risk.

10. Most shockingly, despite the ratings of impacts associated with oil spills as high and very high, the EAP recommends that the project be authorised.

11. In our view, the impacts on marine biodiversity of this project are highly significant and unacceptable.

II. OIL SPILL MODELLING

12. The DESIA indicates that a spill event resulting from a blowout is "unlikely", but fails support this claim with scientific rationale. Whilst a separate oil spill modelling report is contained in DESIA, it does not include an Oil Spill Contingency Plan, an Emergency Response Plan, or a Blowout Contingency Plan, which are critical components of the "multi-barrier approach". These are important documents that detail the mitigation measures, and inform their adequacy. They are therefore critical to assessing the impacts of the proposed activities and should be made available during the EIA process for public comment. Failure to do so renders the process procedurally unfair. They should not be kicked down the road for post-authorisation compliance.

13. Part of this, is critically assessing the ability of oil spill response teams and equipment to reach the location of the spill, and to effectively contain it. Without all of this information, it is impossible to assume that the mitigation measures, and the time period until containment via a capping stack, will be effective.

14. We refer the EAP and its specialist team to a document titled "an oil spill model for South African waters: Trajectory and fate analysis of deepwater blowout spill scenarios", which can be downloaded at this link:

    https://oceanimpact.co.za/wp-content/uploads/2023/05/WildOceans_Oil_Spill_Modelling_2023-05-12_web.pdf

    We urge you to consider the results of this model insofar as they are relevant to the current project.

III. ACOUSTIC IMPACTS

15. The DESIA arbitrarily and unreasonably underestimates the likely acoustic impacts of the proposed project on the marine environment by 1) failing to account for cumulative impacts; 2) adopting a maximum exposure threshold of 24 hours that does not reflect the actual duration that local marine species will be exposed to project noise; 3) claiming ambient noise from shipping will reduce the significance of the project's acoustic impacts, when experts have found that the opposite is true; 4) failing to model or adequately analyze the behavioral impacts resulting from helicopter noise; 5) relying on inaccurate estimates of species abundance; 6) relying on thresholds for harm that are too high.

The DESIA fails to consider the cumulative effects of all anthropogenic noise sources

16. The DESIA concludes that "cumulative [acoustic] impacts for normal operations are likely to be no more significant than the impacts assessed [elsewhere in the DESIA]," without considering the likely cumulative impacts of anthropogenic noise from multiple sources – particularly on migratory species. Cumulative acoustic impacts are not assessed within the Marine Acoustics Technical Report. The Marine Ecology Report contains a brief statement that "[u]nderwater noise associated with the proposed project activities (drilling noise, VSP surveys etc.) would also have cumulative impact on marine fauna," but this impact would be of "low significance" because ambient noise levels are already elevated in the area, noise levels would "return back to ambient after drilling is complete," and sensitive receptors would not be affected beyond 66 km during drilling and beyond 1.2 km during VSP operations.[1]

17. It appears that the acoustics modeling did not consider the underwater noise impacts of the project on top of the ambient noise, but instead only assessed various project-based noise sources in a silo. The assertion that the project's noise impacts will be lessened by the presence of high levels of ambient noise is contradicted by available science. In the absence of modelling all cumulative noise impacts, it is impossible to assess how much the proposed activities will increase ambient noise levels in the soundscape- and therefore to assess noise impacts.

18. The DESIA should have considered how the project's noise, in combination with other anthropogenic noise sources in the area, will affect migratory paths, predator-prey dynamics, and access to breeding and foraging sites, and failure to do so violates the requirements of the NEMA EIA Regulations, which mandate that an environmental impact assessment include "an assessment of each identified potentially significant impact and risk, including … cumulative impacts."[2]

19. The DESIA recognizes that anthropogenic noise (including noise from the proposed project) can result in behavioral impacts including avoidance,[3] and actually seeks to encourage avoidance

[1] DESIA Appendix 11 at p. 277
[2] NEMA EIA Regulations Appendix 3, Section 3(j).
[3] DESIA Appendix 8 at p. 8.

behaviors through implementing soft-start procedures as a mitigation measure.[4] However, the DESIA fails to assess how avoidance of anthropogenic noise from multiple sources can result in displacement from important feeding/breeding locations, altered migration routes, impacts to predator-prey dynamics, and other cumulatively significant impacts.[5] This is a potentially serious impact of the project that cannot be simply glossed over with unsupported assumptions about species avoidance.

The DESIA unjustifiably deems acoustic impacts from drilling as "low" significance

20. The DESIA describes a host of likely impacts to marine species from drilling noise.6 These impacts include "direct physical injury to hearing or other organs, (including permanent or temporary threshold shifts), causing disturbance resulting in behavioural changes or displacement from important feeding, breeding or spawning areas, and through masking or interfering with other biologically important sounds (e.g. communication, echolocation, signals and sounds produced by predators or prey)."7 The modeling in the Marine Acoustics Technical Report determined "the peak pressure levels generated by the drilling units are sufficient to cause permanent (permanent threshold shifts) and temporary direct physical injury (temporary threshold shifts) to hearing in marine mammals and sea turtles, as well as death or injury to fish."8 The model also predicts that marine mammal behavioural impacts from project noise may occur as much as 66 km from the drilling site.9

21. In spite of the clear and obvious potential to cause extreme harm to marine life, the DESIA deems the impacts from drilling noise to be of "low" significance, both with and without the minimal mitigation measures proposed.10 This conclusion appears to be driven by the unsupported assumption that marine animals will simply swim away from any noises, even though the drilling activities would occur in sensitive areas, along migration routes, and could cause sudden and immediate harm to a wide variety of species. The DESIA also states that "[g]iven the sensitivity of the area, the recorded occurrence of a number of sensitive species within the site, and the uncertainty surrounding the implication of behavioural impacts over the long term, the intensity of the impact is assessed as medium over 24-hours (table 8.8),"11 however, Table 8.8 reports the 24-hour impact as "low." It is unclear why there is a discrepancy between the text and the table.

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[4] *See* DESIA Appendix 11 at p. 298 ("Implement a 'soft-start' procedure …. This requires that the sound source be ramped from low to full power, … thus allowing a flight response by marine fauna to outside the zone of injury or avoidance.")
[5] *See* Karin A. Forney et al., *Nowhere to Go: Noise Impact Assessments for Marine Mammal Populations with High Site Fidelity*, 23 ENDANGERED SPECIES RESEARCH 391 (2017) (describing the biological risks posed by displacement in marine mammals, including "increased stress and reduced foraging success, with associated effects on survival and reproduction.")
6 DESIA Appendix 11 §§ 8.2.4.
7 *Id.* at 189.
8 *Id.*; *see also* DESIA Appendix 8 at pp. 9-10.
9 DESIA Appendix 8, Table 4-3.
10 DESIA Appendix 11, Table 8.8.
11 DESIA Appendix 11 at p. 192.

The DESIA did not adequately assess the impacts of helicopter noise despite evidence that these impacts will likely be significant

22. Under NEMA, an environmental impact assessment submitted to inform a petition for environmental authorization must include an "assessment of each identified potentially significant impact and risk, including … the nature, significance and consequences of the impact and risk."[12] The DESIA's Marine Acoustics Technical Report did not model the impacts of helicopter noise on marine species, concluding that this analysis was not necessary because "underwater noise impacts from helicopter noise are expected to be much less than those from other Project activities." [13] To support this finding, the DESIA cites to language from a 1995 study that "[t]he majority of the transient noise from helicopters will be reflected by the surface of the ocean."[14] Based on only a brief qualitative analysis, the DESIA concludes that the magnitude and significance of helicopter noise impacts would be "very low" and "low" respectively.[15]

23. The DESIA's conclusions underestimate the underwater impacts of helicopter noise. Studies have found that noise from aircraft overflights can have significant impacts on marine wildlife, both above and below the water. For example, Luksenburg and Parsons (2009) conducted a comprehensive review of the effects of aircraft noise on marine mammals which was intended to "discuss progress in the study of the effects of aircraft noise on cetaceans since … Richardson et al. (1995) [the study relied on by the DESIA]," and found that, in all studies reviewed, "cetaceans responded to aircraft in some manner, … in many cases by diving."[16] The DESIA's Marine Ecology Study also recognizes the likelihood that marine mammals will be impacted by helicopter noise, noting that "[l]ow altitude flights (especially near the coast) can have a significant disturbance impact on cetaceans during their breeding and mating season … [and of] particular concern are the potential overlaps in flight paths with migrating Humpback whales and Southern Right whales inshore of the Application Area."[17] The DESIA recognizes that Southern Right whale calving and nursing activities off the coast of Mossel Bay would fall within the direct flight path of the project's helicopters.[18] Given the fact that the latest science and the DESIA's own Marine Ecology Report all indicate that underwater noise from helicopter flights could potentially be significant, these impacts should have been quantitatively assessed in the Acoustics Technical Report.

24. The DESIA also fails to adequately consider the likely impacts of helicopter noise on above-water marine species, such as seabirds and pinnipeds. As the DESIA notes, helicopter noise can cause a range of negative impacts on seabirds and seals,[19] and the likely flight path for aircraft will "cross

[12] NEMA EIA Regulations at Appendix 3, Section (3)(j)
[13] DESIA Appendix 8 at p. 32.
[14] DESIA Appendix 11 at p. 195; *See also* DESIA Appendix 8 at p. 32.
[15] DESIA Appendix 11 at p. 228; *id.* at p. 196.
[16] J.A. Luksenburg and E.C.M. Parsons, *The Effects of Aircraft on Cetaceans: Implications for Aerial Whalewatching* (2009).
[17] DESIA Appendix 11 at p. 195
[18] *Id.*
[19] DESIA Appendix 11 at p. 194 ("Low altitude flights over bird breeding colonies could result in temporary abandonment of nests and exposure of eggs and chicks leading to increased predation risk. … Seals may also experience both visual and

over offshore and coastal MPAs, including some sensitive coastal receptors (such as key faunal breeding/feeding areas, bird or seal colonies and nursery areas for commercial fish stocks)."[20] The DESIA dismisses above water helicopter noise impacts as insignificant, because "exposure to noise will be limited in duration … and will be of a temporary nature."[21] This is despite the fact that the DESIA estimates roughly 480 helicopter trips per year for at last two years, with a total exposure of 720 days. Behavioral responses to helicopter noise can be immediate. As the DESIA notes, both adult seals and seabirds have been found to abandon their young in an attempt to "flee" from passing aircraft noise, making the duration of exposure to helicopter noise irrelevant.[22]

25. Because the DESIA has failed to model the magnitude and scope of helicopter noise both above and below the water, including cumulatively with other underwater noise sources of the project, there is no basis for concluding that the proposed project controls are sufficient to protect marine wildlife. All the proposed project controls and mitigation measures for helicopter noise impacts would implement either minimum altitudes or distances for helicopter flight paths. These distances are arbitrary without an adequate understanding of how far helicopter noise will reach.

Species Abundance

26. The DESIA relies on inaccurate characterizations of species abundance to conclude that noise impacts will be of "low significance." Specifically, the DESIA states that "[d]ue to their extensive distributions, the numbers of pelagic fish, turtles, and cetaceans) encountered during the proposed surveys and drilling campaign is expected to be low."[23]

27. This is directly contradicted by the DESIA's own characterization of the baseline environment. The DESIA states that the following vulnerable species are likely to be found within the project area:

    27.1. Southern Right Whale: "it is highly likely that several hundreds of right whales can be expected to pass directly through the Application Area between May and June and then again November to January"[24]

    27.2. Bryde's Whale: "The current distribution of this population implies that it is highly likely to be present in the Application Area throughout the year, with peak encounter rates in late summer and autumn"[25]

    27.3. Humpback Whale: "Humpback whales are likely to be present in the Application Area during summer and winter, with higher probability of occurrence in the summer"[26]

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acoustic disturbance from low flying aircraft, given that the frequency of aircraft engine noise emissions also overlaps with the hearing ranges of seals")

[20] DESIA Appendix 11 at p. 193.

[21] DESIA at p. 358

[22] DESIA at p. 194

[23] DESIA Appendix 11 at p. 197; DESIA at p. 298, 359.

[24] DESIA Appendix 11 at p. 65.

[25] *Id.*

[26] *Id.* at p. 66.

27.4. Sperm Whale: "They have been frequently encountered or detected via Passive Acoustic Monitoring (PAM) during seismic surveys in Block 11B/12B"[27]

27.5. Kogia Species: "Both species are likely to occur in the Application Area year around [sic]"[28]

27.6. Common Dolphin: "Their predicted distribution indicates a high probability of occurrence in the Application Area"[29]

27.7. Bottlenose Dolphin: "Common bottlenose dolphins have been frequently sighted within Block 11B/12B"[30]

27.8. Pilot Whales: "Pilot whales have been frequently encountered during seismic surveys in Block 11B/12B"[31]

27.9. Seabirds: Over 2,000 seabirds were observed in the project area in 16 days,[32] suggesting that the actual abundance is orders of magnitude larger.

28. It was wrong for the DESIA to conclude that species would not be impacted by vessel noise because they are not likely to be found in the area. Therefore, the DESIA's finding that the significance of vessel noise impacts is "low" should be reassessed in light of the high numbers of sensitive and vulnerable species likely to be encountered in the project area.

The DESIA's acoustic models adopt an outdated and inaccurate threshold for behavioral disturbance, underestimating the likely impacts of the project on marine mammals

29. The DESIA adopts a 160 dB threshold to assess behavioral impacts of noise on marine mammals.[33] This threshold was sourced from 2005 guidelines promulgated by the U.S. National Marine Fisheries Service (NMFS),[34] and was based on findings from studies undertaken during the 1980s.[35] NMFS has since abandoned the 160 dB behavioral impact threshold, acknowledging that it is no longer reflective of "best available science." Specifically, NMFS stated in 2021 that "we reviewed relevant past public comments as well as the best available science, determining that a more complex probabilistic function is indeed better reflective of available scientific information, and that it was appropriate to take the fundamental step of recognizing the potential for [behavioral] harassment occurring at exposures to received levels below 160 dB rms."[36] NMFS did not include a behavioral

[27] *Id.* at p. 68.
[28] *Id.*
[29] *Id.* at p. 70
[30] *Id.*
[31] *Id.*
[32] DESIA Appendix 11 at p. 60-61, Table 3.6.
[33] DESIA Appendix 8 at p. 10.
[34] NMFS, *Summary of Endangered Species Act Acoustic Thresholds (Marine Mammals, Fishes, and Sea Turtles)* (Jan., 2023) (citing NMFS 2005 as its source for Underwater Onset of Behavioral Disturbance Acoustic Thresholds).
[35] *See* (citing Malme et al., 1983, 1984 and Richardson et al., 1986 as the studies that supported the 160 dB threshold relied on by the United States).
[36] NMFS, *Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to Geophysical Surveys Related to Oil and Gas Activities in the Gulf of Mexico*, 86. F.R. 5322 (Jan. 19, 2021).

impact threshold in its latest Acoustic Technical Guidance report (published in 2018),[37] and has continued to rely on alternative methods for assessing behavioral impacts on marine mammals.[38] Therefore, it is unreasonable for the DESIA to conclude that "[t]he maximum impacted area for behavioral disturbance at any point in time will equate to some 13,684 km2 for whales"[39] and "[t]he magnitude [and significance] of the impact on marine fauna as result of drilling noise is therefore considered to be low"[40] on the basis of this 160 dB threshold. In actuality, the scope of behavioral disturbance resulting from project noise is likely orders of magnitude larger than the DESIA estimates.

30. The 160 dB is especially inaccurate as applied to the proposed project. Southall et al. (2021) conducted a comprehensive review of existing literature on marine mammal behavioral responses to noise, identifying thresholds for response as low as 94 dB for active sonar sources, 106 dB for continuous (vessel or drilling) noise, and 123 dB for seismic airgun survey sources.[41] These lower thresholds were recorded for cetacean species that are found or are closely related to whales found within the project area, including the Killer Whale, Sperm Whale, beaked whales, and minke whales.[42] The project will also involve sonar surveys using a multi-beam echo-sounder.[43] Studies have found that beaked whales exhibit "intense, consistent, long-lasting responses" to received sonar noise as low as 89-127 dB.[44] Changes in diving behavior in response to sonar has been linked to multiple stranding events.[45] Therefore, a lower threshold is needed in order to identify likely impacts to the sensitive whale species found in the project area.

31. While any threshold has the potential to underestimate behavioral impacts, a suite of alternative methods have been proposed that would more accurately assess the project's acoustic impacts.[46] In light of the significant uncertainty that would apply to the use of any impact threshold, the DESIA should abide by the precautionary approach and adopt the most conservative method for assessing impacts. A simple and effective alternative approach would be to assume that any noise above

[37] NMFS, *2018 Revision to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing* (April, 2018).
[38] NMFS, *Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to Geophysical Surveys int eh Gulf of Mexico*, 88 F.R. 916 (Jan. 5, 2023).
[39] DESIA at p. 351
[40] DESIA at p. 354
[41] Southall et al., *supra*, at Tables 5, 6, 8.
[42] DESIA at Table 7-5
[43] DESIA at p. 20
[44] Stacy L. DeRuiter et al., *First direct measurements of behavioural responses by Cuvier's beaked whales to mid-frequency active sonar*, 9 BIOLOGY LETTERS (Aug. 23, 2013).
[45] South African National Biodiversity Institute, *Red List of South African Species*: Ziphius cavirostris (last visited Nov. 3, 2023), http://speciesstatus.sanbi.org/assessment/last-assessment/2264/.
[46] See, for example, the dichotomous approach proposed by C. Gomez et al., *A systematic review on the behavioural responses of wild marine mammals to noise: the disparity between science and policy*, 94 CANADIAN JOURNAL OF ZOOLOGY (Nov. 2, 2016).

ambient noise level will disturb marine fauna and estimate the distance at which noise from the source attenuates to the background noise level.[47]

Inadequate Mitigation

32. According to NEMA, every application for environmental authorisation must include an "investigation of mitigation measures to keep adverse consequences or impacts to a minimum."[48] The DESIA's proposed controls and mitigation measures are either impermissibly vague or will not adequately mitigate the project's likely acoustic impacts as NEMA requires. Specifically, the 500-meter mitigation zone is insufficient to minimize harm to marine mammals, the DESIA's PAM requirements are too flexible to be effective, and the DESIA fails to provide adequate detail on the purpose and scope of the Marine Mammal Observer's (MMO) pre-drilling survey.

The 500 m Mitigation Zone is insufficient to mitigate harm or harassment to cetaceans from VSP activities

33. The proposed project will involve the use of Vertical Seismic Profiling (VSP), in which an airgun array is fired hundreds of times over the course of 8-12 hours.[49] The sound pulses generated by VSP operations are loud enough to cause both permanent and temporary hearing loss ("PTS" and "TTS") in a variety of marine species, especially baleen whales.[50] Additionally, whales are likely to change their patterns of movement or behavior in response to noise from VSP operations,[51] resulting in cumulatively significant behavioral and ecosystem impacts. The DESIA acknowledges that "Endangered and Critically Endangered species of [cetaceans] have the potential to be directly harmed by the VSP seismic sources,"[52] and therefore, "mitigation measures must be put in place to reduce the chance of species entering the immediate vicinity of the [VSP] source."[53] The DESIA primarily relies on visual monitoring of a 500 m "mitigation zone"[54] as an attempt to ensure that cetacean species will not be injured by VSP noise, concluding that "[w]ith the implementation of the Project controls and mitigation measures, impact significance is expected to remain low."[55]

34. This 500 m mitigation zone is clearly inadequate in light of the results from the DESIA's own marine acoustics models. The DESIA's Marine Acoustics Report found that VSP could cause temporary hearing loss in marine mammals located up to 2.2 km away from the VSP source.[56] According to the

[47] This approach was adopted by Long-Fei Huang et al., *Underwater noise characteristics of offshore exploratory drilling and its impact on marine mammals*, FRONTIERS IN MARINE SCIENCE (Feb. 2, 2023).
[48] NEMA Section 24(4)(b)
[49] DESIA Appendix 11 at p. 225
[50] *Id.* ("The underwater noise modelling study … indicated that the peak pressure levels generated with each VSP air gun pulse are sufficient to cause permanent (permanent threshold shifts) and temporary direct physical injury (temporary threshold shifts) to hearing in marine mammals, and sea turtles, as well as death or injury to fish").
[51] DESIA Appendix 11 at p. 226
[52] *Id.*
[53] *Id.*
[54] DESIA at p. 294
[55] DESIA at p. 294
[56] DESIA Appendix 8 at p. 33.

DESIA's models, behavioral impacts to marine mammals are anticipated to occur roughly 2 km away from the source.[57] Intuitively, these behavioral impacts should extend even further.[58]

35. Even assuming that visual monitoring is effective at detecting all whales within the 500 m mitigation zone, the project's VSP activities will still result in significant physical injury and behavioral impacts to any whales located within a 2 km vicinity. Therefore, additional measures are needed to minimize harm to cetaceans. At a minimum, the DESIA should avoid scheduling VSP activities during times or seasons when sensitive cetacean species are likely to be found within the project area.

The DESIA's PAM requirements provide too much flexibility to operators

36. Given that VSP and sonar operations can significantly injure animals located within the vicinity of the noise source, the DESIA contemplates the use of passive acoustic monitoring (PAM) during "periods of low visibility."[59] However, PAM deployment during periods of low visibility is only required subject to "a risk assessment, undertaken ahead of the VSP operation, indicat[ing] that the PAM equipment can be safely deployed considering the metocean conditions."[60] This implies that operations would be allowed to continue despite periods of low visibility and without PAM if the operator concludes that conditions are not sufficiently safe for deployment. In this case, there would be no other measures to ensure that sensitive species are not within the vicinity of the VSP or sonar source before commencement of activities. Best practice would be to require operators to delay activities until visibility improves or PAM can be safely deployed.

The DESIA fails to provide adequate detail on the purpose and scope of the Marine Mammal Observer's (MMO) pre-drilling survey

37. The DESIA also proposes that "[a]n independent Marine Mammal Observer (MMO) must accompany the pre-drilling survey to undertake validation of cetacean migration/distribution models" in order to mitigate noise impacts from the project's drill rig and support vessels.[61] However, the DESIA does not specify which marine mammal migration/distribution models will be validated. Further, it is unclear how this measure will do anything to minimize noise impacts, since none of the project controls or measures would require Total to consider species distribution models in determining when and where to drill.

[57] DESIA Appendix 8 at p. 27

[58] Currently, the DESIA models generate a scenario in which low-frequency Cetaceans could experience temporary hearing loss (TTS) at 2.2 km away from the source but would be beyond the scope of predicted behavioral impacts. It is extremely unlikely that a whale would lose its hearing and not be forced to change its behavior as a result. This output further calls into question the accuracy of the 160 dB behavioral impact threshold.

[59] DESIA Appendix 11 at p. 227

[60] DESIA at p. 414

[61] DESIA at p. 290

IV. IMPACTS ON CRITICAL BIODIVERSITY AREAS

38. The Competent Authority should reject the Project because it includes a pipeline that transects a Critical Biodiversity Area Natural in violation of existing policy guidelines for critical biodiversity areas and in conflict with the ongoing marine spatial planning process. The DESIA attempts to resolve this conflict by proposing out of kind offsets, but as explained further below, an offset is not appropriate for an irreplaceable critical biodiversity area, especially in the marine realm. Moreover, even if an offset were appropriate, which it is not, the DESIA violates NEMA and DFFE's offset guidelines by failing to include the proposed offset within the DESIA.

The Project's pipeline is incompatible with South Africa's biodiversity objectives

39. DFFE is currently undergoing a process to implement the Marine Spatial Planning Act and develop an integrated marine spatial plan for South Africa's EEZ to harmonize various activities in the marine realm. As part of this process, each sector has identified areas of the ocean that are critical to national objectives and priorities for that particular sector. One of these sectors is the biodiversity sector. Based on the best available science, the Draft Biodiversity Sector Plan identifies critical biodiversity areas (CBAs), which "are areas that, through scientific criteria, have been identified as important for the healthy functioning of our oceans and the services that they provide."[62] The Draft Marine Sector Plan identifies two types of CBAs: CBAs Natural and CBAs Restore. The Project site is a CBA Natural, an "irreplaceable to near-irreplaceable" area in a natural ecological condition that is "required to meet biodiversity targets so that a representative sample of coastal and marine biodiversity can persist into the future."[63] In addition to preserving the ecological function of South Africa's oceans, the Draft Biodiversity Sector Plan identified these areas in an effort to comply with numerous domestic and international obligations.[64]

40. As the DESIA acknowledges, the Project's pipeline directly conflicts with this marine spatial planning process. Specifically, the pipeline bisects a proposed CBA Natural, where new oil and gas pipelines such as the Project pipeline are supposed to be prohibited.[65]

41. The DESIA erroneously suggests that it is possible to offset its way out of this conflict with the ongoing marine spatial planning process and principles relating to biodiversity offsets. Specifically, the DESIA's Marine Ecology Report states:

    41.1. There is provision made in Harris et al. (2022) that, should significant mineral or petroleum resources be identified during prospecting/exploration within a CBA area, alternative CBAs and/or biodiversity offsets are to be identified to meet targets for the same biodiversity features that are found at the site (Table 4.2, see Section 9.2.1). This provision

[62] Biodiversity Sector Plan at 3, 6.

[63] Harris, L.R., Holness, S.D., Kirkman, S.P., Sink, K.J., Majiedt, P., Driver, A. 2022. National Coastal and Marine Spatial Biodiversity Plan, Version 1.2 (Released 12-04-2022): Technical Report. Nelson Mandela University, Department of Forestry, Fisheries and the Environment, and South African National Biodiversity Institute. South Africa. 180, 183.

[64] Draft Biodiversity Sector Plan at 6.

[65] Draft Biodiversity Sector Plan at 17.

would apply to the development of pipeline infrastructure critical to the production phase of this project (Section 3.3.2).[66]

42. This statement is false in two ways. First, the pipeline is not "a significant mineral or petroleum resources … identified during prospecting/exploration within a CBA area." So even if this provision existed as the DESIA claims, it would not apply here. A provision that explicitly applies to prospecting and exploration of petroleum resources does not apply to the construction of pipelines.

43. Second, the DESIA misconstrues the statement in Harris et al 2022. Harris et al 2022 actually states that if an activity is not compatible in a CBA, it "should not be permitted to occur in CBAs … However, if significant mineral or petroleum resources are identified during prospecting/exploration, then the selection of the site as a CBA could be re-evaluated **as part of compromise negotiations in current or future MSP processes**. This would require alternative CBAs and/or biodiversity offsets to be identified."[67]

44. This provision clearly applies only to further marine spatial planning negotiations. In other words, if within the *marine spatial planning process itself* a CBA is contested and does not make it into the final integrated plan, the Draft Biodiversity Sector Plan contemplates that alternative CBAs must be identified or offsets provided. If the DESIA is attempting to describe this provision, it is grossly misconstruing it. Allowing compromises in the marine spatial planning process—which is subject to intensive stakeholder input, public comment, and various domestic and international obligations--is very different from allowing individual project proponents to conduct non-compatible activities within CBAs so long as they provide offsets. Allowing individual projects to chip away at proposed CBAs undermines the marine spatial planning process and may result in the need to completely redo the National Coastal & Marine Spatial Biodiversity Plan, which was created after intensive stakeholder engagement and rigorous scientific evaluation.[68] Alterations to the CBAs should happen in the marine spatial planning negotiation process —which gives a holistic view of marine activities in South Africa's EEZ-- not in a piecemeal fashion at the behest of individual companies attempting to shoehorn projects in before the MSP process is completed and regulations become binding.

<u>An out of kind offset is not appropriate for an irreplaceable critical biodiversity area located in the marine environment</u>

45. In an attempt to avoid conflict with the Draft Biodiversity Sector Plan, the DESIA's Marine Ecology Report proposes an out of kind offset to mitigate harm.[69] But an out of kind offset is simply not appropriate for an irreplaceable CBA like the site of the Project pipeline. The very fact that the site is designated as irreplaceable and must be kept in a natural or near natural state means that its loss

[66] Marine Ecology Report at 109.
[67] Harris, L.R., Holness, S.D., Kirkman, S.P., Sink, K.J., Majiedt, P., Driver, A. 2022. National Coastal and Marine Spatial Biodiversity Plan, Version 1.2 (Released 12-04-2022): Technical Report. Nelson Mandela University, Department of Forestry, Fisheries and the Environment, and South African National Biodiversity Institute. South Africa. vii (emphasis added).
[68] Linda Harris et al, *National Coastal and Marine Spatial Biodiversity Plan V1.2* (November 8, 2022), https://storymaps.arcgis.com/stories/f0cc3b29d54143fa9842bf2aaf3eab30.
[69] Marine Ecology Report at 180.

cannot be replaced by offsets at another site.[70] This is especially true in the marine environment, where offsetting has very little proven success and is generally considered especially challenging.[71] Indeed, DFFE has not even issued guidance yet to ensure offsets in the marine realm are effective and uniform.[72] It is irrational to rely on marine offsets to mitigate harms when their efficacy is not yet established and where the regulatory framework has yet to be developed in South Africa.

If the ESIA is relying on an offset to mitigate harm, it must be included in the ESIA subject to public comment

46. As discussed above, it is irrational to use marine offsets to mitigate harm in this circumstance. However, to the extent the DESIA is relying on an offset to mitigate harm, that offset must be included in the DESIA subject to public comment. The DESIA's Marine Ecology Report states "as complete avoidance mitigation is not possible [for construction of the pipeline], an offset or a compensatory mechanism needs to be developed as part of a Biodiversity Action Plan."[73] The Marine Ecology Report refers to this offset or compensatory mechanism as a mitigation measure.[74] NEMA requires that EIAs include and describe mitigation measures.[75] If an offset is required, then it must be included in the DESIA. The DFFE's offset guidelines for terrestrial and freshwater ecosystems is consistent with NEMA, stating that if an offset is proposed for a project, the Offset Report forms a part of an EIA Report and must be subject to public comment for at least 30 days.[76] Rather than including this mitigation measures as NEMA dictates, however, the DESIA fails to include an offset report—or even a description of a proposed offset--and explicitly states that an offset and Biodiversity Action Plan will only be developed "if required."[77] Notably, the DESIA's Marine Ecology Report found that an offset *is* required due to the Project's harm to a CBA Natural.[78] The failure to include and describe all mitigation measures, including the proposed offset, within the DESIA violates NEMA and conflicts with the DFFE's offset guidelines.

V. CLIMATE IMPACTS

47. The EIA Regulations, 2014, require that an EIA must include, inter alia: a full description of the methodology used in determining and ranking the nature, significance, consequences, extent,

[70] Harris, L.R., Holness, S.D., Kirkman, S.P., Sink, K.J., Majiedt, P., Driver, A. 2022. National Coastal and Marine Spatial Biodiversity Plan, Version 1.2 (Released 12-04-2022): Technical Report. Nelson Mandela University, Department of Forestry, Fisheries and the Environment, and South African National Biodiversity Institute. South Africa. 155, 181, 182, 187.
[71] https://www.thebiodiversityconsultancy.com/fileadmin/uploads/tbc/Documents/Resources/Marine-offsets-20170607_FINAL.pdf
[72] Note that DFFE's 2023 Offset Guidelines apply only to terrestrial and freshwater environments.
[73] Marine Ecology Report at 180.
[74] Marine Ecology Report at 180.
[75] EIA Regulations 3(1)(h)(viii), 3(1)(i)(ii), 3(1)(n), 3(1)(p),
[76] 2023 Biodiversity Offset Guidelines at Section 5.1.2.
[77] DESIA at 532.
[78] Marine Ecology Report at 180.

duration and probability of potential environmental impacts and risks;[79] the possible mitigation measures that could be applied and level of residual risk;[80] an evaluation of cumulative impacts;[81] an assessment of each identified potentially significant impact and risk, including the nature, significance and consequences of the impact and risk and the degree to which the impact and risk can be mitigated.[82]

48. By failing to account for relevant sources of GHG emissions, calculating emissions based on outdated or unrealistic assumptions, and relying on unproven mitigation measures, the DESIA's climate change impact assessment (CCIA) underestimates the project's contribution to climate change. The CCIA also fails to properly assess the project's vulnerability to climate impacts as well as the potential risks that it may pose for the adaptation and resilience of the surrounding environment and communities to climate change.

49. The omissions from, and flaws in, the CCIA described below mean that the decision-maker tasked with considering and approving this EIA will not be able to dispense with its legal obligations under section 24O(1)(b) of NEMA to consider "all relevant factors," including climate impacts.[83]

Failure of the CCIA to adequately assess project's contribution to climate change

The CCIA fails to provide a complete description of baseline climate conditions.

50. Although multiple energy experts have found that new oil and gas developments are incompatible with limiting warming to 1.5°C, the CCIA fails to acknowledge this reality in the baseline description for the project or elsewhere in the report. On the contrary, the CCIA notes that *"[a]s South Africa transitions to net-zero, energy must still be provided now, and therefore, if viable resources that contribute to South Africa's energy security, exist offshore, this should play a key part in diversifying South Africa's energy portfolio*."[84] This assertion elides the fact that the kind of project for which TEEPSA seeks approval is inconsistent with South Africa's climate commitments.

51. Based on a review of selected climate and energy scenarios by intergovernmental organizations, including the IPCC, International Renewable Energy Agency (IRENA), and the International Energy Agency (IEA), the International Institute for Sustainable Development (IISD) noted a consensus that no new oil and gas fields should be developed if the world is to achieve the 1.5°C target.[85] The

[79] Appendix 3, section 3(h)(vi).
[80] Appendix 3, section 3(h)(viii).
[81] Appendix 3, section 3(j)(i).
[82] Appendix 3, section 3(j)(ii) and (vii).
[83] S24O(1)((b) (i) and (ii) NEMA requires a decision-maker to "*take into account all relevant factors, which may include-(i) any pollution, environmental impacts or environmental degradation likely to be caused if the application is approved or refused; and (ii) measures that may be taken- (aa) to protect the environment from harm as a result of the activity which is the subject of the application; and (bb) to prevent, control, abate or mitigate any pollution, substantially detrimental environmental impacts or environmental degradation*"
[84] CCIA, p61.
[85] International Institute for Sustainable Development, *Navigating Energy Transitions: Mapping the Road to 1.5°C* (Oct. 2022), p18, https://www.iisd.org/system/files/2022-10/navigating-energy-transitions-mapping-road-to-1.5.pdf.

University of Manchester's report on phaseout pathways for fossil fuel production similarly concludes that developing "new production facilities of any kind, whether coal mines, oil wells or gas terminals" is inconsistent with a 1.5°C trajectory.[86]

52. The CCIA should have at least referred to these reports, which have been available to TEEPSA for months, to ensure that the Minister has an adequate understanding of the climate context for the project application.

The CCIA fails to comprehensively quantify the project's GHG emissions.

53. As highlighted in Dr. Eloise A. Marais' expert critique of the CCIA, attached here as **Annex B**, the CCIA's overly restrictive approach to assessing climate impacts fails to account for multiple key project emissions. Such omissions include the following:

    53.1. The CCIA could have realistically assessed but does not calculate the likely emissions from the end use of the gas or gas condensate produced. There is thus no calculation of emissions to support the CCIA's conclusion that the project would produce climate benefits.

    53.2. The CCIA does not incorporate emissions from "leakage (fugitive emissions) and purposeful releases (venting) of gas from wells, pipelines, compressors, and other gas production and transportation processes."[87] Leakages can result in "many thousands of additional $MtCO_2e$ released into the atmosphere over the project lifespan."[88]

    53.3. The CCIA does not include the lifespan emissions from the F-A Platform of 4,049,699 tonnes CO_2e in presenting the total climate impact significance of the project, instead categorising these as Scope 3 (indirect) emissions. In general, the EIA continuously seeks to reflect the F-A Platform as a separate project – for which the impacts will be assessed under a separate EIA. We dispute this position. The F-A Platform is an essential and integral component of the proposed project. The project activities cannot proceed without the F-A Platform. As such – and given this level of dependency and interconnectedness – it is essential that the risks to and from the F-A Platform are fully assessed and addressed in *this* EIA as part of the project's total impacts. This has not been done and we believe constitutes a fatal flaw.

    53.4. The CCIA does not consider the project's impacts in addition to GHG emissions of other oil and gas projects under review or approved to occur in South Africa, which makes it impossible for the government to "determine South Africa's maximum likely climate emissions if all these projects were approved to assess whether these projects would impinge upon South Africa's international climate commitments."[89]

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[86] Dan Caverley and Kevin Anderson, *Phaseout Pathways for Fossil Fuel Production within Paris-compliant Carbon Budgets* (Mar. 11, 2022), p6, https://research.manchester.ac.uk/en/publications/phaseout-pathways-for-fossil-fuel-production-within-paris-complia.
[87] Marais Report, pp4-5.
[88] Marais Report, pp4-5.
[89] Marais Report, p7.

53.5. The CCIA acknowledges a potential increase in GHG emissions in the case of an unplanned event, such as a well blowout or explosion, but it does not make any effort to quantify such emissions.[90] This failure "makes it impossible for the government to understand the worst-case scenario impacts of the project or assess the efficacy of the systems and measures designed to 'minimise' impacts."[91]

53.6. Although TEEPSA seeks approval for drilling up to six wells, the CCIA is based on an assessment of five wells.[92] As Dr. Marais explains, "[t]he CCIA should assess emissions based on the maximum number of likely wells, as TEEPSA will have the option to drill a sixth well without conducting further environmental studies, including assessment of climate impacts."[93]

The CCIA relies on outdated and unrealistic assumptions in calculating the project's GHG emissions.

54. The CCIA's assessment of total GHG emissions depends on outdated and unrealistically optimistic assumptions. These inputs result in a significant underestimation of the project's climate impacts.

55. The CCIA concludes that emissions from gas-to-electricity production chains are far lower than emissions from coal-to-electricity based on a 2000 report. As Dr. Marais points out, several analyses conducted since then have shown that the lifecycle emissions from gas can exceed those from coal, "even when as little as 0.2% of gas leaks along the supply chain."[94]

56. The CCIA also assumes a flare combustion efficiency of 98%, which requires "optimal conditions" that are typically not present.[95] For example, natural gas wells in the United States are only able to achieve efficiencies of 90.2-91.8%.[96]

57. Finally, the CCIA uses Global Warming Potentials for methane from the IPCC's Fourth Assessment Report from 2007, even though the Sixth Assessment Report was published in 2021. Dr. Marais notes that "[a] shift to using the 2021 GWPs would increase the CCIA GHG emissions from CH_4 by 19%."[97]

58. The use of outdated information raises a question about the competence of the climate change specialist who should have access to and use the most up to date information.

[90] Marais Report, p6.
[91] Marais Report, p6.
[92] CCIA, p39 n.8.
[93] Marais Report, p6.
[94] Marais Report, p8. *See also* Deborah Gordon et al., *Evaluating Net Life-Cycle Greenhouse Gas Emissions Intensities from Gas and Coal at Varying Methane Leakage Rates*, Environmental Research Letters (July 17, 2023), https://iopscience.iop.org/article/10.1088/1748-9326/ace3db.
[95] Marais Report, p7.
[96] Genevieve Plant *et al.*, *Inefficient and unlit natural gas flares both emit large quantities of methane*, 377, Science, 1566–1571 (2022).
[97] Marais Report, p7.

The CCIA does not demonstrate how its proposed mitigation measures will substantially reduce GHG emissions from the project.

59. The CCIA proposes various mitigation measures that it claims will reduce Scope 1 emissions from a "medium" impact significance to "negligible significance," and Scope 3 emissions from A "very high" impact significance to "medium significance."[98]

60. The mitigation measures proposed for reducing air emissions include the following:

    60.1. Maintain a record of fuel consumption for monthly submission to TEEPSA for reporting purposes.

    60.2. Implement effective programmes for the tracking of fuel consumption and other metrics relevant to the quantification of GHGs.

    60.3. Optimise helicopter flight paths.

    60.4. Optimise well test and monitor the efficiency of the flare programme to reduce burning as much as possible during the test.

    60.5. Use a high-efficiency burner for flaring to maximise combustion of the hydrocarbons in order to minimize emissions and hydrocarbon 'drop-out' during well testing.[99]

61. Dr. Marais highlights several flaws with the CCIA's approach to mitigation. First, the CCIA's conclusions about residual impacts after mitigation are "arbitrary and unsupported by evidence" because the report makes no attempt to quantify the extent to which each measure would be able to reduce emissions.[100] Nor does the CCIA explain the pathway to the claimed emissions reductions through implementation of the proposed measures.[101] Furthermore, some of the mitigation measures proposed, such as the use of high-efficiency burners for flaring, were assumed in calculating project emissions. As such, "it is unclear how these further contribute to reductions beyond baseline GHG emissions that were obtained using these conditions."[102]

62. Further, maintaining records for reporting purposes does not serve to mitigate the impact. It is a management measure, not a mitigation measure.

<u>Failure of the CCIA to adequately assess climate projections and risks for the project, as well as surrounding built and ecological infrastructure needed for climate resilience</u>

63. The Climate Risk Assessment (section 7 of the CCIA) fails to adequately assess the full spectrum of potential significant climate risks, for the reasons set out, and addressed in detail below. These include that:

[98] CCIA, pp51-52.
[99] EIA, p552.
[100] Marais Report, p9.
[101] Marais Report, p9.
[102] Marais Report, p9.

63.1. The risk assessment does not assess the impacts of the project on the resilience and adaptation of the surrounding environment and communities to climate change; and

63.2. It fails to adequately and fully assess the climate risks for the project.

The CCIA fails to assess the potential risks that the project might pose for the adaptation and resilience of the surrounding environment and communities to climate change.

64. The CCIA assesses the risks of climate impacts for the project, but does not look beyond that at climate impacts for the surrounding ecosystems and coastal communities and how the project might exacerbate anticipated climate impacts for ecosystems and communities, and their ability to adapt to climate harms.

65. 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.[103] Appendix 3 section 3(h)(vii) of the EIA Regulations, 2014 under NEMA, requires that an EIA contain "*a full description of the process followed to reach the proposed development footprint within the approved site ... including* ***positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected*** *focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects*" (emphasis added).

66. Integrating and considering the impacts of proposed activities on climate adaptation is an essential component of an EIA, as it is necessary to ensure that a project is resilient to the impacts of climate change, and also that it is environmentally and socially responsible.[104] 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.

67. 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 ("the draft CCIA Guideline") supports this position and calls for consideration of the impacts of proposed activities on infrastructure that that is important for climate adaptation and resilience.

68. The draft CCIA Guideline published by the Minister for Forestry, Fisheries and Environment on 25 June 2021 (GN 559) seeks to help project proponents to assess, inter alia, "*the impact of a development on features (natural and built) that are crucial for climate change adaptation and resilience*".[105] The draft CCIA Guideline states that:

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[103] Section 24O(1)(b) NEMA requires the competent authority to take into account "all relevant factors" in considering whether to authorise activities under NEMA.

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

[105] Para 1.ii.

"*recent case law suggests that climate change is a relevant consideration in EA, WML, and AEL application processes, both from a climate change mitigation* ***and adaptation perspective.*** *A climate change assessment done as part of an EIA involves an assessment of:*

i. whether and to what extent, proposed development will result in the release of GHG emissions;

ii. the impact of proposed development on ecological or built infrastructure that are important for climate change adaptation and resilience;

iii. the projected impact of climate change on proposed development; and

iv. whether, and to what extent, the impacts identified in (i) – (iii) can be mitigated."[106] (emphasis added).[107]

69. Although this draft CCIA Guideline has not been formally adopted, it clearly demonstrates that the Department envisages a CCIA that not only considers the climate mitigation (GHG emission) impacts of a project and impacts of climate change on a project. It also requires an assessment of how a proposed project might affect ecological and built infrastructure that is important for climate resilience and adaptation to the impacts of climate change over time.

70. Such an assessment is critical because communities and ecosystems in South Africa are especially vulnerable and exposed to the impacts of climate change.[108] These high levels of vulnerability and exposure, and low adaptive capacity, mean that communities across Africa face severe adaptation challenges from climate change.[109]

71. The CCIA makes brief mention of potential climate-related risks for workers, and climate-related risks for coastal infrastructure, on which the project would depend.[110] However, it makes no attempt to assess the impact of the proposed development on the ecological or built infrastructure in the area that are important for climate change adaptation and resilience.

72. In this regard, the CCIA fails to consider the impacts of the project, in conjunction with projected climate impacts, for the surrounding marine ecosystem and necessary adaptation measures. How is the project likely to affect the ability of the marine environment and coastal communities to respond, and adapt, to climate impacts in the surrounding area? As an example, consideration ought to have been given to potential climate change impacts on marine species in the project area over the

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[106] Introduction, p7.

107 Ibid.

[108] P8, National Climate Change Response White Paper, 2011.

[109] Ziervogel G etc al, 'Climate change in South Africa: Risks and opportunities for climate-resilient development in the IPCC Sixth Assessment WGII Report', p1, at https://sajs.co.za/article/view/14492. The IPCC Working Group II report ("WGII report") synthesises the latest evidence on climate change impacts, vulnerability and adaptation, and what this means for climate-resilient development.

[110] At p59 under "other risks" it notes risks to workers due to, inter alia, increased storms increasing the risks of drowning and injuries, and increased temperatures causing heat stress; and it notes risks to infrastructure, which includes storm surges and sea level rise affecting offshore and coastal infrastructure, and increasing damage to property, coastal erosion and loss of land. It mentions potential impacts for oil and gas infrastructure on the coastal line, pipelines that may be negatively affected and that onshore support vessels at Mossel Bay area may be affected by flooding.

lifespan of the project and how the project could exacerbate these impacts on marine species and fish stocks – particularly those that serve as a crucial food supply for threatened species and for communities who rely on fishing for their livelihoods. Food security is a crucial component of climate adaptation. In addition, climate change events may potentially amplify risks of the project. For example, unplanned events like well blowouts and methane leaks from pipeline would be especially difficult to address during extreme weather events that will be much more common as climate change progresses – this would further exacerbate existing and projected climate impacts on the surrounding marine environment.

73. The above impacts are not acknowledged or assessed in the Climate Risk Assessment or CCIA more broadly. If the CCIA had considered risks beyond those posed for the project – as it ought to have – this would presumably have a bearing on the risk rankings for the project in Table 7-2.

74. Information on the project's impacts on climate adaptation and resilience must be before the decision-maker, as a relevant consideration, to inform any decision on whether the project activities should be authorised. The fact that the CCIA makes no attempt to assess these impacts is a material omission.

The CCIA fails to adequately assess the climate risks for the project.

75. The CCIA recognises the need to assess the impacts and risks that climate change might pose for the project, and it purports to do so. However, there are a number of risks for the project that have not been adequately assessed, or assessed at all. Further, the conclusions on the acceptability of the risk are not fully substantiated and it is unclear how these conclusions were arrived at or that they are, in fact, reliable.

76. The CCIA notes that "t*hrough the qualitative risk assessment, it is identified that the site may be affected by climate risks however no unacceptable risks were identified. Although the mitigation measures have the potential to reduce climate risks, the measures need to be monitored for their performance through an ongoing monitoring and surveillance process. As a part of this, a continual improvement process could be developed to integrate climate change risks and opportunities in this process. This continual improvement process could be created to align with TotalEnergies Risk Management framework and outline the decision-making process for when action needs to be taken to improve climate resilience. The continual improvement process could be updated over the lifetime of the Project*."[111]

77. Prior to concluding that there are "no unacceptable risks," the CCIA should have fully assessed climate risks for the project, including the following:

    77.1. **The potential climate risks for the construction phase were not considered, in contravention of the EIA Regulations requirements cited above**.[112] The construction phase was not considered for impacts of climate on the project due to the "short time-frame" which

[111] P60.

[112] Appendix 3, section 3(j)(ii) and (vii).

"*has a smaller potential for meaningful interactions with the climate outside of the normal seasonal variation experienced in the region*".[113] This is a baseless and superficial rationale as a climate-related weather event could happen at any time (regardless of duration of construction), including during the construction phase.

77.2. **The CCIA fails to adequately account for the high risks associated with the F-A Platform in contravention of the EIA Regulations requirements cited above**.[114] The risks associated with the F-A Platform must be accounted for in the overall assessment of the impacts of the project, not only from a mitigation/emissions perspective, but from an adaptation and climate risk perspective as well. Concerningly, under the risk ranking for the F-A Platform, the consequence (severity of impacts) is cited as 'major', and the risk assessment (at Table 7-2) states the following as a "relevant adaptation measure" - "*the F-A Platform was installed in the late 1980's and will require regular maintenance and upgrading to structural elements and plant and equipment to extend the operational life of the installation for another 25 years*." What is most concerning is that the project proponent takes no responsibility for control and management of the F-A Platform, yet relies on these alleged mitigation measures to alleviate the risks of the project as a whole. Because the F-A Platform is integral to the proposed project activities, the high risks associated with the Platform should weigh heavily against the granting of the authorisation, and certainly should result in a higher significance rating being afforded to the project (as addressed in the subparagraph below).

77.3. **The CCIA relies on unproven and unsubstantiated mitigation measures, in contravention of the EIA Regulations requirements cited above**.[115] The 'relevant adaptation measures' referred to in Table 7-2 (which are essentially proposed measures to mitigate impacts) are all yet to be determined, future measures, or they simply do not exist – for example:

77.3.1. "*[t]he engineering design specifications will take account of potential impacts of an increase in wave height or the maximum speed of the Agulhas current through the Project area*".[116] There is no evidence: (1) that design specifications would be capable of sufficiently addressing the risks; and (2) what these specifications might be. Stakeholders and decision-makers are therefore completely in the dark on the effectiveness of any alleged mitigation measures.

77.3.2. For the subsea umbilical, no adaptation measures are identified.

77.3.3. As already stated above in relation to the F-A Platform, the adaptation measures cited in Table 7-2 are not adaptation or mitigation measures at all, nor can the project proponent have any control over the extent to which they are implemented to address and reduce any of the high risks posed by the Platform.

[113] P56.
[114] Appendix 3, section 3(j)(ii) and (vii).
[115] Appendix 3, section 3(h)(viii) and 3(j)(ii) and (vii).
[116] Table 7-2, p57.

77.4. **The risk rankings are ambiguous and are not adequately substantiated or accounted for in contravention of the EIA Regulations requirements cited above.**[117]

77.4.1. The physical climate risk assessment explains, at 7.2, the methodology for the risk ranking in Table 7-2. Yet, a number of the conclusions arrived at in Table 7-2 do not appear to have a rational basis.

77.4.2. As a general comment, the risk assessment in Table 7-2 appears to significantly understate the risks in circumstances where no concrete mitigation measures are specified (as stated above).

77.4.3. In relation to the subsea installations, Table 7-2 states that "*extreme weather such as **wind/storm events may increase wave action that could damage the installation***" for various components of the proposed project including well heads, manifolds, pipelines, and the subsea umbilical. In contradiction, the CCIA also states that the infrastructure is below the impact of wave action, and "*likelihood of interactions for future climate is ranked as "Could Happen/Unlikely" as **infrastructure is below the impact of wave action***". It notes the consequence as moderate and the risk as acceptable. It is not clear how the consequence for all subsea activities was ranked as moderate despite the acknowledgment that "*this could result in significant infrastructure damage*" and the ambiguous statements around whether the infrastructure is or is not vulnerable to increased wave action. On this basis it is not clear how the risk was ranked as acceptable despite the risks of potentially significant infrastructure damage, nor does this appear to be a rational conclusion, in light of the information put forward in the table.

77.4.4. The F-A Platform is recorded as being susceptible to high sea levels, which expose it to damage and destruction - "*Severe wave heights may affect offshore operations and platforms*". The consequence here is cited as major, with the risk as medium.[118] Again, it is not clear how, given the potential major consequences, the risk was cited as 'medium', particularly in circumstances where the project proponent professes to have no control over the F-A Platform and, therefore, the extent to which these risks can be managed and mitigated.

78. The CCIA has therefore not put forward sufficient reliable information on the potential climate risks for the project to inform stakeholders and decision-makers on the potential climate impacts of, and for, the project.

[117] Appendix 3, (h)(vii).
[118] Table 7-2, p57.

VI. CHILDREN AND FUTURE GENERATIONS

79. The Constitution of the Republic protects everyone's (including children's) right to an environment that is not harmful to their health or wellbeing. It further provides that everyone has the right to have the environment protected for the benefit of present and future generations. Most importantly, it provides that "a child's best interests are of paramount importance in every matter concerning the child." Furthermore, the Constitution obliges us to consider international law when interpreting these rights.

80. NEMA was enacted to give effect to these rights and its whole purpose is to ensure that development serves present and future generations. NEMA's purpose resonates with the provisions of the African Charter on the Rights and Welfare of the Child. The African Charter obliges state parties to protect a child's right to survival and development. It encourages state parties to implore implementation measures that aim to achieve optimal development for all children, including a child's physical, mental, spiritual, moral, psychological and social development.

81. The United Nations Convention on the Rights of the Child Committee's general comment no.26 lists children's specific rights that relates to the environment. A child's right to rest, play, leisure and recreation, to a clean, healthy and sustainable environment, to education, to the highest attainable standard of living etc.

82. Extreme weather events can destroy homes, schools, child care centres, and infrastructure critical to children's wellbeing. This will definitely have a negative impact on children's rights to education, to rest, play, leisure and recreation. Furthermore, children's immune systems are still developing and therefore are more sensitive to pollution and disease. Accordingly, pollution undermines children's right to the highest attainable standard of living, and the right to a clean, healthy and sustainable development.

83. The DESIA however failed to take into account how continued exploitation of fossil fuels, through production and downstream processing activities, worsens the climate crisis, and consequently contributes to worsening conditions for children, violating their rights.

84. Failure to consider impact on children and future generations' rights is a contravention of section 24 and 28 of the Constitution, NEMA, the African Charter and the UN Convention on the rights of the child.

VII. ECONOMIC IMPACTS

85. Overall, the Economic Impact Assessment ("EconIA") in the DESIA makes the conclusion that "*the positive impacts of the proposed project's exploration, construction, and operation phase are expected to outweigh the negative effects. No fatal flaws were identified from an economic*

perspective, and the project is deemed acceptable and should be authorised."[119] This is disputed for the reasons set out below.

86. NEMA stipulates that the objective of integrated environmental management is 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,* ***with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management***"[120] (emphasis added). NEMA's EIA Regulations of 2014 require than an environmental impact assessment must contain the following, insofar as economic impacts of the project are concerned:

    86.1. a full description of the process followed to reach the proposed development footprint within the approved site including:

        86.1.1. the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;[121] and

        86.1.2. positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;[122] and

    86.2. an assessment of each identified potentially significant impact and risk, including— inter alia, (ii) the nature, significance and consequences of the impact and risk.[123]

87. Based on the grounds listed and set out in detail below, the EconIA, and therefore the DESIA, fail to meet the requirements of the EIA Regulations in that they do not adequately assess each potentially significant impact and risk of the project activities from an economic perspective.

88. The main objections to the EconIA are that it fails to take into account the full cost accounting for the project and fails to comprehensively assess the economic impacts of the project, in that it, *inter alia*:

    88.1. makes unsubstantiated claims about the benefits of the project;

    88.2. it refers to alleged economic benefits well beyond the scope of the proposed project, and beyond the scope of impact studies (DESIA) undertaken;

[119] P16.
[120] S23(2)(b) NEMA.
[121] Appendix 3, section 3(1)(h)(iv), EIA Regulations, 2014.
[122] Appendix 3, section 3(1)(h)(vi), EIA Regulations, 2014.
123 Appendix 3(1)(j)

88.3. does not adequately account for financial and economic risks associated with the proposed project activities;

88.4. fails to properly account for external costs associated with the project, including:

88.4.1. the social cost of carbon;

88.4.2. biodiversity loss; and

88.4.3. that it fails to quantify the costs of the project to society; and

88.5. fails to account for loss and damage.

89. In making these comments, we rely on input from the following experts:

89.1. 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.

89.2. Ernest Niemi, a senior economist and founder of Natural Resource Economics in the USA. Niemi specialises in applying the principles of cost-benefit analysis, economic valuation, and economic-impact analysis in the context of natural-resource management, economic development, and public-policy decisions. A report by Niemi critiquing the EconIA, is attached marked **Annex C.**

Reliance on unsubstantiated and speculative economic benefits, which are unlikely to materialise

90. The EconIA makes a number of allegations around the economic benefits and employment opportunities that would result from this project. However, these allegations are not supported by evidence nor are they likely to materialise for the reasons set out in the grounds of objection below. Further, a number of the direct statements on benefits from this project are mired in uncertainty – around the off-taker for the gas for example – and have not been verified or substantiated.

91. The EconIA is therefore in contradiction of the NEMA requirements for a full assessment of each potentially significant impact and risk. It is not possible to draw any conclusions on the economic impacts and alleged benefits of the project with such uncertainty around whether there will even be an off-taker for the gas to be produced.[124]

Benefits that are unlikely to materialise

92. Research globally indicates that the exploitation of oil and gas are unlikely to have long-term positive benefits for South Africa.[125] Economic benefits attributable to the exploration, construction and

[124] NEMA s24O(1)(b) and Appendix 3, section 3(1)(h) and (j), EIA Regulations, 2014.
[125] The Green Connection 2021.

decommissioning phases are considered short-term. However, extensive examples internationally have documented the negative local and regional impacts of the resource curse[126] which are alluded to but not calculated in this EconIA, while on a national level, 'Dutch disease'[127] is downplayed within this EIA.[128]

93. The commercial viability of oil and gas deposits vary significantly and may change over time. African government revenues from oil and gas have fallen significantly short of forecasts. The most recent revenue projection is on average 63% lower than was initially estimated.[129] In addition, the share of after-cost revenues that flow to the government as opposed to companies (known as the 'government take') has not met with expectations.[130] The EconIA should have included a schedule of revenue projections, based on the fiscal terms, which includes expected income, expenditure and government take.

94. The revenue generated from the sale of oil and gas should contribute to improved GDP. However, experience from the USA shows that capital income from oil and gas industries tends to be disappointing as most of the revenue generated is allocated to capital (and lower than expected gas prices means there is less capital income).[131] Moreover, much of the capital income realised is exported out of local economies as the owners and shareholders generally live outside of regions where extraction occurs.[132] The financial flows from the project are unclear and it is not clear from the EconIA how much of the capital income will remain in South Africa. The ownership structure for

[126] In general, states which are rich in resources like oil and gas fail to improve the social and economic conditions of their citizens. This phenomenon has been called the 'Paradox of Plenty' or the 'resource curse'. The paradox is that, on average, countries with an abundance of non-renewable resources tend to have lower levels of economic development and growth than those without such resources. Lagercrantz, H., & Khabbaz, S. (2019). The Platinum Boom in Rustenburg and the Bust of the Community: A case study of the Natural Resource Curse in South Africa. Sweden: Linnaeus University; Onyeukwu, A. (2007). Resource Curse in Nigeria: Perception and Challenges. Open Society Institute; and Stiglitz, J. (2012, August 6). From Resource Curse to Blessing. Retrieved January 6, 2021, from https://www.project-syndicate.org/commentary/from-resource-curse-to-blessing-by-joseph-e--stiglitz.

[127] Dutch disease, so named after the experience of the Netherlands after its discovery of North Sea gas and oil in the 1960s, describes problems that emerge with the rapid inflow of money that comes from non-renewable resource extraction. Firstly, it leads to currency appreciation, which results in a dramatic fall in the competitiveness of exports, be they manufactured or agricultural. This leads to falls in export revenue for these sectors, which are also battling against cheaper imports caused by currency appreciation. Both capital and labour abandon these sectors in favour of the booming extractive sector, further damaging these sectors and boosting the extractive sector. This concentration of capital and labour can then become a problem within the extractive sector because it creates localised competition for goods like food (an industry which has already been undermined), and services such as housing. This then results in local costs rising for these types of critical goods and services, and results in economic recession (Lagercrantz & Khabbaz, 2019; Onyeukwu, 2007).

[128] P61 of the EconIA makes mention of Dutch Disease and states that the diversity and size of the South African economy make its occurrence unlikely.

[129] Mihalyi, D., & Scurfield, T. (2020). How Did Africa's Prospective Petroleum Producers Fall Victim to the Presource Curse? World Bank Group.

[130] Hubert, D. (2019). Government Revenues from Coral FLNG. Oxfam.

[131] O'Leary, S. (2021). Frackalachia: The Natural Gas Fracking Boom and Appalachia's Lost Economic Decade. Ohio: Ohio River Valley Institute.

[132] Ibid.

TEEPSA should be disclosed in this report and there ought to be transparency and clear delineations on where profits from this project are likely to be made available.

95. The report claims that the operational phase will also result in substantial tax benefits for South Africa (income taxes, corporate taxes, and Mineral Petroleum and Resources Royalties).[133] However, new global taxation such as the Carbon Border Adjustment Mechanism and the movement to reform taxation of fossil fuel companies such as Total Energies are gaining momentum and these will have a negative economic impact on South Africa due to our high carbon emissions (this is addressed in more detail below). Further, these same tax benefits pose risks for South Africa's GDP. This is caused by the knock-on effect of increased taxes which cause prices to rise, which causes wage rates to rise, which in turn increases production costs. This then reduces export demand and makes imports more attractive. This has not been assessed in any detail in the EconIA. Moreover, if government tax revenue increases are not handed back, purchasing power is reduced, resulting in a contraction in total demand.[134]

96. Similarly in relation to jobs and employment, the anticipated employment numbers for the gas sector are usually woefully overstated. According to multiple studies in the United States, the oil and gas industry's promises of job creation from the drilling of natural gas have been greatly exaggerated. Many of the jobs that are created are short-lived, have gone to out-of-area workers, and are being lost to automation.[135] In addition, workers tend to be brought in temporarily from other places where drilling service companies are already based and established.[136] It has also been noted that the indirect jobs that the industry claims to create, usually exist prior to the establishment of oil and gas wells.[137] In any event, the EconIA notes that direct employment from the lifecycle production activities of TEEPSA will not be high or localised – with the employment opportunities arising more from PetroSA and indirect activities.

97. The South African oil and gas industry is unlikely to create significant numbers of jobs, because those that will be on offer will be skilled and often highly specialised.[138] The EconIA should break down the

[133] P111.

[134] Research undertaken by Wait et al (2015) links petroleum fiscal regime instruments (such as royalties, company income tax and resource rent taxes) to impacts on economic growth, investment and employment in South Africa using an economy-wide impact modelling methodology (Computable General Equilibrium modelling).

[135] Deloitte. (2021). 2021 oil and gas industry outlook. Deloitte.

[136] O'Leary, S. (2021). Frackalachia: The Natural Gas Fracking Boom and Appalachia's Lost Economic Decade. Ohio: Ohio River Valley Institute.

[137] Concerned Health Professionals of New York; Physicians for Social Responsibility. (2020). Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction). New York.

[138] Expansion of the gas-to-liquid plant in Mossel Bay would probably create more construction jobs, while the deep-water ports at Coega in the Eastern Cape and Saldhana Bay in the Western Cape would see an increase in services for the oil and gas industry – again, the jobs would likely be largely technical and highly skilled (Overy, 2019).

skills levels requirements for the jobs that will be created and the likelihood of these jobs being created for people in South Africa in comparison to skills that will be imported.[139]

Uncertainty on off-take for the gas to be produced resulting in all claims of benefits being speculative

98. Of major concern is that there has been insufficient focus on the offtake markets for the project with no final agreement on where, and to whom, this gas will be sold – and whether it would be sold at all.

99. The EconIA notes that "*the quantification of economic impacts has only been done on the activities that make up the proposed project. This project is anticipated to have a significant economic impact in its operational phase if the gas and condensates extracted are productively utilised. Given the scope of this report, the economic impacts of end-user options are considered but not quantified*".[140] There is no guarantee, however that the gas and condensates will be productively utilised or utilised at all.

100. Page 25 of the EconIA outlines potential end uses for the gas to be produced by the project, noting that none of these has been confirmed:

100.1. Scenario 1 - PetroSA is the purchaser of the gas and condensate to use as feedstock for a Gas-to-Liquid plant, which is not currently operational;

100.2. Scenario 2 – ESKOM or an independent power producer (IPP) is the purchaser of the gas to use in the Gourikwa power plant that is currently powered by diesel, or in another power plant, that could be built; and

100.3. Scenario 3 – a combination of the above scenarios where PetroSA and ESKOM (or an IPP) purchase a portion of the gas and condensate for uses described above.

101. This DESIA must clearly indicate, and quantify, the economic outcomes directly related to the project for which they are submitting an EIA. It is also speculative to include information and data about other parts of the project that TEEPSA would not be responsible for – such as the elements PetroSA would be managing (over which TEEPSA has no control).

102. The EconIA alleges the following benefits from the possible off-takers of the gas to be produced from the project – again, these are all speculative and unsubstantiated particularly in the absence of any confirmed off-taker.

[139] Overy, N. (2019, April 22). Total Game Changer or Just Hot Air? The Discovery of Gas off South Africa's Southern Coast. Retrieved January 28, 2021, from https://za.boell.org/en/2019/04/27/total-game-changer-or-just-hot-air-discovery-gas-south-africas-southern-coast.

[140] P34.

102.1. "*The gas and condensates produced by the proposed project would allow the Gas-to-Liquid plant to restart operations, as the plant has been idle since the end of 2020 …The restart/ resuming of operations will have a long-term positive impact on the operations of PetroSA*".[141]

102.2. "*Utilising gas for power generation (whether directly by Eskom or through an IPP) will assist with increasing ESKOM's ability to meet consumer demand*".[142]

102.3. "*Utilising gas from the proposed project contributes to realising policy objectives for gas-to-power without relying on imports. This would be the alternative as no other local gas resource is currently in production. PetroSA's existing facilities could be used to process the condensate and/or gas upon their arrival onshore*".[143]

102.4. "*Regarding electricity production, the No-Go option will also result in missing an opportunity to use domestic gas for power generation and to reduce reliance on coal-fired electricity and positively impact emissions*."[144]

102.5. "*The no-go alternative will have a significant negative impact on the local economy as well as PetroSA. In the absence of domestic gas and/or condensate, the GTL plant, in order to operate, would have to rely on costly imported gas and/or condensate, which is likely to be unaffordable. The no-go alternative means that the status quo conditions regarding the GTL facility will remain, which is affecting a substantial amount of local employment opportunities. In the case of power generation, the no-go alternative would result in importing more costly LNG, even relying more and/or longer on coal power generation, or, in the worst case, renouncing to additional power generation capacity that could contribute to end load shedding*".[145]

102.6. "*even though the 'no-go' alternative will result in the avoidance of negative impacts (decommissioning, well blowout, and crude oil spill) from an economic perspective, this would also result in the positive effects/impacts not being realised. Since the positive effects and impacts would outweigh the negative effects, the exploration, construction and operation of the proposed development are preferred over the 'no-go' alternative*".[146]

103. The above end-uses and stated economic benefits are speculative at best, and untrue or unlikely to materialise for the reasons set out below. Even if any of the offtake scenarios for the gas to be produced do transpire, it remains unlikely that the outcomes for South Africa's economy, as a result, would be positive:

[141] P25.
[142] P25.
[143] P26.
[144] P27.
[145] P150.
[146] P151.

103.1. **Scenario 1 (gas to be used by PetroSA):** PetroSA has financial challenges and cannot afford to refurbish its plant at the moment. PetroSA already has a record of non-delivery, for example Project Mthombo in the Eastern Cape where government spent close to R200 million on a gas and fuel refinery that was supposed to create more than 27 000 jobs but it has never materialised.[147] More recently, PetroSA made a loss of more than R1 billion during the previous financial year. '…the latest in a long string of losses. Its losses were reduced by an R189-million loan from the Central Energy Fund (CEF), which was needed to pay salaries. PetroSA also has a R13 billion rehabilitation liability, which is underfunded by R9.6 billion.'[148] Thus it is unlikely that PetroSA will be in a position to sign an offtake agreement or to refurbish sites necessary for the TEEPSA project, let alone generate substantial economic benefits for the country.

103.2. **Scenario 2 (gas is used for gas to power):** Eskom too faces significant financial challenges[149] and it is questionable that it would have the resources to take on this power generation project. There is currently no gas to power procurement process underway in South Africa, meaning that if Eskom cannot be the off-taker, it is unlikely that there will be an established gas to power IPP by the time an off-taker is needed.

103.3. Given the precarious financial circumstances of all potential offtake scenarios for the gas there is a risk of there being no off-taker for the gas to be produced by the project. If there is no local market for the gas, what will happen to the gas to be produced?

103.4. **On the allegation that no other local gas resource is in production**:[150] This statement is untrue as Renergen is currently producing gas in South Africa.[151]

103.5. **In relation to the allegations of missed opportunities and climate benefits in relying on the no-go option**: This is untrue as South Africa's most cost-effective option in the long run is to shift largely to renewable energy and increase energy efficiency. The DESIA takes a misleadingly binary approach that compares gas and coal power as if they are the only options for South Africa's electricity mix – yet they ignore a suite of potential clean energy system alternatives that could be cleaner and cheaper. The evidence is clear that there should be no investment in new oil and gas production if climate goals are to be met and the worst impacts of climate change are to be avoided.[152] It is simply not true that this project would positively

[147] Zuzile, M. (2023, August 27). PetroSA spent R200m on a non-existent fuel refinery and accompanying projects. City Press. Retrieved October 2023, from https://www.news24.com/citypress/news/petroleum-oil-and-gas-corporation-of-sa-spends-r200m-and-no-oil-found-20230827.

[148] Paton, C. (2023, October 14). Loss-making PetroSA paid CEO millions to leave. News24. Retrieved October 2023, from https://www.news24.com/fin24/companies/loss-making-petrosa-paid-ceo-millions-to-leave-20221014.

[149] https://www.eskom.co.za/eskom-releases-its-results-for-the-2022-23-financial-year/.

[150] P26.

[151] https://www.renergen.co.za/renergen-projects/virginia-gas-project/.

[152] IEA 2021 'Net Zero by 2050: A Roadmap for the Global Energy Sector', p21 at https://iea.blob.core.windows.net/assets/deebef5d-0c34-4539-9d0c-10b13d840027/NetZeroby2050-ARoadmapfortheGlobalEnergySector_CORR.pdf.

impact GHG emissions. The climate impact assessment in any event, fails to account for the full scope of GHG emissions from the project – meaning that any alleged climate 'benefits' are significantly understated. Any claims of benefits from a climate perspective are unsubstantiated. Further, Niemi notes in his report that burning the gas to generate electricity will have negative economic value as "*evidence indicates there is a high likelihood that electricity produced under [this scenario] will be more expensive than electricity from onshore wind and PV solar (and, perhaps, from other renewable sources of energy). It would be prudent for Government and the public to anticipate that, if given the choice, consumers will prefer to purchase cheaper electricity from other, renewable sources of energy. As they do so, they will strand infrastructure*". Niemi concludes that "*the ESIA does not investigate this scenario and, hence, does not provide decision-makers and the public with information they need to determine the project's overall economic consequences*".[153]

Unverified and unreliable figures in the report

104. In addition to being speculative, there is concern that the data used are not objective as: anticipated capital expenditure and operational expenditure for the proposed development, and the "*financial estimates (in US dollars) for each phase were obtained from TEEPSA, and assumptions were applied to estimate the amounts that will be spent in South Africa.*"[154] These data were not corroborated with capital expenditure and operational expenditure from other oil and gas projects.

105. The figures quoted on page 15 for the economic impact of all phases of development cannot be considered reliable as the data were supplied by TEEPSA. In order for credibility and transparency, data should be gathered from similar site projects such as Mozambique and other comparative international projects. This would be aligned with best practice.

106. In relation to decommissioning, the EconIA states that alternative decommissioning cost figures were supplied by WSP.[155] It is our experience that decommissioning costs are often significantly underestimated, or at least do not sufficiently cover the full costs of remediation and rehabilitation at the end of a project.[156] The EconIA estimates that "*during the decommissioning phase, a total of USD$294.1 million will be spent. Of this, USD$25.6 million will be used to decommission the FA-Platform*."[157] This pertains to the decommissioning of five wells, though it should be noted that the

[153] P2 – 3, section II, Niemi Report.
[154] P34.
[155] P34.
[156] In March 2017 the Department of Monitoring, Planning and Evaluation and Department of Mineral Resources briefed the Portfolio Committee on Forestry Fisheries and Environment on environmental governance in the mining sector. "The total estimated cost for the rehabilitation of the 5 976 derelict and ownerless mine sites is R47 billion, whereof only R200 million is committed to come through in the next few years to add to the around R120 million that is available annually." At https://pmg.org.za/committee-meeting/24101/#:~:text=The%20total%20estimated%20cost%20for,of%20legislation%20in%20the%20past.
[157] P73.

DESIA mentions the likelihood of the drilling of a sixth well.[158] The costs of decommissioning the potential sixth well have therefore not been accounted for in the EconIA. It also is not clear how much of this money – if any – would to be used to cover any remediation costs and address any environmental damages left behind by the project. Thus the full costs for decommissioning the project have not been accurately accounted for in the EconIA.

Reliance on alleged economic benefits beyond the scope of the proposed project activities

107. A majority of the economic benefits that are referred to in the EconIA are benefits that arise from activities that are outside and beyond the scope of this DESIA and the project activities to be undertaken by TEEPSA.[159]

108. Throughout the DESIA the project proponent neglects to consider any impacts of the project beyond the connection to the F-A Platform. In fact, it deliberately excludes the impacts of the F-A Platform and the off-takers for the gas to be produced, unlawfully segmenting the impacts of the project. However, in the case of the economic impacts, the project proponent has cast the net wide, referring to economic benefits that would arise from activities well beyond the activities applied for in this DESIA.

109. To illustrate, the EconIA notes that there are limited localisation opportunities for the steel fabrication and treatment of pipes for the project but that the localisation opportunities come in at the F-A Platform modification as well as transport warehousing and auxiliary services industries.[160]

110. This project (the immediate project under consideration and not the full value chain) will rely heavily on imports of goods and skills, indicating little localisation of positive benefits. The additional information about the full value chain should be excluded from this DESIA as it is does not provide an accurate picture of the impacts of the project - it makes it seem that the job creation and GDP potential is higher than it is likely to be. This has an important bearing on the conclusions reached in the EconIA that the positive impacts outweigh the harms – as the alleged positive impacts are not derived directly from the project activities.

111. If the project proponent intends to include and assess the economic impacts of the F-A Platform and auxiliary services, then it must include the full spectrum of the project impacts, including the Platform's negative impacts in an holistic EIA. At present, the GHG emissions of the F-A Platform are not considered as emissions from the project in the DESIA. The F-A Platform cannot be assessed in some instances and not others. On this basis, if the F-A Platform is to be excluded from the DESIA as

[158] P27 of the DESIA Executive Summary states that "the development of Block 11B/12B will involve the drilling of five production and appraisal wells, with the option of drilling a sixth well, in the Project Development Area, located in the south-western portion of Block 11B/12B. P3 of the Climate Change Impact Assessment states that "at this stage of the engineering design, five production wells will be drilled in the Production Development Area with the option for a sixth well should it be required".

[159] The majority of the positive (high) impacts listed in the Table at pp17 and 18 refer to the PetroSA component of the project.

[160] P14.

the project proponent asserts, then any claims of economic benefits and employment opportunities from the platform cannot be included.

112. The project proponent cannot have it both ways – taking a segmented/piecemeal approach in assessing the negative climate and environmental impacts of the activities applied for in a piecemeal fashion, but then singing the economic praises of activities that go well beyond any of the activities applied for in this DESIA. This results in a skewed and unbalanced EIA, which does not meet the requirements of NEMA[161] as it does not constitute an accurate assessment of the proposed project impacts. Instead, it biases the conclusions in favour of the development.

Failure to fully assess and account for economic and financial risks associated with the project

113. There are a number of economic risks posed by the project that have not been accounted for at all (such as transition risk), or in some instances have not been adequately considered or quantified (risks to the fishing and tourism sectors) in the EconIA.

114. Transition risk is the risk that the value of assets and income are less than expected because of climate policy and market transformations, such as the transition away from fossil fuels. Transition risk includes: the problem of stranded assets; negative impacts on trade and competitiveness; and the physical risks of climate change itself. All these factors must be considered in a proper economic impact assessment and prior to investment in further non-renewable resource extraction.[162] This is especially so as these factors have become increasingly important when analysing or insuring projects. Such risks are seen by the world's central banks as one of the biggest threats to global financial stability.[163] None of these risks have been considered in the EconIA. This is a material omission.

115. Anwar et al (2022) note that expanding the gas sector carries risks for South Africa, including the possibility of new investments in gas-related infrastructure becoming stranded once global markets stabilise and stricter decarbonisation measures are implemented.[164] To address this concern, it's advisable for South Africa to make investments in a way that allows them to adapt to potential future drops in demand and to repurpose the infrastructure effectively. This point is further underscored by the fact that in order for South Africa to meet its intended 2050 net-zero emissions goal, gas must eventually be replaced by cleaner alternatives and phased out entirely by that year.[165] Even South

[161] NEMA EIA Regulations Appendix 3.
[162] Huxham, M., Anwar, M., & Nelson, D. (2019). Understanding the Impact of a Low-Carbon Transition on SA. Climate Policy Initiative at https://www.climatepolicyinitiative.org/publication/understanding-the-impact-of-a-low-carbon-transition-on-south-africa/#:~:text=%E2%80%9CTransition%20risk%E2%80%9D%20is%20widely%20regarded,away%20from%20coal%2Dfired%20power..
[163] Huxham, M., Anwar, M., Strutt, E., & Nelson, D. (2020). Understanding the impact of a low carbon transition on Uganda's planned oil industry. Climate Policy Initiative.
[164] https://www.wtwco.com/en-za/insights/2022/12/natural-gas-in-africa-amid-a-global-low-carbon-transition.
[165] P60, EconIA.

Africa's National Business Initiative recommends importing liquified natural gas over developing a domestic market, in order to minimise the risks associated with a potential carbon lock-in.[166]

116. Niemi points out that "*if consumers are not given the choice to buy electricity from other, cheaper technologies because of a long-term gas-purchase agreement, then Government should expect that the higher electricity prices will diminish consumers' economic well-being by taking wealth from them and transferring it to the gas supplier*".[167]

117. Risks that have been understated in the EconIA are risks to the fishing and tourism sectors. The EconIA notes that the risks to the tourism and fishing sectors in the event of a well blowout for example, are high, but states that positive impacts of the proposed project's exploration, construction, and operation phase are expected to outweigh the negative effects.[168]

118. It is highly unlikely that the positive impacts of the proposed project's exploration, construction, and operation phase will outweigh the negative effects once all factors have been considered, especially the negative local socio-economic impacts as well as the high significance of risks on the fishing and tourism sectors. It is also not clarified in the EconIA who would pay for any necessary remediation in the event of an unplanned event.

119. Niemi notes that "*the ESIA recognizes some of the environmental, social, and economic risks. But, it does not provide decision-makers and the public with complete and unbiased information needed to understand the economic importance of the risks, individually and overall*."[169] *"In general, the ESIA does no more than recognize the possibility that the project might or likely would generate a bad outcome*."

120. Risks that have not been adequately considered in the EconIA include:

120.1. **Costs and impacts on the tourism and fishing industries as a result of the project**. The EconIA notes potential risks that the project poses for the fishing industry, that it could "*negatively affect the quality and quantity of fish by contributing to environmental changes*".[170]

120.1.1. It estimates impacts and direct overlap with deep sea trawl, large pelagic and the squid fishery,[171] but states that there will not be any negative impacts on small-scale and recreational fishers during the project's exploration, production and operational phases except for an unplanned event, on the basis that there is no overlap between Block 11B/12B and small scale fishers' grounds.[172] This, however,

[166] National Business Initiative. 2022. Just Transition and Climate Pathways Study For South Africa: The Role of Gas in South Africa's Path to Net-Zero. Available from: www.nbi.org.za/wp-content/uploads/2022/02/NBI-Chapter-3-The-role-of-Gas-in-South-Africas-path-to-net-zero_vFinal.pdf [Accessed 14 October 2023].
[167] P3, section III, Niemi Report.
[168] P16.
[169] P8, section VII, Niemi Report.
[170] P58.
[171] P83.
[172] P58.

is an unduly narrow approach to the impact assessment and is not supported by evidence.

120.1.2. It notes a very low negative impact of loss of revenue for the commercial and small-scale fishers, stating that this could be mitigated, and render the impacts as negligible, by "*avoidance of siting well infrastructure in areas of higher fishing intensity* ***if feasible***" (emphasis added).[173]

120.1.3. The majority of the conclusions on risks for the fishing sector are based on the Marine Ecology and Fisheries Impact Assessment Study in this EIA. That impact study, however, has a number of deficiencies as highlighted in these comments. The Marine and Fisheries Impact study therefore cannot serve as a reliable basis for the conclusions on fisheries reached in this EconIA. As such, a number of the findings in the EconIA regarding duration and significance of impacts on fishers, for example, cannot be relied upon.[174]

120.1.4. The EconIA recognises that any negative impacts of the project "*would largely be felt by fisheries and tourism, whilst the positive impacts will be largely concentrated in the local and national economies. Due to this imbalance, the recommended mitigation measures must be strictly adhered to. The application of these mitigation measures will ensure that the negative impacts are minimised*".[175]

120.1.5. Economic studies from pre- and post-oil and gas production from around the world should be used to verify any statements on low to negligible impacts for fishers.

120.1.6. The EconIA itself notes that concerns were raised by small scale fishers during the public participation process on how the project might affect their access to fish and livelihoods.[176] Yet these impacts continue to be regarded as minimal and remain largely unassessed.

120.1.7. The EconIA notes an unlikely event, such as an oil spill could have substantial negative impacts on fishers, tourism and the local economy, which is reliant on tourism. However, it downplays these impacts by regarding them as unlikely and short-term.[177]

[173] P126.
[174] P99 of the EconIA notes impacts on fishers to be negligible.
[175] P151.
[176] P58.
[177] P59.

120.2. **The risks of unplanned events such as oil spillage, including a blowout**. The EconIA understates the significance of the economic risks that could arise in the event of an oil spill including a blowout.

120.2.1. It recognises that "*fish populations can be significantly impacted …through the displacement of species from normal feeding areas as well as the physical contamination of animals. Furthermore, oil spill surface oil can also damage gear and catch".*[178] *It also notes that "it cannot be assumed that all lost catch as a result of an unplanned event will be replaceable by avoiding the areas to be impacted. It is also likely that additional costs will have to be incurred by avoiding affected areas, particularly fuel costs. Furthermore, increasing travel times between catching and offloading affects the quality of the fish*".[179]

120.2.2. It does not quantify the direct economic or employment impacts of a potential blowout or pipeline rupture on small-scale fisheries, mariculture or recreational fishers because "*there is no information available on industry size*."[180] The absence of information, however, does not mean absence of impact – yet the EconIA does not make this clear.

120.2.3. It also does not specify who would cover the costs of an unplanned event.

120.2.4. The risk mitigation measures to address the impacts of a well blowout or pipeline rupture are already critiqued in these comments – and it is explained how these are inadequate to address the nature and extent of potential risks. On this basis it is not acceptable that the risk in the western project development area is downgraded from "high" to "medium",[181] and, for the eastern exploratory priority area, downgraded from "very high" to "high"[182] with mitigation measures imposed. Similarly for the risks to the tourism sector in the western project development area, the probability of the effects of a well blowout or rupture are ranked as low, and therefore the impact is given negligible significance.[183]

120.2.5. In relation to the eastern exploratory area, the EconIA notes that any unplanned events here would have **severe negative impacts for fisheries, tourism and coastal communities** of a "*long-term nature, severely affecting coastal communities that are reliant on fishing and tourism between George and Gqeberha*".[184] Yet, the EconIA still concludes – without justifiable basis - that

[178] P127.
[179] P127.
[180] P128 – 129 and 137 – 139.
[181] P132.
[182] P142.
[183] P135.
[184] P150

"*regardless of the negative impacts identified, no fatal flaws have been identified to hinder the proposed project from commencing.*"[185]

120.3. **The transition risks of the project**. The Climate Policy Initiative analysed South Africa's transition risk in 2019 and found that the country faces transition risk of more than R1747 billion in present value terms between 2013 and 2035. It notes that South Africa's trade-offs associated with a low-carbon transition are particularly acute because of high levels of unemployment and inequality, together with a strong reliance on fossil fuels.[186] This research did not include analysing the risk from offshore oil and gas industries, but it did recommend that South Africa should avoid or delay any new investments that could add to South African climate transition risk until the market for the related product is certain. Some transition risks associated with this project include:

120.3.1. **The risks of taxes being imposed** on carbon-intensive products, for example the carbon border adjustment mechanism (CBAM). According to the National Planning Commission, South Africa's trade accounts for around 60% of GDP.[187] South Africa's exports are focused on few destinations and are heavily concentrated around a small number of value chains. Therefore, South Africa is particularly vulnerable to changes in trade patterns arising from measures aimed at transiting to low-carbon pathways. Many of the importers of South African goods are transitioning away from carbon-intensive pathways, and consequently many of them are considering imposing carbon border adjustment mechanisms (carbon border tax) that would reflect the amount of carbon emissions attributed to goods being imported. The CBAM is likely to hit the competitiveness of African exports, particularly industrial exports if product coverage expands over time. Further, the CBAM process introduces administrative hurdles to market access by African countries, which historically struggled to access the European market.[188] More specifically, the EU accounted for 19% of South Africa's total exports in 2019 and remains one of South Africa's major export destinations. According to calculations by Monaisa and Maimele, a total of US$1.5 billion of South African

[185] P151.
[186] Huxham et al 'Understanding the impact of a low carbon transition on South Africa', https://climatepolicyinitiative.org/wp-content/uploads/2019/03/CPI-EF-Understanding-the-impact-of-a-low-carbon-transition-on-South-Africa-2019.pdf.
[187] National Planning Commission. (2020). Economic Progress Towards The National Development Plan's Vision 2030. Pretoria: National Planning Commission.
[188] Study by the African Climate Foundation (ACF) and the Firoz Lalji Institute for Africa at the London School of Economics and Political Science (LSE), 'Implications for African Countries of a Carbon Border Adjustment Mechanism at the EU' at https://www.lse.ac.uk/africa/assets/Documents/AFC-and-LSE-Report-Implications-for-Africa-of-a-CBAM-in-the-EU.pdf

exports (based on 2021 data) is at risk in the short term, with this number set to increase as the CBAM covers more and more products.[189]

120.3.2. **The risks of legislation coming into effect which poses limits on the GHG emissions from the project and potentially imposes additional constraints and costs on the project proponent**. The Climate Change Bill for example – was recently passed by the National Assembly and is now awaiting approval from the National Council of Provinces. There is a high likelihood that the Climate Change Act and associated regulations will be in place by the time this project comes into operation.

120.3.3. **The risk of the project becoming a stranded asset**. The International Energy Agency defines stranded assets as 'those investments which have already been made but which, at some time prior to the end of their economic life, are no longer able to earn an economic return'. Simply put, stranded assets are projects that fail to deliver adequate returns as conditions change.[190] According to Hurst, in 2020 about a third of the fossil-fuel investment planned through to 2030 risks failing to deliver adequate returns for developers.[191] Developing a gas industry now, that will need to be phased out by 2050 at the latest,[192] imposes substantial stranded asset risk. As it stands, the proposed project would have a 25-year lifespan.[193] With expected delays, and as fossil fuels are phased out and cannot compete with cheaper alternatives, it is conceivable that the project would not be able to operate for its full anticipated lifespan, and impose additional costs on South Africa. Niemi notes (in relation to the scenario that proposes the gas being used for liquid fuels) that "*it would be prudent to expect that, unless credible evidence proves otherwise, the external costs from the plastics industry will lead to market curtailments, reducing the demand for and market value gas from the proposed project*".[194] Niemi refers to the risk of the project becoming a stranded asset, and the associated external costs. "*The stranding will have negative economic impacts on South Africans unless the project's sponsors bear not just the full cost of decommissioning the infrastructure but also the full cost of reverse-winding the*

[189] Monaisa & Maimele, 'The European Union's Carbon Border Adjustment Mechanism and implications for South African exports', 2023 at https://www.tips.org.za/policy-briefs/item/4500-the-european-union-s-carbon-border-adjustment-mechanism-and-implications-for-south-african-exports.

[190] Grant, A., & Coffin, M. (2020). Fault lines: How diverging oil and gas company strategy link to stranded assets. Carbon Tracker.

[191] Hurst, L. (2020, September 20). 'Stranded Assets' Risk Rising With Climate Action and $40 Oil. Retrieved January 26, 2021, from https://www.washingtonpost.com/business/energy/stranded-assets-risk-rising-with-climate-action-and-40-oil/2020/09/18/89f90d3a-f963-11ea-85f7-5941188a98cd_story.html

[192] The EconIA notes that all gas must be phased out by 2050, p60.

[193] DESIA Executive Summary, p38.

[194] P3, section III, Niemi Report.

impacts of the project—planning, construction, operation, stranding, decommissioning—on the environment and on communities".[195]

121. The above deficiencies are material omissions of key risk-related information that ought to be available and included in the DESIA in order to properly inform stakeholders and decision-makers of any project-related economic risks, **prior** to authorising the project activities.
122. Further, based on the transition and other risks highlighted above, there is a high risk of overinvesting in gas production in South Africa. This EconIA should have considered the extent to which this gas production is actually necessary as well as reviewing current Renergen production in relation to South Africa's current neergy policies and plans.

Failure to account for external costs

123. The EconIA fails to properly account for external costs associated with the project. These costs include, inter alia, costs of climate change, and loss of biodiversity, which are typically borne by society – and not by the project proponent. The EconIA therefore fails to use the best available science to assess the economic costs the project will impose on society and as such has neglected to adequately assess the economic impacts of the proposed activities.

124. Niemi notes in his report that, "*Healthy ecosystems and human communities are economically important because they provide goods and services that make important contributions to the well-being of individuals, families, communities, and society as a whole … Economists around the globe have recognized that, to understand the overall consequences of fossil-fuel projects, such as the proposed project, decision-makers and the public must have the results from an analysis that provides a full, unbiased assessment of the external costs*."[196] He states that the EconIA should have assessed "*both those costs that can easily be measured in monetary terms and those that cannot. In particular, it must show that, if an effect cannot easily be measured monetarily, this does not mean that its economic value is zero, but only that the data currently available are not sufficient to measure its value. The failure to make this statement explicitly can mislead some readers to believe that the value is zero*". On this basis Niemi notes that the EconIA fails to comply with widely accepted professional standards.

125. Niemi notes further that a number of risks and externalities are not accounted for and as such the EconIA does not provide decision-makers and the public with information they need to determine the project's overall economic consequences. This supports the contention above regarding the failure to adequately account for the project's risks.

126. Niemi also notes that "*It is important to note that some external costs will materialize when the project creates a risk that a bad thing will happen but before the bad thing actually occurs. That is, the project will impose external costs on society by creating the risks that bad things will happen, whether or not they actually occur. For example, if the project results in increases in airborne poisons*

[195] P3, section III, Niemi Report.
[196] P1, section I, Niemi Report.

that carry the risk of illness, disability, or death for those exposed to them, parents likely will experience anxiety—experience the loss of security—whenever they allow their children to play outside. This anxiety reduces their quality of life and, hence constitutes an external cost imposed on them. They will experience this cost, whether or not the poisons actually make their children ill".[197]

127. The people of South Africa recognise that implementation of the project will intensify the climate crisis. "*The revised ESIA must not brush these concerns aside, for these impacts are not trivial: a global survey found that almost 60 percent of young people are extremely or very worried about climate change. Thus, significant external costs can materialize if public perception, that implementation of the project will worsen the climate crisis, intensifies the anxiety, by even a small amount, over such a large portion of the population*".[198] A 2021 report by Dr Garret Barnwell titled 'the Psychological and Mental Health Consequences of Climate Change in South Africa' notes the psychological harms in South Africa of "*perceived apathy and inadequate government responses, such as insufficient political will [to mitigate climate harms] and the sense of institutional betrayal*".[199] Barnwell notes that this "*can aggravate psychological distress and lead to secondary traumas … These potentially traumatic and stressful psychological experiences have been termed many names, such as "climate trauma," "climate anxiety," "ecological grief," and "solastalgia," among other terms. What they all have in common is the basic fact that climate change is negatively affecting mental health. As climate change increases in severity, the public becomes more aware of the possible climate realities and their direct harms and adversities. Thus, climate change is also a collective trauma of potentially epic proportions.*"[200] This report by Barnwell also notes that "*mental health challenges are accompanied by high economic costs*."[201]

128. Niemi recommends that the EconIA must fully identify, describe, and account for the external costs that will occur as a result of the project. Some of these externalities are listed as follows.

Social Cost of Carbon

129. The DESIA recognises that emissions of carbon dioxide and other GHGs resulting from the project would increase the frequency and intensity of extreme weather and other events and that these increases would impose economic costs on society. The EconIA also acknowledges that, if the total costs to society from the emission of carbon dioxide and other GHGs exceed the gross benefits from the project, the net economic impact would be negative.[202] It, however, concludes that "*At the lower estimations of the SCC, the positive GDP impact of the proposed project is greater than the total SCC of the project, indicating a net benefit despite the increase in emissions. If the SCC is greater than $185.0/ tCO2, the net impact will be negative*".[203] It provides no justification or basis for

[197] P9, section VII, Niemi Report.
[198] Ibid.
[199] P11, at https://cer.org.za/wp-content/uploads/2021/09/CER-Expert-Report-Garret-Barnwell-31-August-2021-Public-1.pdf.
[200] Ibid.
[201] P20.
[202] P 102-103.
[203] P103.

assuming lower estimations of the SCC. In fact, the EconIA appears not to factor in the SCC, or offset these costs, into estimated costs of the project at all, despite making mention of the range of potential SCC costs.

130. In response to the SCC estimations referred to in the EconIA, Niemi notes that "*extensive research demonstrates that the social cost of carbon dioxide far exceeds this level and, hence, that **the project's climate-related costs will far exceed the project's purported economic benefits**. **The net effect: implementing the project will reduce the overall economic well-being of society***."[204] (emphasis added).
131. Recent analyses have found that, when assuming that the social cost of carbon dioxide added to the atmosphere is $190 per metric ton, the carbon dioxide emissions resulting from operation of a gas-fired electricity generator impose costs on society that totally outweigh the value of the electricity.[205] This conclusion is reinforced by research that shows the actual social cost from adding carbon dioxide to the atmosphere far exceeds $190 per ton.[206] According to Niemi, "*accounting for emissions of methane, a powerful greenhouse gas, would show that the project's gas output to generate electricity would push the social costs even higher: research published this year concludes that the social cost per ton of methane added to the atmosphere is roughly 20-35 times greater than the social cost per ton of carbon dioxide*."[207]

External costs from negative impacts on biodiversity

132. The EconIA fails to present evidence on the external costs from the negative impacts on biodiversity. These external costs will likely exceed the value of the gas and/or other products to be produced from this project.
133. Niemi's report refers to a number of key expert reports, which indicate that "*it would be prudent for Government, as a default assumption, to anticipate that the external costs from the proposed project's negative impacts on biodiversity and ecosystems would exceed the value of the gas produced by more than 4-to-1. Project proponents then would have the burden of providing credible information necessary to overcome this assumption. The ESIA does not provide such information. It does not recognize the economic importance of actions that would degrade or diminish biodiversity. It makes no reference to the literature describing this economic importance*".[208]
134. Niemi further critiques the EconIA in that it "*offers no evidence proving that an offset of 1 km would totally avoid all adverse impact on biodiversity. It offers no prescription showing how it would evaluate an "out-of-kind offset or compensatory mechanism" to ensure that it would result in no net economic harm. In other words, extensive research indicates that humans have so degraded nature that it no longer can sustain past and current levels of production of materials … This degradation means there is a high likelihood that any resource-extraction activity, such as those incorporated in the Proposed Program, will impose on society external costs that far exceed the direct benefits from the activity.*"[209]

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[204] P6, section V, Niemi Report. And Samadi. S. 2017. 'The Social Costs of Electricity Generation—Categorising Different Types of Costs and Evaluating Their Respective Relevance'.
[205] P7, section V Niemi Report.
[206] Ibid.
[207] Ibid.
[208] P4 - 5, section IV, Niemi Report.
[209] P5, section IV, Niemi Report.

135. Niemi recommends that "*to satisfy applicable principles and standards, the ESIA must fully describe and assess the anticipated costs to society from the proposed project's impacts on the supply, benefit, and value of ecosystem services. This means the ESIA should incorporate these costs into its analysis of net economic benefits (or costs)*".[210] "*To satisfy this requirement, the ESIA must comprehensively describe and account for potential interactions between the project and the biodiversity/ecosystem crisis, and then clearly explain its findings to decision-makers and the public in a transparent manner*."[211]

Failure to quantify the costs imposed on society

136. It is noted that the scope of work for the EconIA does not include an economic cost benefit analysis, nor does it include natural capital accounting.[212]

137. According to Niemi: *"the ESIA ignored the important elements of the best available science to describe and assess the project's potential external costs. Instead,* ***it applied non-professional, non-quantified opinions—high, medium, low, very low, negligible— about the importance of each potential impact. As a result, the ESIA does not comply with widely accepted analytical standards***"[213] (emphasis added). For example, the EconIA fails to inform decision-makers and provide the public with sufficient quantitative information about the potential economic damage that could result if implementation of the project were to result in a major oil spill, for example for ecosystem rehabilitation, damage to coastal communities and small-scale fishers, and who would pay for these costs. The best available science indicates that the economic value of the injury to ecosystems from such a spill, the 2010 BP Deepwater Horizon oil spill, is at least $17.2 billion.

138. The EconIA does not quantify the economic importance of harms to the environment and communities. Peer-reviewed estimates of the economic importance of services humans enjoy from marine and coastal ecosystem services have long been available, and there are databases – such as the Economics of Ecosystems and Biodiversity (TEEB) – which include this information. Niemi notes that "*Information is readily available for explaining to decision-makers and the public the analytical approaches and data underlying information about the project's potential impacts on specific ecosystem services*."[214]

<u>Failure to account for Loss and Damage</u>

139. This EIA does not take loss and damage costs[215] for South Africa into account and this should be included in GDP and modelling calculations in the EconIA, as a key and relevant contextual influence on South Africa's GDP, economic baseline and future economic projections.

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[210] Ibid.
[211] P6, section IV, Niemi Report.
[212] P28 & 32.
[213] P10, section VIII, Niemi Report.
[214] P8, section VI, Niemi Report.
[215] "Loss and damage" is a general term which is used to describe the consequences of climate change that cannot (or have not) been prevented or addressed through mitigation and adaptation efforts (Gilder & Rumble, 2022).

140. Loss and damage can emanate from the consequences of both acute climatic events (e.g. hurricanes or floods), or chronic, slow onset, events (e.g. sea level rise and rising temperature). These events can result in both economic losses, such as income reduction, and non-economic losses, including loss of life, cultural heritage, and ecosystem services. All of these factors have major impacts on GDP and economic circumstances. However, this has not been factored in at all in the EconIA. To illustrate:

140.1. During the period from 2015 to 2017, the Western Cape faced a severe and prolonged drought event that had significant socio-economic and environmental implications. While the drought's repercussions were felt across various sectors, agriculture was particularly hard hit. This included substantial job losses and a noticeable dip in farm income.[216] It has been estimated that the direct economic impact of the drought to the Western Cape's economy was roughly ZAR15 billion, representing 3.4% of provincial Gross Domestic Product (GDP) and 0.3% of national GDP in 2018.[217]

140.2. In April 2022, Durban was struck by a flood event which has been subsequently described as the most catastrophic natural disaster (in terms of lives lost, homes and infrastructure damaged or destroyed and economic impact) yet recorded in KwaZulu-Natal.[218] The floods caused the loss of 459 human lives, left approximately 40 000 homeless and 45 000 individuals temporarily without work or an income. Furthermore, over ZAR40 billion in losses to business and infrastructure was recorded in the wake of the event.[219]

140.3. In June and then September 2023 many parts of the Western Cape experienced severe flooding. The estimated costs of the damage totalled over ZAR1 billion (in June 2023) and the total costs associated with loss and damage emanating from the September 2023 event are still unclear, although the Western Cape Government estimates nearly ZAR1.4 billion? in damages to the agricultural sector following the floods.[220] Furthermore, a number of news agencies have stated that the present assessment of damage to the provincial road network

[216] Pienaar, L., & Partridge, A. 2017. Economic Impact Assessment of the Natural Disasters on the Western Cape Agricultural Sector. Available from: https://www.elsenburg.com/wp-content/uploads/2022/03/2017-Natural-Disasters-Impact-Assessment.pdf [Accessed 14 October 2023]

[217] The World Bank. 2023. Hydro-Economic Study Shows Economic Benefits of Climate-Resilient Water Systems for South African Cities. Available from: https://www.worldbank.org/en/news/press-release/2023/06/29/hydro-economic-study-shows-economic-benefits-of-climate-resilient-water-systems-for-afe-south-african-cities#:~:text=The%20direct%20economic%20impact%20of,World%20Bank%20in%20Southern%20Africa [Accessed 15 October 2023].

[218] Grab, S.W., & Nash, D. 2023. A new flood chronology for KwaZulu-Natal (1836–2022): the April 2022 Durban floods in historical context, South African Geographical Journal, DOI: 10.1080/03736245.2023.2193758.

[219] Wits University. 2023. The 2022 Durban floods were the most catastrophic yet recorded in KwaZulu-Natal. Available from: https://www.wits.ac.za/news/latest-news/general-news/2023/2023-04/the-2022-durban-floods-were-the-most-catastrophic-yet-recorded-in-kwazulu-natal.html [Accessed 14 October 2023].

[220] Charles, M. 2023. 'Counting the losses: Cape storm causes crop and infrastructure damage worth an estimated R1.4bn'.News24. 27 September 2023. Available from: https://www.news24.com/news24/southafrica/news/counting-the-losses-cape-storm-causes-crop-and-infrastructure-damage-worth-an-estimated-r14bn-20230927 [Accessed 15 October 2023].

excluding that of the South African Roads Agency Ltd, amounts to approximately ZAR500 million.

141. African countries, in particular, have a significant adaptation gap, meaning that generally they have far fewer resources and fiscal space required to incur the costs of implementing the adaptation required to limit loss and damage.[221] It is estimated that by 2030 developing countries will require annual financial support ranging from $200 billion to $580 billion to address the costs associated with loss and damage.[222]
142. On 1 November 2023, the Minister of Finance Enoch Godongwana presented the 2023 Medium-Term Budget Policy Statement. In this budget, Min Godongwana added R372 million and R1.2 billion to the municipal disaster response grant, and the municipal disaster recovery grant. This signals the South African government's acknowledgement of the negative consequences, and high costs, of responding to the increased frequency and intensity of climate change-related events. This should be factored into the EconIA.
143. The EconIA must make provision for climate-related loss and damages for accurate economic modelling for the project activities. It has not done so.

Conclusion: Summary of Recommendations

144. Based on the above, there are a number of material deficiencies in the EconIA, which render it non-compliant with the requirements of NEMA and the EIA Regulations.
145. As a minimum, the EconIA must provide the full picture of the economic impact of the proposed activities by:
    145.1. Including a cost-benefit analysis;

    145.2. Correcting the inaccuracies in the EconIA, for example, the statement that there is no other domestic supplier for gas in South Africa and allegations around the climate benefits of relying on the gas to be produced;

    145.3. Modelling and providing cost estimates and economy-wide impacts – including likelihood indications - of each of the potential off-take scenarios, as a well as a scenario in which none of the offtake scenarios transpire but the project still goes ahead (this is different to the no-go alternative);

    145.4. Including the full anticipated decommissioning costs – to provide for decommissioning of a sixth well as well as any remediation and rehabilitation costs;

    145.5. Including alternative value estimates for the economic impacts of the project (as per page 15 of the EconIA) from verifiable sources other than TEEPSA;

[221] Gilder, A., & Rumble, O. 2022. An African Perspective on Loss and Damage. Available from: https://saiia.org.za/wp-content/uploads/2022/06/Policy-Insight-130-gilder-rumble.pdf [Accessed 14 October 2023].
[222] Gilder, A., & Rumble, O. 2022. An African Perspective on Loss and Damage. Available from: https://saiia.org.za/wp-content/uploads/2022/06/Policy-Insight-130-gilder-rumble.pdf [Accessed 14 October 2023].

145.6. Removing alleged economic benefits from activities that are not within the scope of this EIA (such as the F-A Platform) – unless the full environmental and climate impacts of such associated activities are to be included in the EIA as well;

145.7. Including and quantifying the economic risks to, and posed by, the project, including:

145.7.1. Transition risks, including assessing the need for a domestic gas market and in particular the gas from this project; economic modelling that takes the potential impacts of CBAM into account; as well as the costs to South Africa if this project becomes a stranded asset;

145.7.2. Risks posed to the fishing and tourism sector; and

145.7.3. Indications on who will be responsible for covering the above costs.

145.8. Including cost estimates for all external costs that would be imposed on society by the project including:

145.8.1. The social cost of carbon;

145.8.2. Costs to society and ecosystems particularly in the event of a well blowout or oil spill; and

145.8.3. Indications of the party/parties responsible for carrying the costs;

145.9. Including a full analysis on expected localised social costs for the project

145.10. Providing a schedule of annual revenue projections, based on the fiscal terms, which includes expected income, expenditure and government take;

145.11. Disclosing the ownership structure for TEEPSA in relation to this project with clear delineations on where profits are to be allocated – including how much will remain in South Africa; and

145.12. Providing for loss and damage costs in the economic impact modelling.

VIII. SOCIAL IMPACTS

In-migration

146. The DESIA concludes that the possibility of project-induced in-migration is insignificant and has been screened out as a result.[223] However, we disagree with this finding of insignificance, especially if this project leads to further construction and operationalize of the processing facilities.

147. In January 2023, a public participation meeting was held in KwaNonqaba, in Mossel Bay. The hall was packed to capacity and there were so many people outside that the audience was told that

[223] Page 284 of the DESIA.

an extra meeting would have to be held. It subsequently came to light that someone had gone around the area with a loudspeaker saying that people should come to the meeting and sign their names to get jobs. Who this was is not clear, but it is clear that if people think that there may be jobs available, they will come. In our view, once the public becomes aware of a Total project going ahead in Mossel Bay, there will be an assumption of jobs becoming available, leading to in-migration and consequent effects:

> "A general factor affecting resource development is the rapid increase in a transient population (Christopherson and Rightor, 2011). The increase in population may take place in the core localities, or in the larger towns nearby. The drilling workers may be specialist teams from elsewhere in the country. Even more basic jobs, such as construction, trucking or services may consist of itinerant teams moving along from one site to another – i.e. they may not be local workers. This usually means an influx of young men – some with families, many without. New work-seekers may arrive, in anticipation of securing jobs (MEDACT, 2015; Deller and Schreiber, 2012; Jacquet, 2009, Chapman et al., 2014). There is an added concern that people throughout the country may have unrealistic expectations about employment possibilities and may migrate into the regions in large numbers".[224]

148. In-migration is a well-known phenomenon, which will have a huge impact on the community, bringing social problems, drugs, prostitution, violence against women, conflict, xenophobia etc. The explanations provided in the DESIA that it will be insignificant takes a narrow view, and does not account for externalities which influence human behaviour. The raised expectations for jobs that accompanies projects like this, and no mitigation measures are proposed by TEEPSA. In our view, this impact is underestimated in significance and consequently in management interventions. The specialist provides no refereences for their assessment of their views.

IX. AIR POLLUTION AND HEALTH IMPACTS

149. While we do not address the contents of the DESIA's air quality impact assessment (AQIA) in extensive detail, the absence of objections to particular aspects of the AQIA should not, in any way, be construed as acceptance of the AQIA as adequate or of the air quality and health-related impacts associated with the proposed project.

150. The primary concerns with the AQIA in the DESIA is that it fails to adequately assess and determine the potential health impacts that could arise in the event of an unplanned event such as a blowout or oil spill.

[224] Atkinson, D., Schenk, R., Matebesi, Z., Badenhorst, K., Umejesi, I. and Pretorius, L. 2016. Impacts on Social Fabric. In Scholes, R., Lochner, P., Schreiner, G., Snyman-Van der Walt, L. and de Jager, M. (eds.). 2016. Shale Gas Development in the Central Karoo: A Scientific Assessment of the Opportunities and Risks. CSIR/IU/021MH/EXP/2016/003/A, ISBN 978-0-7988-5631-7, Pretoria: CSIR. Available at http://seasgd.csir.co.za/scientific-assessment-chapters/.

151. The AQIA states that "it is expected that should any unplanned events occur; these will be over short periods resulting in short-term impacts. The resultant emissions, concentrations and potential impacts vary depending on the type of event. Given the short duration of emissions / impacts and very low probability of occurrence; emissions from these events have not been estimated and impacts quantitatively assessed."[225]

152. The failure to estimate and quantitatively assess these potential emissions is a material and significant omission in the DESIA. Health studies of workers involved in clean-up operations for the Deepwater Horizon oil spill disaster have found, inter alia, that "the long-term effects of the BP oil spill on exposed cleanup workers produced an increased prevalence of illness symptoms such as shortness of breath, headaches, skin rash, chronic cough, weakness, dizzy spells, painful joints, and chest pain 7 years after their exposure to the oil spill."[226]

153. The AQIA conclusion that these impacts need not be assessed because of the assumed short duration and low probability of an unplanned event occurring is therefore a fatal flaw.

X. IMPACTS ON CULTURAL HERITAGE

The CHIA methodology

154. We note that the CHIA was undertaken utilising the same methodology as TEEPSA's Block 5/6/7 and DWOB, as acknowledged in the report. Field research was undertaken between March and September 2022, before this project application was announced or the EIA process commenced. It is therefore unclear whether the interviews differentiated between the exploration and production activities of the different projects, or whether interviewees understood the extent of the proposed operations, and the impacts associated with all of the proposed 11B/12B activities, which would likely have informed interview responses. Conceivably, at the stage of interviews, the interviewers themselves were unlikely to have understood the scope and range of impacts of the project, given that many of the assessments had not yet been conducted.

155. The CHIA acknowledges that in the field research timeframe, not all traditional leaders had been identified, and that "more communities and traditional leaders may come forth and request consultation once they are registered". Quite some time has passed since the field research and the finalization of the CHIA (June 2023). Additional opportunity has presented itself during the impact assessment phase, with a number of traditional leaders requesting consultation, but this appears not to have taken place. Adherence to requirements of registration for recognition are also contrary to

225 S6.3, p57, AQIA.

226 The Development of Long-Term Adverse Health Effects in Oil Spill Cleanup Workers of the Deepwater Horizon Offshore Drilling Rig Disaster at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5932154/#:~:text=The%20long%2Dterm%20effects%20of,exposure%20to%20the%20oil%20spill.

principles of inclusion. We call on TEEPSA and the cultural heritage experts to take further consultation with other traditional leaders in affected areas.

156. We further request feedback as to how the interviewees were selected, what information they were provided regarding the projects, what organisations were consulted, and analysis of the views of the interviewees.

Sensitivity of receptors ratings

157. When addressing the sensitivity of receptors, the DESIA describes that under normal operations the ancestry/spirituality receptor can be mitigated with timely, sustained and relevant healer diviner and first people chief interventions. It goes on to concluding that this particular receptor will not be affected by seasonal factors as ritual processes take place all year round, with rituals being performed according to community or individual needs.[227]

158. This statement assumes that ancestral/spiritual sensitivity can be mitigated with "timely, sustained, and relevant healer-diviner and First Peoples' Chief interventions." This assertion lacks empirical evidence or specific examples to support it. Without evidence, it remains an unsubstantiated claim.

159. The statement further suggests that rituals take place year-round and are performed according to community or individual needs. However, ritual practices can vary significantly across different cultures, regions, and belief systems. The statement's overgeneralization does not account for this diversity.

160. The use of terms like "healer-diviner" and "First Peoples' Chief" without providing context or understanding of the specific cultures or practices being referenced may raise concerns of cultural insensitivity or appropriation. It is important to acknowledge and respect the diversity of indigenous and spiritual practices without making sweeping statements that may not apply universally.

161. The DESIA goes on to describe the sensitivity receptor with regards to sense of place, concluding that:

> *"Sense of Place receptor sensitivity is medium because normal operations, well managed activities will not affect the sense of place. This receptor is not affected by seasons. The proposed sites for operations are far from the coast, approximately 75km away and in specific drill sites, according to the project description"*[228]

162. The statement assumes that "normal operations" and "well-managed activities" will not affect the sense of place. This assumption lacks empirical evidence and does not consider the potential

[227] Appendix 12.1. Cultural Heritage Impact Assessment. Section 7.2.5
[228] Appendix 12.1. Cultural Heritage Impact Assessment. Section 7.2.5

cumulative or long-term impacts that even well-managed activities may have on the environment and local communities.

163. The statement oversimplifies environmental sensitivity by suggesting that proximity to the coast or specific drill sites are the only factors to consider. Environmental sensitivity can be influenced by a wide range of variables, including ecosystems, biodiversity, cultural significance, and more.

164. The statement does not consider the potential impact of the proposed operations on local communities and their sense of place. It is essential to engage with affected communities to understand their perspectives and concerns, as they may have unique insights into the potential impacts.

Mitigation measures

165. In order to address impacts to culture and heritage, the DESIA proposes that to abate impact sensitivity, magnitude, and impact significance, the following mitigation measures should be adopted:

165.1. Continuous stakeholder engagement, especially with fisheries and coastal communities. Develop and implement a project-specific grievance mechanism and ensure effective functioning. Consultation with local business organisations and interested stakeholders regarding procurement policies and specific needs, services and products that TEEPSA will require.[229]

165.2. Based on the outcome of the consultation process, implement where necessary, a ritual event/s that supports communities' engagement with ancestral spirits and with living communities to alleviate potential and future negative impacts of non-consultation and poor cultural/nature respect. Acknowledge that participation and consultation may not be sufficient to meet community needs regarding mitigation and that other initiatives that offer the possibility of sustainable development may need to be initiated.[230]

165.3. Implement a gender sensitive ritual event that recognizes gendered coastal cultural heritage to permit all genders to articulate their cultural relation with the sea and coast.

165.4. Establish a functional grievance mechanism that allows stakeholders to register specific grievances related to operations, by ensuring they are informed about the process and that resources are mobilised to manage the resolution of all grievances, in accordance with the Grievance Management procedure.

165.5. Adjust the well location to avoid any shipwrecks or underwater cultural heritage (such as ancient fish traps) identified in pre-drilling ROV survey.

[229] Table 5. Mitigation Measures. Appendix 12.1. CHIA at page 66.
[230] See not above.

166. With regards to the first proposed mitigation measure, the CHIA assumes that the project-specific grievance mechanism will be effective, but it does not provide evidence or a plan for its functionality. The mere existence of a mechanism does not guarantee its efficiency or accessibility to affected parties. It also does not indicate that this is spiritually or culturally appropriate. Furthermore, the CHIA does not outline any key performance indicators or methods for evaluating the success of stakeholder engagement, the grievance mechanism, or procurement consultations. Without measurable outcomes, it is challenging to assess the impact and effectiveness of these initiatives.

167. With regard to the second proposed mitigation measure, the CHIA assumes that implementing ritual events will effectively alleviate potential and future negative impacts of non-consultation and poor cultural/nature respect. The CHIA lacks evidence or rationale for why ritual events would be an effective solution. Can a ritual truly mitigate and oiled coastline? While the mitigation measure acknowledges the need for additional initiatives, it does not provide details on what these initiatives might be or how they will contribute to sustainable development. Sustainable development should be the primary focus, with clear plans and objectives. Lastly the idea of using ritual events should be approached with cultural sensitivity and respect. The mitigation measure does not address how cultural appropriation concerns will be mitigated or how the involvement of local communities in the development of such events will be ensured.

168. With regards to the third proposed mitigation measure, the CHIA assumes that a single ritual event will permit all genders to articulate their cultural relations with the sea and the coast. However, cultural practices and gender dynamics can vary significantly between communities and regions. A one size fits all approach is not culturally sensitive or inclusive. Furthermore, the mitigation measure does not address how community perspectives and needs will be considered in the process.

169. A grievance mechanism, whilst a good idea as a management mechanism, does not mitigate the impacts, and should not be considered to be a mitigation measures.

170. Finally, none of the proposed mitigation measures address the impacts of a major spill.

171. With regards to emergency events and their impacts such as an oil spill, the CHIA appears to conclude that impacts to archaeology/tangible heritage will not be very "because these receptors are mainly onshore and the drill sites appear to be far from the shore".[231] It is essential to conduct a comprehensive risk assessment to evaluate the likelihood and severity of potential impacts on coastal tangible heritage sites. The statement does not reference any risk assessment, making it challenging to assess the accuracy of its claims.

172. Furthermore the CHIA seeks to prescribe how impacts to culture and heritage can be reduced in significance in the event of an oil spill. It recommends:

[231] Appendix 12.1. Cultural Heritage Impact Assessment. Section 7.3.3 at page 69.

"*that regular consultation is sustained with relevant stakeholders during the operation period, and that ritual events of regional and national significance are implemented to permit engagement with ancestral spirits and the spirit of the sea itself, as there are many communities that believe in the agency of the sea and its existence as a living organism. These actions may alleviate the potential and future negative impacts brought about by an oil spill"*[232]

173. Cultural beliefs and practices can vary significantly among communities. It is not safe to assume uniform beliefs, and the statement should consider the diversity of cultural perspectives. While the statement emphasizes regular consultation, it does not specify the quality or depth of these consultations. Effective consultation involves not only frequency but also meaningful engagement and responsiveness to stakeholder concerns.

174. Engaging with ancestral spirits and cultural practices should be approached with cultural sensitivity and respect.

175. The statement above seems to mention that these actions "may alleviate potential and future negative impacts" but it does not provide clear metrics or criteria for measuring the effectiveness of these proposed actions in mitigating negative impacts. Without defined measures, it is challenging to assess the impact.

176. With regards to the fourth proposed mitigation measure, while the CHIA at page 66 expresses an intent to establish a grievance mechanism, it lacks clarity, information on resource allocation, emphasis on timely and transparent communication, a feedback loop, and clear accountability measures.

177. With regards to the fifth proposed mitigation measure, the CHIA assumes that shipwrecks and underwater culture such as ancient fish traps, will be identified in pre-drilling ROV surveys. However, there may be limitations in the effectiveness of these surveys, and some cultural heritage sites may go unnoticed. The need for ongoing monitoring and evaluation should be considered.

Residual Impact Assessment methodology

178. At section 7.2.8 the CHIA[233] seeks to set out how the proposed mitigation measures act to reduce the residual impacts sufficiently enough to significantly reduce the intensity of negative impacts as it relates to culture and heritage. However, the methodology described allocates residual impact to that of low significance, but it does not define what the criteria or metrics will be used to measure or determine this impact.

179. The section also seems to suggest that "those communities members who accept the mitigation measures" will experience a low residual impact. This assumption appears to assert that a uniform

[232] Appendix 12.1. Cultural Heritage Impact Assessment. Section 7.4.9 at page 71.
[233] Appendix 12.1. CHIA. Section 7.2.8 at page 67

response from all community members can be expected, but this assumption does not account for diversity of opinions and diversity of concerns.

180. When the CHIA seeks to define the overall sensitivity of the receptors related to emergency event impacts, it assumes that the sensitivity can be reduced if swift and efficient action is taken to reduce the spread of an oil spill thereby reducing the extent and duration of the unplanned event. However, while timely response is critical, the effectiveness of such actions depend on various factors, including the availability of resources, response infrastructure, and the nature of the event none of which have been investigated or assessed in any substantial detail from the perspective of the capacity and technological competence/ experience. Assuming efficiency without concrete plans or evidence is overly optimistic.

Cumulative impacts

181. The section of the CHIA[234] mentions the possibility of cumulative impacts but it does not categorize for the purposes of assessing nor provide a clear assessment of what these impacts may entail. Cumulative impact assessments should be based on specific data and considerations. The section seems to assume that cumulative impacts pose a "low to medium risk" for cultural heritage receptors without defining the criteria or metrics used to assess this risk. Risk assessments should be transparent and based on objective criteria.

182. Finally the CHIA at the above mentioned section acknowledges that the "full nature of spiritual-cultural interactions" is not fully known. This highlights a knowledge gap that should be addressed through further research and consultation with relevant stakeholders. It appears such further research is still outstanding, in order to capture the unique knowledge and complex relationship communities have with the environment around them, and how that connection informs how they assert their rights to culture and heritage. This is not something to be acquired through formal question and answer formats that are propagated by the public participation methodology employed for this particular project. Given the duration of the project over a 20 year period, such research must account for the cumulative impacts over that period, within the context of a climate crisis.

XI. NEED AND DESIRABILITY

183. The extraction, processing, storage, transport and end-use of oil and gas from the proposed production operations will result in unacceptable significant emissions of greenhouse gases (GHGs), increasing atmospheric GHG levels and resulting in increased adverse impacts on human health and well-being and on the environment (species and ecosystems). Impacts on human health and well-being are likely to include (among others) impacts from increased adverse environmental effects, impacts on food availability and affordability, loss of property due to sea-level rise, direct impacts of

[234] Appendix 12.1. CHIA. Section 7.4 at page 72 and 74

catastrophic weather events, and deterioration in physical and mental health and well-being. Environmental impacts are likely to include (among others) increased temperatures, worsening and prolonged droughts, longer and more intense heatwaves, increases in extreme weather events, increased ocean acidity, decline in ecosystems and habitat, and increased rates of species extinction. These impacts are significant and unacceptable.

184. The exploitation of oil and gas resources, and specifically as proposed in this application, is not needed or desirable. Globally, the proven reserves of oil and gas far exceed what can be used without causing catastrophic climate change. There is already sufficient proven oil to supply over double the emissions consistent with 1.5°C, whilst already proven gas resources are nearly three times more than the 1.5°C budget. Therefore, authorising new oil and gas activities in any form, with its goal of finding commercially exploitable reserves and consequently leading to production, is not consistent with South Africa complying with its climate change commitments, and is certainly not needed or desirable from a global or domestic perspective. This appears from the expert affidavit of Dr Mark New in the *Sustaining the Wild Coast* case, attached here as **Annex D.**

185. As a party to the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, South Africa has committed to limiting the increase in the global average temperature to well below 2°C and to pursue efforts to limit the temperature increase to 1.5°C. South Africa is not, however, on track to meet these commitments. According to the Climate Action Tracker, "*South Africa's climate policies and commitments need substantial improvements to be consistent with the Paris Agreement's 1.5°C temperature limit*."[235] If all countries followed South Africa's "insufficient" approach to climate mitigation, "*warming would reach over 2°C and up to 3°C*."[236] Approving more oil and gas projects, including offshore exploration and production, would push South Africa further away from achieving its international climate commitments.

186. The assessment of need and desirability in this context should not be passed on to policy makers. NEMA requires the competent authority to consider desirability in a NEMA context. The competent authority must consider its own Guideline on Need and Desirability (hereinafter, "the Guideline"), which requires consideration of how the proposed activity "may affect the geographical, physical, biological, social, economic, and cultural aspects of the environment".[237]

187. As the public trustee of the environment generally, of biological diversity, of protected areas, and of coastal public property, the State must take measures to ensure that our oceans are used, managed, protected, conserved and enhanced in the interests of the whole community, for the benefit of present and future generations. The phase out of oil and gas is urgently needed to avert the climate crisis, to protect and promote the State's obligations to provide basic necessities such as water, food, shelter and an environment that is not harmful to health or well-being.

[235] Climate Action Tracker, South Africa, https://climateactiontracker.org/countries/south-africa/.
[236] Climate Action Tracker, South Africa, https://climateactiontracker.org/countries/south-africa/policies-action/.
[237] Page 9 of the Guideline.

188. Given this, the exploitation of oil and gas is not needed, is undesirable, is locally and globally irresponsible, is contrary to South Africa's international climate change and biodiversity commitments, and contravenes the State's obligations under section 24 of the Constitution.

Failure to consider the negative impacts of the full lifecycle of oil and gas exploitation

189. It is artificial and misleading to consider the need for and desirability of undertaking the proposed production activities without considering the impacts associated with the further downstream impacts which are intended to materialise from successful exploration. A balanced and proper assessment of need and desirability requires considering both the positive and negative impacts of the full chain of oil and gas exploitation.

190. However, the DESIA fails to consider the negative impacts of long-term oil and gas production, and downstream activities, in fact deliberately avoiding dealing with these aspects in relation to need and desirability. It portrays the ostensible benefits of production, midstream and downstream activities, shying away from considering the negative impacts associated with exploitation:

190.1. For example, the need and desirability assessment points to use of gas in the Gourikwa Power Plant, or the construction of a new CCGT, but fails to consider, *inter alia*, the impacts associated with the development of infrastructure to transport gas to the plant, including potentially significant pipeline methane leakages. In fact, it fails to account for how the gas will reach the plant at all.

190.2. It further portrays that "locally produced domestic gas, such as the one that is planned to be produced by the 11B/12B project, presents a number of benefits compared to LNG" and goes on to set out the ostensible benefits.

191. Whilst section 5.4 of the need and desirability assessment does present some of the project risks, the assessment fails to counterbalance the benefits it suggests arise from downstream use of the resources with the associated negative impacts. This includes the impacts associated with the construction of infrastructure, including pipelines, for the further processing and use of the gas and condensate, and the health impacts associated with these facilities.

Misleading statements about contributions to climate change

192. In assessing need and desirability, NEMA requires that development be sustainable and requires the competent authority to "take into account all relevant factors."[238] The Guideline requires need and desirability assessment to address the impact of planned activities on global and international responsibilities relating to the environment, including climate change.[239]

[238] 24O(1)(b) of NEMA).
[239] Paragraph 1.1.8, page 11 of the Guideline.

193. The need and desirability (from a climate change perspective) of conducting exploration drilling (which aims to identify oil and gas resources to be used in energy production and/or processing or manufacturing of materials) is particularly important given addressing the climate crisis requires immediate, rapid and large-scale reductions in greenhouse gas (GHG) emissions to limit global warming to 1.5°C (including accelerated action in this decade to reduce global carbon dioxide emissions by 45 per cent by 2030 relative to the 2010 level and to net-zero around mid-century).

194. However, the need and desirability assessment fails to contextualise the application within the climate crisis we face. It furthermore misleads the reader when comparing power generation from coal and from gas:

> "When used for power generation, natural gas emits about half as much carbon dioxide compared to coal, and it doesn't emit any sulphur nor nitrogen oxydes. Therefore, the replacement of coal power generation by gas power generation allows not only to reduce carbon emissions but also to improve air quality."

195. This assessment fails to account for other greenhouse gases, such as methane, which is significantly more potent than carbon dioxide. Increasingly, studies are showing that gas fired power generation does not produce less greenhouse gas emissions than coal, when considering the lifecycle of the project.[240] Once again, the assessment leans heavily on ostensible benefits of the proposal, but fails to accurately describe the impacts.

Assumption of gas as a transition fuel

196. The need and desirability assessment assumes that the use of natural gas can serve as a transition fuel to assist the country in meeting its climate change commitments, and to provide relief from load-shedding. Chapter 5.3 of the DESIA seeks to make the case for the use of liquified natural gas (LNG) as a transition fuel, stating that

> "Natural gas can serve as a bridge on the path from reliance on coal to carbon-neutrality from 2050 (as per the Paris Agreement) and complement renewable energy sources (as per the IRP (2019) that are under development as part of the strategic approach."[241]

197. It further goes on to describe the energy crisis, the IRP 2019 and that "there is a consensus about the urgent need to add new generation capacity and many options are reviewed, including renewables and gas".[242] However, the gas fields may take many years to reach first production and full commercial exploitation. According to one study, the world's largest oil and gas fields took an

[240] See for example, the expert report of Dr Robert Howarth in relation to the greenhouse gas emissions arising from Eskom's proposed gas power plant in Richards Bay. https://naturaljustice.org/wp-content/uploads/2021/05/FA-12-Howarth-RichardsBayReview.pdf
[241] Page 104 of the DESIA.
[242] Page 106 of the DESIA.

average of 5.5 years from discovery to first production and 17 years to reach peak output.[243] Chevron Corporation's (CVX) Gorgon natural gas development project off the coast of Australia took 30 years to complete, and another six years to begin producing liquefied natural gas.[244] Furthermore, no gas-fired power plants are ready to receive the gas, and the establishment of infrastructure, which would also be subject to EIA and other approval processes, is many years away.

198. It is not clear what the timeline for the development of production operations might be, but in any event, but it appears that the project is still years away from full production. Consequently, the DESIA does not establish that the proposed activities would be able to meet any urgent need .

199. While the DESIA sets out various government policies in support of the use of gas as a transitional fuel (and for further offshore oil and gas exploration), it fails to recognize that the use of fossil fuels is not compatible with national and international climate commitments, which call for a reduction in reliance on fossil fuels and greenhouse gas emissions.

200. Notwithstanding the DMRE's policies, the competent authority is not bound by such policy and must independently apply its mind to the need and desirability of the proposed project from a NEMA perspective. In *Earthlife Johannesburg and Another v. Minister of Energy and Others*,[245] 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".[246] The decision-maker cannot elevate principles or policies into rules that are considered to be binding with the result that no discretion is exercised at all.

201. Various recent independent studies challenge the view that fossil gas is necessary for electricity generation and as a transition fuel. While the increased use of gas as a 'transitional fuel' is promoted by government and vested interest groups, the increased use of gas (especially in electricity generation) will lead to increased emissions of climate warming GHGs, and methane (CH_4) in particular. While natural gas combustion is less carbon-intensive than that of coal, fugitive emissions arising from the production, transport, storage and use of natural gas have a much greater climate impact than CO_2. In particular, over a 20-year period (which is particularly relevant since the next 20 years are a critical window for addressing the climate crisis) methane emissions, which make up

[243] Henrik Wachtmeister, Mikael Höök, "Investment and production dynamics of conventional oil and unconventional tight oil: Implications for oil markets and climate strategies" Energy and Climate Change,
Volume 1, 2020, 100010, ISSN 2666-2787, https://doi.org/10.1016/j.egycc.2020.100010.
(https://www.sciencedirect.com/science/article/pii/S2666278720300106

[244] https://australia.chevron.com/-/media/australia/our-businesses/documents/Gorgon-Project-Milestones-Fact-Sheet.pdf

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

[246] See above at para 97.

approximately 70-90% of natural gas emissions, are projected to be 82.5 times as impactful as those of CO2.[247]

202. The desirability of using gas as a 'transitional' fuel is also questionable having regard to volatile international gas prices, as well as the potential risk of Carbon Border Taxes being introduced in the future. This risk will impose restrictions on the export of products with a high carbon footprint, putting South Africa's economy at greater risk of developing gas to power rather than clean renewable alternatives. This invariably diminishes the need and desirability for promoting new gas development projects, as the negative climate impacts and financial risks undermine the potential for gas to represent a viable solution for South Africa's ambitions to address development whilst respecting universal and regional climate change obligations.

203. The fundamental outcome of the need and desirability assessment should not be centred on the determination of whether gas technology will ensure security of supply for electricity. Instead, due to the climate crisis, this assessment should be centred on whether South Africa needs, or should rely on, gas to provide security of supply of electricity and whether alternative technologies could meet the same supply objectives with less harm and risk. Renewable energy and/or storage can replace gas to provide reliable and cost-effective generating capacity while greatly reducing the environmental and health risks associated with gas.[248]

204. It is incorrect of the EAP to have made the assumption that South Africa will require significant volumes of gas as part of its energy mix. Firstly, the IRP does not indicate a need for significant amounts of gas by 2030, and secondly, recent reports have suggested that even the 2019 IRP's small allocation of gas within the energy mix is more than will ever be required. The Vital Ambition Report by Meridian Economics in collaboration with the Council for Scientific and Industrial Research ("CSIR") Energy Centre ("Vital Ambition Report")[249] concludes that gas to power is only justified in the South African energy mix in so far as it is required for low-utilisation flexible capacity (peaker plants) for balancing the system during peak power demand. The report confirms that no investments in gas infrastructure for energy production and generation is needed now or in the near future. Furthermore, the 2019 IRP will likely be updated in the near future to align with South Africa's 2021 Nationally Determined Contribution under the Paris Agreement and to keep pace with quickly evolving science and significant reductions in price for solar and wind energy. However, even the 2019 IRP, which is rooted in an outdated and scientifically and economically unsound understanding

[247] See the IPCC's 6th Assessment Report (AR6), Working Group 1, Chapter 6 *The Earth's Energy Budget, Climate Feedbacks and Climate Sensitivity*, Table 7.15 at p1017. Available online at: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter07.pdf

[248] See, e.g., Union of Concerned Scientists, Turning Down the Gas in California (13 July 2018), https://www.ucsusa.org/resources/turningdown-gas-california?_ga=2.79265367.2135392956.1587590973-34786515.1587590973#ucs-report-downloads

[249] Meridian Economics, 2020. A Vital Ambition: Determining the Cost of Additional CO2 Emission Mitigation in the South African Electricity System. See at https://meridianeconomics.co.za/wp content/uploads/2020/07/Ambition.pdf

of the necessity for any gas in the energy mix, only projects the collective contribution of gas and diesel to the 2030 energy mix to be 1.3% combined.

205. In any event, even if LNG were to continue to serve a purpose in power generation, the DESIA fails to consider other potential / likely sources of gas within South Africa, assuming a future where the alternative for meeting 90% of the demand for gas comes from outside of the country.

Failure to factually identify the need

206. The need and desirability assessment, and elsewhere in the DESIA, points to potential, but uncertain, opportunities for use of the gas. These are: 1) the conversion of Eskom's Gourikwa Power Plant to a CCGT; 2) the construction of a new CCGT; and 3) providing feedstock to PetroSA's Gas-to-Liquid PLant. However, the assessment contains no indication as to whether the feasibility of these options has been considered, and the likelihood of any option materialising.

207. Conversely, the feasibility of any of these options is uncertain in the DESIA itself:

207.1. the use of natural gas in the Gourikwa Plant is based on an RFP released by Eskom in June 2023, after the Scoping Phase has been completed, to which the readers are referred to an News24 article regarding the subject;

207.2. the possibility of constructing a new CCGT plant in Mossell Bay is indicated for by Eskom's former CEO at an oil and gas conference; and

207.3. the option of providing feedstock to PetroSA's GTL plant is indicated for through RFPs at the beginning of 2023, and that "PetroSA has indicated that it can take 234 000 m3/h of gas from Block 11B/12B as well as its entire potential condensate production",[250] without any secure long-term undertakings from PetroSA. The DESIA also mentions the uncertainty of the PetroSA's GTL plant, which will not change by the authorisation of the proposed production activities. The financial status of PetroSA, and risks associated with this, is not mentioned at all. This is discussed above.

208. The DESIA contains no evidence that Eskom has been engaged around these possibilities for the use of the gas, instead indicating only that TEEPSA is "in discussion" with the various authorities and entities "in order to investigate this opportunity".

209. We note that there are no natural gas plants currently operating to produce electricity at a utility scale. Consequently, there is no existing demand for the gas for the purposes of electricity generation, and other proposed plants are either at EIA stage, or are being challenged in court.

210. We remain concerned that if none of these options materialize, and there is no guarantee that they will, TEEPSA will seek to export the resources, which has not been assessed at all in the DESIA.

[250] Page 109 of the DESIA.

Failure to consider all relevant regional and national frameworks, policies and guidelines

211. What is needed and desired for a specific area should primarily be strategically and democratically determined beyond the spatial extent of individual EIAs. The strategic context for informing need and desirability may therefore firstly be addressed and determined during the formulation of the sustainable development vision, goals and objectives of Municipal Integrated Development Plans ("IDPs") and Spatial Development Frameworks ("SDFs"), and Environmental Management Frameworks ("EMF") during which collaborative and participative processes play an integral part, and are given effect to, in the democratic processes at local government level.[251]

212. When formulating project proposals and when evaluating project specific applications, the strategic context of such applications and the broader societal needs and the public interest should be considered. In an effort to better address these considerations and its associated cumulative impacts, NEMA also provides for the compilation of information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes which must be taken into account.[252]

213. When "need and desirability" must be considered as part of an EIA process, the content of the IDPs, SDFs, EMFs and other relevant plans, frameworks and strategies must be taken into account when considering the merits of each application. The need and desirability of development must be measured against the abovementioned contents of the IDP, SDF and EMF for the area, and the sustainable development vision, goals and objectives formulated in, and the desired spatial form and pattern of land use.

214. While the importance of job creation and economic growth for South Africa cannot be denied, the Constitution calls for justifiable economic development. The specific needs of the broader community must therefore be considered together with the opportunity costs and distributional consequences in order to determine whether or not the development will result in the securing of ecological sustainable development and the promotion of justifiable social and economic development - in other words to ensure that the development will be socially, economically and environmentally sustainable.[253]

XII. DECISION-MAKING IN A POLICY VACCUUM

Marine and ocean governance planning

215. The passing and publication of the Marine Spatial Planning Act was intended to facilitate the co-ordination of planning in South Africa's ocean space and optimize sustainable economic growth. The

[251] DEA (2010), Guideline on Need and Desirability, Integrated Environmental Management Guideline Series 9, Department of Environmental Affairs, at page 10-11.
[252] See note above
[253] See note 1 above.

Marine Spatial Planning Framework is a requirement of the Marine Spatial Planning Act, 2018 (Act No. 16 of 2018) and integrates multiple interests in the marine environment and aims to promote good governance of the ocean. The Framework provides high-level direction for undertaking marine spatial planning and describes the process for preparation, implementation, evaluation and revision of the Marine Area Plans. Marine Area Plans contain defined categories of uses for specific areas, so-called 'zones' that pre-define desired combinations of use to minimises conflicts, create greater transparency for developers and investors and make processes such as licensing more efficient.

216. The Marine Spatial Planning process was intended to identify appropriate zoning and usage within the marine spatial areas of South Africa, which would serve as sector proposals that are to be considered during the development of the Marine Area Plans. The development of these marine area plans are to be informed by national data compiled from the various sectors currently operating within the EEZ, for the purpose of undertaking a conflict analysis.

217. The role of the Marine Spatial Planning process was initiated to assist the Department of Environment, Forestry and Fishery to develop long term marine sector plans that specify the overall development objectives and priorities of each marine sector for the coming two decades from a national point of view.

218. The MSP and its accompanying Marine Area Plans, that are informed by Marine Sector Plans, are creatures of legal weight as relevant Environmental Management Frameworks (EMF) and Spatial Development Frameworks that are designed to identify spatial priorities and desired spatial patterns and characteristics that contribute to the sustainable development vision, goals and objectives formulated in, and the desired spatial form and pattern of land use reflected in proposed Marine Area Plans.

219. A broader range of policies (not just Operation Phakisa) and existing laws should be driving and influencing the decisions that are likely to affect Marine Spatial Planning in South Africa. The MSP framework therefore intends to ensure that the development of marine areas (i) enhance the achievement of the societal benefits and strengthen the level of society's interaction with the ocean and (ii) promote a healthy marine environment and the sustainable use of marine resources. This stems from the MSP vision which seeks to ensure a "A productive, healthy and safe ocean that is accessible, understood, equitably governed and sustainably developed and managed for the benefit of all."

220. The language of the MSP Act requires that in its application, "Any right, permit, permission, licence or any other authorisation issued in terms of any other law must be consistent with the approved marine area plans.[254] The Marine Spatial Planning Sector plans have been gazetted but to

[254] Marine Spatial Planning Act 2018 at 3(2), No 42444 (Government Gazette 2019).

date, a marine spatial plan for the region, within which the proposed project is located, has yet to be developed.

221. It can therefore be deduced that the MSP framework and the MSP vision, are supported by principles which:

221.1. require marine planning to be managed not for the disproportionate benefit of any one group or private interest, but principally as part of the public domain in a manner that addresses the injustices of the past through required transformation;

221.2. affirms the ecosystem and earth system approach which requires a primary focus on maintaining and, where feasible, restoring ecosystem structure and functioning within a marine area. It includes the recognition that ecosystems are dynamic, changing and sometimes poorly understood and therefore require the precautionary approach;

221.3. affirms the precautionary approach which requires that if a decision could cause severe or irreversible harm to society or the environment, in the absence of a scientific consensus that harm would not ensue, the burden of proof falls on those who authorize actions which may impact on the marine environment;

221.4. affirms the principle of adaptive management which requires that knowledge of ecosystem functions is often subject to ongoing time and evidence-based research which should include accessing traditional knowledge in line with article 8 (j) of the CBD;

221.5. requires that the decision-making process should take into account the degree of commonality and compatibility of activities in any area or space in the marine environment;

221.6. requires that the efficiency and efficacy of decision-making will be based on the information provided, on environmental and socio-economic data acquired from multiple discipline and indigenous knowledge and traditional practice knowledge basis, to be used in the planning process.

222. The overarching MSP framework, which is underpinned by the abovementioned principles, should prioritise as core tenets, environmental sustainability and social equity which are premised on the understanding that healthy oceans are fundamental to prosperity and human wellbeing for present and future generations.

223. The need and desirability assessment considers, briefly, that the proposal is not compatible with the draft Marine Biodiversity Sector Plan, in that the sub-sea pipeline transects a CBA Natural Area. However, it does not take into in account the impacts of potential pipelines that might be needed beyond the F-A Platform. Nevertheless, instead of identifying non-compatibility as a fatal flaw, it proposes an “out-of-kind” biodiversity offset, which is discussed elsewhere in this comment.

224. Without the finalization of the marine spatial plans, and their direct application, decision-making in relation to this project will take place in a critical policy vacuum, placing the cart before the horse.

Trans-national Planning

225. The Protocol for the Protection of the Marine and Coastal Environment of the Western Indian Ocean from Land Based sources and activities (also known as the LBSA) of the Nairobi Convention are consistent with international law and with South Africa's international obligations which South Africa acceded to in 2003. Based on its objectives, as a member state and contracting to the Nairobi Convention, South Africa must give effect to the objective of achieving sustainable management and use of marine and coastal environments. The importance of the ocean to the people of the West Indian Ocean (WIO) region cannot be overstated. Over a quarter of the population, some 60 million people, lives within 100km of the shoreline and cultures based on fishing, maritime trade and marine resource use go back hundreds of years. Today, healthy ocean and coastal ecosystems underpin the economies of the region and offer huge potential for sustainable development. However, the region could suffer severe losses if current pressures on the ocean are not alleviate. The natural capital of the Western Indian Ocean region is being eroded, undermining the ocean's value for present and future generations.[255]

226. The Nairobi Convention specifically calls for the development of a regional MSP strategy to better cooperate on governing Areas Beyond National Jurisdiction (ABNJ) and coordinating blue economy pathways in the WIO (decision CP8/10). The Nairobi Convention further urges contracting parties to develop and implement ecosystem-based management approaches in the Exclusive Economic Zones (EEZs). The Western Indian Ocean Marine Spatial Planning Strategy is thus founded on an ecosystem-based approach (EBA), which can be traced back to the Convention on Biological Diversity and the twelve Malawi Principles.[256] It is for this reason that the West Indian Ocean Marine Planning Strategy is relevant within the context of inclusive and adaptive management.

227. Marine physical and ecological processes typically occur at regional scales and do not adhere to political and jurisdictional boundaries.[257][258] These processes include oceanographic processes such as ocean currents (important for e.g. larval dispersal) and large frontal areas (important as productive feeding grounds14, as well as migratory marine species of which many are under threat, or targeted by commercial fisheries). These broad-scale processes are often dynamic and spatially extensive and will require joint management and cross-border cooperation to effectively conserve and protect the

[255] Obura, D., Smits, M., Chaudhry, T., McPhillips, J., Beal, D. and Astier, C., 2017. Reviving the Western Indian Ocean economy: actions for a sustainable future. World Wide Fund for Nature (Formerly World Wildlife Fund), Gland, Switzerland, pp.1-63.

[256] https://www.cbd.int/ecosystem/principles.shtml

[257] Kark, S., Tulloch, A., Gordon, A., Mazor, T., Bunnefeld, N. and Levin, N., 2015. Cross-boundary collaboration: key to the conservation puzzle. Current Opinion in Environmental Sustainability, 12, pp.12-24. https://doi.org/10.1016/j.cosust.2014.08.005

[258] van Tatenhove, J.P., 2017. Transboundary marine spatial planning: a reflexive marine governance experiment? Journal of Environmental Policy & Planning, 19(6), pp.783-794. https://doi.org/10.1080/1523908X.2017.1292120

ecosystem services they deliver.[259][260][261] Natural and anthropogenic threats to these valuable marine species, pelagic and deep-sea benthic habitats and ecosystem processes are also not limited to national boundaries and occur across broad spatial and temporal scales.[262][263][264]

228. Despite the specific location and the socio-political context in South Africa that appears to support the expansion of fossil fuel production for development, it's crucial to consider the impact on coastal and marine ecosystems. South Africa is a member and contracting party to the Nairobi Convention, and as such, the impact assessment should not overlook the interactions among sectors and their combined effects on these ecosystems. These interactions place at risk the heritage, livelihoods, and cultures of coastal communities that depend on healthy marine environments. It seems that South Africa is currently in the process of developing marine spatial area plans through the Marine Spatial Planning (MSP) process. These plans aim to address these risks and ensure that environmental management is not conducted in an iterative manner.

229. The regional WIO Marine Spatial Planning Strategy[265] aims to harmonize policy and legislative structures towards a shared vision and common goals and objectives of an ecosystem-based approach to ocean management. These common overarching goals can then drive local MSP initiatives at a national scale. Relying on the various tools and decision-making frameworks from the regional MSP strategy, will help in the national process and approach to assessing trade-offs among sectors thereby enabling a future orientated approach. The NC further urges contracting parties to develop and implement ecosystem-based management approaches in their EEZ's informed by the AIMS and Agenda 2063 which provide for an integrated ocean management framework that is cross-cutting across sectors, regions and national borders. The regional strategy supports the implementation of the strategic priorities identified by UNEP's report on the state of ocean governance in the region, which provides a regional and multi-sectoral approach to jointly cover: i) maritime security and maritime boundaries; ii) fisheries; iii) exploitation of offshore mineral resources; and climate change. The implementation of the WIO MSP strategy will improve and add to the reporting on further challenges to collaborative strategies and inform best practices for future

[259] Carneiro, G., Thomas, H., Olsen, S., Benzaken, D., Fletcher, S., Méndez Roldán, S. and Stanwell-Smith, D., 2017. Cross-border cooperation in Maritime Spatial Planning. Final Report. Service Contract: EASME/EMFF/2014/1.3.1.8/SI2.714082: Study on international best practices for cross-border Maritime Spatial Planning.

[260] GEF LME:LEARN, 2018. Marine Spatial Planning Toolkit. Paris, France.

[261] UNEP (United Nations Environment Programme)–Nairobi Convention, 2020. The State of Ocean Governance in the Western Indian Ocean. Nairobi, Kenya

[262] Kark, S., Tulloch, A., Gordon, A., Mazor, T., Bunnefeld, N. and Levin, N., 2015. Cross-boundary collaboration: key to the conservation puzzle. Current Opinion in Environmental Sustainability, 12, pp.12-24. https://doi.org/10.1016/j.cosust.2014.08.005

[263] UNEP–Nairobi Convention and WIOMSA, 2015.

[264] UNEP–Nairobi Convention, 2020

[265] This regional strategy for marine spatial planning in the WIO emphasises the importance of a systems thinking approach to deal with challenges and opportunities for ocean and coastal management in the region. The strategy highlights how everything is connected and that we therefore need regional and transboundary goals and commitments to overcome cross-cutting challenges such as climate change, sustainable fisheries management and maritime security and pollution.

international and regional guidelines and policies. The WIO MSP strategy therefore provides guidelines on systems thinking approaches to ensure the prosperity of communities and the environment alongside the economy.

230. Furthermore, many of the overarching international conventions, treaties and laws recognize the need to consider human pressures in the marine environment through an integrated, ecosystem approach to management of maritime activities. The most relevant international legislation and policies that decision makers ought to take into account when considering proposed development in marine spatial planning processes are additionally the United Nations Convention on the Law of the Sea (UNCLOS), the Convention on Biological Diversity, the United Nations Agenda 21, and the FAO Code of Conduct for Fisheries.

231. Complying with the obligations to consider and give effect to these international and regional instruments, demonstrates a commitment to responsible environmental stewardship that encourages environmentally sustainable development practices and processes.

232. Therefore, in assessing the need and desirability of a project of this nature, requires the consideration of relevant legislation and policy instruments such as the marine sector plans for key sectors in order to ensure sufficient updating, implementation, enforcement and monitoring of the existing legislation across the countries who are part of the region.

XIII. UNLAWFUL SEGMENTING OF PROJECT

233. Regulation of 11(3) of EIA Regulations provides as follows:

> "If a proponent or applicant intends undertaking more than one activity as part of the same development within the area of jurisdiction of a competent authority, a single application must be submitted for such development and the assessment of impacts, including cumulative impacts, where applicable and consideration of the application, undertaken in terms of these Regulations, will include as assessment of all such activities forming part of the development."

234. It is clear that where a number of activities are contemplated as part of the same development, they must be addressed in one application and one environmental impact assessment.

235. The production activities are premised on the further delivery of the gas and condensate to Eskom's Gourikwa power plant, a new power plant in Mossel Bay, or to PetroSA's GTL plan. On TEEPSA's version, as contained in the DESIA, the activities are only premised on these offtake options. Without them, there would not be any production needed.

236. Accordingly, the production activities, the F-A PLatform and their transport from the F-A Platform are a single development and should have been assessed as part of the same project. TEEPSA has deliberately elected not to do so.

237. Furthermore, the scope of the assessment has limited to the footprint of the production activities and has failed to consider the impacts associated with the further transport of the gas and condensate from the F-A Platform, either as part of the impacts of production, or as cumulative impacts.

XIV. PUBLIC PARTICIPATION

238. We wish to record our objections to the following specific incidents which undermine the credibility and effectiveness of the public participation process:

238.1. At an evening meeting in Sedgefield, the venue for the meeting was changed the day before it took place, which was not effectively communicated to all potential persons who might have joined the meeting.

238.2. The cultural specialist did not meet with at least one other Khoi leader of Knysna, despite request to do so.

238.3. In an open day attended by a Green Connection representative, no cultural specialists were present to discuss their findings, and participants had to rely on information presented on posters.

238.4. At the Sedgefield open day, community members requested additional meetings within their communities, but to the best of our knowledge, no community meetings took place.

238.5. Invitations to the public meetings for the scoping phase, held in January 2023, were only distributed on 15 December 2023, effectively giving people very little notice in the new year, when they might have seen the emails. The reminders sent out on 12 January 2023, alternatively the notifications from local authorities,[266] were likely the first time that most people were notified of the meetings.

238.6. The DESIA refers to feedback from fishers regarding participation during the scoping phase that they have difficulty attending meetings due to being at sea and "that SSFs are generally only available on bad weather days". There is no indication in the DESIA that the EAP took measures to ensure the participation of SSFs during the impact assessment phase.

239. We note that the oil spill modelling undertaken by WildTrust, as referred to elsewhere in these comments, indicates that the impacts could extend to the west coast. However, no consultations took place along the west coast, and potential I&APs, including small-scale fishers, were not notified of the project and their opportunities to participate. It is critical that west coast communities are also consulted.

[266] As acknowledged on page 63 of the DESIA.

240. Finally, we raise a concern that indigenous leaders have not been adequately consulted, and no provision has been made for their further input into the CHIA.

Yours sincerely,

THE GREEN CONNECTION

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NATURAL JUSTICE

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