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**GROUNDWORK'S RESPONDING STATEMENT TO KARPOWERSHIP SA (PTY) LTD'S APPEAL  
AGAINST THE ENVIRONMENTAL AUTHORISATION REFUSAL DECISION (EA NO.  
14/12/16/3/3/2/2005): NGQURA**

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1. We act on behalf of groundWork,<sup>1</sup> a registered interested and affected party (I&AP) in relation to the proposed Karpowership gas to power project and associated infrastructure, which would be located at the Port of Ngqura, Eastern Cape Province.
2. On 23 June 2021, the Department of Forestry, Fisheries and the Environment (DFFE) handed down a decision to refuse Karpowership SA (PTY) Ltd (Karpowership) an Environmental Authorisation (no. 14/12/16/3/3/2/2005). Subsequently, on 13 July 2021, Karpowership submitted its appeal against the decision, in terms of s43 of the National Environmental Management Act, 1998 (NEMA) and Regulation 4 of the National Appeal Regulations, 2014 ("Appeal Regulations").<sup>2</sup>
3. This is a responding statement against the aforementioned appeal, in terms of Regulation 5 of the Appeal Regulations. The Responding Statement will be structured as follows:
  - 3.1. Background Information;
  - 3.2. Response to Grounds 1 and 7: Karpowership has not met the needs and desirability requirement under NEMA, and energy procurement considerations (RMIPPP, IRP, SIP) do not override environmental considerations (Paras 32, 66-75 of the Appeal);
  - 3.3. Response to Grounds 2 and 8: the contention that the socio-economics of the application were not adequately considered is disputed (Paras 33, 76-81);
  - 3.4. Response to Grounds 3 and 5: Allegation that DFFE considered comments by environmental groups and not those of Karpowership is unfounded (Paras 34, 36-40 of the Appeal);
  - 3.5. Response to Ground 4: The inter-governmental engagements under s2(4)(l) of NEMA do not absolve DFFE from discharging NEMA and Constitutional obligations (para 35 of the Appeal);
  - 3.6. Response to Ground 6 and to specific ground regarding public participation ad para 82-84.6 of Appeal: Karpowership has not discharged the public participation requirements;
  - 3.7. Response to specific ground in respect of s23(1)(b) of EIA Regulations (para 83-83.18 of Appeal);
  - 3.8. Response to specific ground in respect of Listed Activities (Para 85 of Appeal);
  - 3.9. Response to specific ground in respect of Noise Modelling Study (Para 86-86.9 of Appeal);
  - 3.10. Response to specific ground in respect of SACNASP Peer Review (Para 87- 87.7 of Appeal);
  - 3.11. Response to specific ground in respect of Underwater Noise Impact Assessment (Para 88-88.6 of Appeal);
  - 3.12. Response to specific ground in respect of Limitation of Specialist Studies (Para 89 – 89.4 of Appeal); and
  - 3.13. Conclusion and relief sought
4. It is submitted that Karpowership's grounds of appeal, have no merit and accordingly groundWork respectfully requests that the Minister dismiss the appeal, and confirm the 23 June 2021 decision to refuse the Environmental Authorisation (EA), in terms of s43(6) of NEMA.
5. groundWork reserves its right to supplement this responding statement.

#### **A. Background Information**

6. Karpowership is an independent power producer (IPP) and one of 8 preferred bidders under the Department of Mineral Resources and Energy (DMRE)'s Risk Mitigation Independent Power Producer Procurement Program (RMIPPPP), to produce new electricity generation to alleviate the short term energy shortages.
7. The proposed Karpowership Ngqura Project is a 20-year operation would comprise of the following:

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<sup>1</sup> **groundWork** is a non-profit environmental justice service and developmental organization working primarily in Southern Africa in the areas of Climate & Energy Justice, Coal, Environmental Health, Global Green and Healthy Hospitals, and Waste.

<sup>2</sup> National Appeal Regulations, GN R993, GG 38308 of 8 December 2014 (as amended).

- 7.1. Two Powership floating mobile vessels and a Floating Storage Regasification Unit (FSRU) in the Port of Ngqura, to generate electricity with a capacity of 540MW. Electricity will be provided by converting the gas to energy.<sup>3</sup>
  - 7.2. A 7.5km 132kv transmission line and a Switching Station, the latter which will comprise of landing gantries, breakers, current and voltage transformers, control room. The Transmission line will run from the Port, and pass through the moderate to high sensitivity area within the bonteveld (including Cape Seashore Vegetation, Algoa Dune Strandveld), and will be within 32 m of watercourse. These include four watercourses, pans, wetlands. The transmission installation will require “*infilling or depositing or excavation, removal or moving of more than 10 cubic meter of material into, or from a watercourse and removal of more than 5 cubic meters of sand, within 100 metres inland of the high-water mark as well as removal of indigenous vegetation*”.<sup>4</sup>
  - 7.3. A Subsea Gas pipeline of 10m from FSRU to the Powerships, and pipeline laydown area of 5463 m<sup>2</sup>), which will require seabed excavation and levelling.<sup>5</sup>
  - 7.4. Heated water discharge: seawater is used as a cooling system to be continuously abstracted and discharged, and large volumes of heated water is released back into the marine environment. The modelling indicates that there will be up to a 15 degree increase in temperature.<sup>6</sup> This may impact negatively on the fish species, and in turn the bird species who rely on them for food.<sup>7</sup>
8. Some of the following vulnerabilities exist within the vicinity of the Karpowership’s preferred location and/or as a result of the Karpowership operation:
- 8.1. The National Freshwater Ecosystem Priority areas (NFEPA) which is a system of strategic importance of the hydrological functioning of South Africa.<sup>8</sup>
  - 8.2. Species of Conservation Concern (SCC) with over 35 species of succulent, many which are protected.<sup>9</sup> These will be lost .
  - 8.3. Critical Biodiversity Areas (CBS), classified as “near Natural Landscapes which should managed to maintain biodiversity in near natural state, with minimal loss of ecosystem integrity. No transformation of natural habitat are permitted.<sup>10</sup>
  - 8.4. Addo Elephant National Marine Protected Area, including St Croix Island located within 5km, and **Jaheel Island located within 530m.**
  - 8.5. Addo Elephant Important Bird Area (IBA) within 5km<sup>11</sup>
  - 8.6. Port of Ngqura with artificial reefs which are important habitats for juvenile and marine phish
  - 8.7. 199 Bird species including 20 species which are on IUCN Red List, as well 34 endemic species of which 16 occur in Thicket vegetation, 10 in Bonteveld and 6 in marine coastal as well as 2 in wetland habitats.<sup>12</sup>
  - 8.8. Globally and Regionally Endangered African Penguin, are located in Jaheel Island, located 530m of breakwater of Port of Ngqura, (supporting 1.3-1.7% of global and SA population) and St Croix island, located within 5km. “Jaheel Island is the greatest avifauna risk receptor” from Powership associated projects.<sup>13</sup>
  - 8.9. Estuaries: the Port is located on the estuary mouth of Coega River,
  - 8.10. Ngqura Port is an important nursery area for many fish species, and important activity zone for dusky shark, and feeding ground for fish<sup>14</sup>
  - 8.11. Megafauna such as bottlenose dolphin, humpback dolphin, common dolphin, Bryde’s whale, Southern right Whale, humpback whale are all observed near or within the Port area.<sup>15</sup> Several megafauna and fish species within the Ngqura Port area are threatened according to the IUCN red list.

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<sup>3</sup> FEIR, p i-v

<sup>4</sup> FEIR, p i-v, 12, 14, 37

<sup>5</sup> FEIR, p i-iv, 33

<sup>6</sup> FEIR p 17, 20

<sup>7</sup> EIR p179

<sup>8</sup> FEIR, p 79

<sup>9</sup> FEIR p84

<sup>10</sup> FEIR, pg 84

<sup>11</sup> FEIR 85

<sup>12</sup> FEIR, p86

<sup>13</sup> FEIR, p 87, 171

<sup>14</sup> FEIR, p 95

<sup>15</sup> FEIR, pg 95

- 8.12. sea turtles, sharks, and dolphins occur within the Ngqura area, and the area is a preferred habitat for the humpback dolphin. Loggerhead and leatherback turtle nesting sites also occur to the North of Saldanha.<sup>16</sup>
- 8.13. Climate Change: Over 20 years, the Karpowership Ngqura project alone would emit approximately 17million tCO<sub>2</sub>e; and the FSRU will emit additional Scope 1 (direct emissions) of approximately 670,000 tCO<sub>2</sub>e. There will be a further 126,000 tCO<sub>2</sub>e Scope 3 (indirect) emissions. The total emissions will exhaust approximately 0.82% of the national carbon budget, and the impact is rated as “very high” in the Climate Change Impact Assessment (CCIA).<sup>17</sup> Some of the estimated vulnerabilities and risks to the proposed Karpowership project as a result of climate change are: 1) damage to infrastructure from flooding, 2) strain on the Karpowership’s cooling systems and negative impacts on employee’s health, as a result of temperature increases; 3) damage to infrastructure and supply chain disruption due to severe weather conditions; 4) localised erosion of pipeline fixtures; 5) damage to infrastructure from wildfire, and higher risk of explosion.. Vulnerabilities as a result of the project, that would be exacerbated by climate change on communities include: 1) negative impacts on livelihood on subsistence agriculture and nature-based tourism; 2) reduced production or yields of agriculture, water stress, and negative impact on service delivery; 3) increase in temperature resulting in chronic diseases, 4) sea surface temperature increase impacting negatively on fishing and tourism and livelihoods; 5) sea level rise may cause damage to coastal housing, negative impact on property prices and increase in insurance premiums; 3) loss of life and damage to properties as a result of fires. Vulnerabilities as a result of climate change on the environment include: 1) negative impacts on survival of marine organisms and habitat loss as a result of various changes in weather patterns, extreme weather events sea surface temperature rise.<sup>18</sup>
9. In essence, the Karpowership project will be located Port of Ngqura, is within the Critical Biodiversity Area; near the Addo Elephant National Park Marine Protected Area and the Algoa to Amathole Ecologically or Biologically Significant Marine Area (EBSA). The Algoa Bay has also received a status as one of the world’s four Whale Heritage Sites.<sup>19</sup> This area is not only important from large number of endemic bird species in the area but, according to the Marine Ecological Assessment for Ngqura, “*the Algoa Bay area provides a large number of ecosystem services to society. Most of these fall under socio-economic topics and are only briefly mentioned here, but some are directly dependent on ecosystem health and functionality. Provisioning services provided include: fisheries; commercial/recreational/subsistence), and aquaculture/mariculture (bivalves and finfish). In 2020, authorisation was granted to establish a sea-based Aquaculture Development Zone (ADZ) in Algoa Bay. The ADZ comprises three precincts, one of which, Algoa 7, is located approximately 3 km offshore, 2.5 km from the entrance to the Port of Ngqura. Algoa 7 is approved for the farming of indigenous finfish only (Anchor 2019; TNPA 2020).*”<sup>20</sup> In addition, the report also highlights the area is also of cultural importance, and the area is important also for nursing habitat for marine biota.<sup>21</sup>
10. On 23 June 2021, in looking at the FEIR, the DFFE refused to grant the EA authorisation, on the grounds which are summarised as follows:
- 10.1. The actual and potential impacts on environment could not be determined due to gaps and discrepancies in the various reports (particularly insofar as small scale fisheries are concerned, and given that proper underwater noise assessment was not conducted). These include the Underwater Noise Impact Assessment, Avifaunal Impact Assessment, Marine Ecology Assessment. The peer review of the Estuarine Assessment indicated that there may be regional and global scale impacts, and the impacts identified are not a true reflection of the project and Marine Ecology Report and Estuarine Assessment indicates a need for noise modelling study to gain a quantitative understanding of the impacts;
- 10.2. The actual and potential impacts on socio-economic conditions could not be evaluated, due to the lack of adequate noise impacts on fish and in turn, small scale fisheries. These impacts were not considered;

<sup>16</sup> FEIR, p02-4

<sup>17</sup> FEIR, p 24

<sup>18</sup> FEIR, g 190

<sup>19</sup> <https://www.sapeople.com/2021/06/16/algoa-bay-in-south-africa-becomes-prestigious-whale-heritage-site/>

<sup>20</sup> Marine Ecological Assessment, Ngqura, pg 6-7

<sup>21</sup> Ibid.

- 10.3. Impact of underwater noise on African Penguin species on breeding and foraging ground not assessed, and may negatively impact their reproductive success;
- 10.4. Public Participation was deficient, and process not in line with EIA Regulations, NEMA. Minimum requirements for public participation prescribed in terms of s24(1A)(c) of NEMA were not met. The draft environmental impact assessment (DEIR) was not subject to public participation for 30 days, and documents were removed from the website and only returned after queries were raised by interested and affected parties. The public participation failed to meet the requirements of EIA Regulations 2014 (as amended), and s2 NEMA principles; and
- 10.5. The Environmental Assessment Practitioner (EAP) did not apply Regulation 23(1)(b) of EIA Regulations, 2014, to notify the public of significant changes and/or significant new information which was not contained in the reports during the previous public participation proceedings, and failed to make the new information available for further consultation.

**B. Response to Grounds 1 and 7: Karpowership has not met the need and desirability requirement of NEMA, and energy procurement considerations (RMIPPP, IRP, SIP) do not override environmental considerations (Para 32, 66-75 of the Appeal)**

11. Grounds 1 and Ground 7 will be responded to simultaneously, as they are essentially similar and/or related grounds:
  - 11.1. In Ground 1 of Karpowership's appeal it is argued that DFFE failed to consider the strategic nature of the Project from a needs and desirability perspective given the impacts of the Project on energy risk mitigation and the development and growth of the SA economy. In support, ad paragraph 32 of the Karpowership's appeal, it is stated that DFFE did not properly consider that the project was launched in response to the procurement of electricity by DMRE under the RMIPPP to address the country's energy crisis, and that it is a strategic integrated project (SIP);
  - 11.2. Ground 7 of the Karpowership's Appeal states that DFFE failed to consider s2 principles of NEMA, and substantiates this submission ad para 66-75 stating that DFFE failed to consider the Integrated Resource Plan (IRP 2019) and the substantiation of the project from a socio economic perspective.
12. Grounds 1 and 7 both contain two arguments, essentially that:
  - 12.1. DFFE should have considered the need and desirability of the project by looking at the net positive impacts of these projects in terms of energy supply and positive socio-economic implications; and
  - 12.2. DFFE should have considered the importance of the procurement process under the RMIPPP and the Integrated Resource Plan (IRP) to address the energy crisis, and refusing the Environmental Authorisation is in contradiction towards these energy policy and procurement processes.
13. A need and desirability assessment as required in regulation 18 of the EIA Regulations and the Guideline on Need and Desirability, 2017 ("Need and Desirability Guideline"), requires consideration of various factors, this includes the preferred location of the project,<sup>22</sup> how members of the surrounding communities and people of South Africa will be affected by the project, the cost and binding implications that this will have on the country and whether there are other alternatives that will be more beneficial, as well as the impacts/disturbance of the natural environment.<sup>23</sup>
14. The Need and Desirability Guideline states specifically that "*(w)ith the EIA Regulations specifically calling for the consideration of how the "geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity", "need and desirability" relates to all of these considerations and not only to socio-economic considerations*".<sup>24</sup> Moreover, section 2 NEMA principles must be borne in mind when considering need and desirability. The Need and Desirability Guideline states that it "*requires the consideration of the strategic context of the development proposal along with the*

<sup>22</sup> Regulation Appendix1 (3)(f), appendix2 (2) and appendix 3 3(f) of the EIA Regulations.

Wright, J. (et al), 'Formal comments on the Integrated Resource Plan (IRP) Update Assumptions, Base Case and Observations 2016', CSIR, 2017, p. 27.

<sup>23</sup> See Needs and Desirability Guideline, 2017.

<sup>24</sup> Needs and Desirability Guideline, 2017, p9.

*broader societal needs and the public interest. The government decision-makers, together with the environmental assessment practitioners and planners, are therefore accountable to the public and must serve their social, economic and ecological needs equitably. Ultimately development must not exceed ecological limits in order to secure ecological integrity, while the proposed actions of individuals must be measured against the short-term and long-term public interest in order to promote justifiable social and economic development”<sup>25</sup> (emphasis added).*

15. Whilst the list is not exhaustive, the following must be considered in making an assessment on need and desirability: whether the project will secure sustainable development and use of natural resources, the ecological integrity of threatened ecosystems, CBAs and ESAs, conservation targets, ecological drivers of the ecosystem, and global international responsibilities relating to the environment such as climate change obligations.<sup>26</sup>
16. The Need and Desirability Guideline further states that *“(i)n terms of collectively considering ecological, social and economic impacts it is important to remember that while there might be some trade-offs between the considerations, in South Africa all development must in terms of Section 24 of the Constitution be ecologically sustainable, while economic and social development must be justifiable. There are therefore specific “trade-off” rules that apply. Environmental integrity may never be compromised and the social and economic development must take a certain form and meet certain specific objectives in order for it to be considered justifiable. EIAs are about the search for the best practicable option that will best ensure the maintenance of ecological integrity while promoting justifiable social and economic development. In this regard it is also vital to follow the “mitigation hierarchy”, where alternatives must firstly be considered to avoid negative impacts altogether, but if avoidance is not possible to considered alternatives that will better mitigate and manage negative impacts, while search for alternatives to better enhance the positive impacts.”*<sup>27</sup> (emphasis added)
17. In other words, socio-economic considerations, and procurement considerations under the RMIPPP do not, and cannot override the considerations on need and desirability as prescribed under the EIA Regulations. Further, the s24 Constitutional obligations to an environment that is not harmful to health and wellbeing,<sup>28</sup> and the various s2 NEMA principles, and environmental integrity may not be compromised. Alternatives must always be considered, where avoidance of some of the negative impacts is not possible – this is also prescribed by the EIA Regulations. In terms of alternatives, the EIA Regulations require that this consideration must address not only the location alternatives, but also alternatives in terms of the type, design, layout and technology of the activity, and different means of meeting the general purpose, including not implementing the activity.<sup>29</sup>
18. Despite these Constitutional, NEMA and EIA Regulation obligations, Karpowership takes the position that because there was a procurement process through which it was appointed a successful bidder, and because there may be positive implications for energy security, this should serve as incontrovertible evidence of a need for this project – which overrides other considerations on need and desirability - and on this basis it justifies the project going ahead.
19. This is incorrect since firstly, despite its preferred bidder appointment, the Karpowership project is not the only project capable of responding to South Africa’s electricity needs, nor would it be the best means to do so – as there are feasible and affordable alternatives, which could address security of supply. We therefore dispute that the project has been shown to be necessary and desirable.
  - 19.1. Recent studies by CSIR “Systems analysis to support increasingly ambitious CO2 emissions scenarios in the South African electricity system” (“CSIR Report”)<sup>30</sup> and Meridian Economics, “A

<sup>25</sup> Needs and Desirability Guideline, 2017, p10.

<sup>26</sup> Need and Desirability Guidelines, p11.

<sup>27</sup> Need and Desirability Guidelines, p18.

<sup>28</sup> Section 24 of the Constitution, 1996 states that “Everyone has the right – (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that – (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

<sup>29</sup> EIA Regulations, 2014, Definition and s2.

<sup>30</sup> CSIR and Meridian Economics, 22 July 2020 “Systems analysis to support increasingly ambitious CO<sub>2</sub> emissions scenarios in the South African electricity system” (CSIR & Meridian Report)

[https://researchspace.csir.co.za/dspace/bitstream/handle/10204/11483/Wright\\_2020\\_edited.pdf?sequence=7&isAllowed=y](https://researchspace.csir.co.za/dspace/bitstream/handle/10204/11483/Wright_2020_edited.pdf?sequence=7&isAllowed=y)

*Vital Ambition: Determining the cost of additional CO2 emission mitigation in the SA electricity System* (“Meridian Report”) <sup>31</sup> show that a least-cost scenario for the South African electricity sector involves rapidly building out wind and solar generation in the near term. During low generation hours for renewable energy, pumped hydro storage and batteries will provide flexible capacity to the grid. The Meridian Report also found that “[p]eaking requirements can be provided by liquid fuels for at least the next 10 years in all [modelled] scenarios,”<sup>32</sup> and thus “RSA does not need to expand gas infrastructure to support the power sector for the foreseeable future.”<sup>33</sup>

- 19.2. The Meridian and CSIR reports affirmed that new gas capacity is not needed to meet demand and prevent load-shedding in the next decade or more. The reports found that the decision of whether to develop new gas infrastructure “can wait for 10 – 15 years” and “[t]he option to delay this decision has immense value for the country – we do not need to lock into long term gas commitments for the power sector now.” During the next decade or so, “costs for stationary storage, solar PV and wind could [become] significantly cheaper.”<sup>34</sup>
  - 19.3. The Rocky Mountain Institute (RMI)’s expert report attached as “AJ1”, which evaluated the scope and credibility of the CSIR and Meridian Reports, similarly concludes that the Karpowership projects are neither timely nor economically optimal in the next decade. According to RMI, if commissioned by 2022, the Karpowerships “would come online as much as a decade prior to the planned need for any type of new high utilization energy capacity” and thus “represent an unneeded and uneconomic addition to [South Africa’s] electricity system” for “over half of their operational life.” As such, “South Africa would be better served by focusing on investment in infrastructure to enable a 21st century electricity system, which Meridian’s findings and global trends show to be largely renewable.”
  - 19.4. Moreover, the RMI report indicates that as renewable energy prices continue to decrease, gas capacity will become increasingly costly in comparison. Further, that Karpowerships do not best serve RSA’s needs due to: The financial risk presented by the high costs of gas plants designed for short-term emergency use being locked in for a 20-year period under the power purchase agreement, where excessive costs may be passed on to ratepayers and/or become a financial burden for Eskom.
  - 19.5. In other words, most recent studies indicate that South Africa could adopt an energy mix with less gas than the IRP at a lower cost. The least-cost scenario in the study avoids locking South Africa into building out expensive gas infrastructure and LNG fuel purchase commitments. In summary, South Africa does not need, as Karpowership’s EIA claims, “flexibility provided by LNG within the national grid to enable the uptake of renewable energy sources.” The least-cost option for South Africa is to build out renewable energy and hold off on any decisions for the build-out of gas.
20. As indicated in paragraphs above, the Karpowership project will have significant impact on various ecologically sensitive areas, some of which are protected. The project will also have high GHG emissions, and will have negative climate change impacts, negatively interfering with mangroves, seagrass, and estuaries which play an important role in both climate change mitigation and adaptation – as mentioned above. Moreover, in considering expert studies, the gas capacity from the proposed project is not required in the energy system to meet energy demand, in that there are feasible alternatives, which have fewer harmful impacts. In other words, it cannot be said that the project is necessary in circumstances where the electricity it would produce could be supplied by less harmful sources. In fact, expert analyses demonstrate that the project would have negative impacts for the economy as well, by locking South Africa in to a power purchase agreement for expensive energy for the next 20 years. On applying the various need and desirability considerations, there are clearly more overall negative impacts, which show that the project is in fact neither necessary nor desirable, especially since less costly, and harmful alternative options exist.
21. Secondly, whether or not the project is intended to address a country’s energy’s crisis, the DFFE is legally bound by the Constitution and NEMA, and the assessment of needs and desirability of the project as indicated above. In this regard:

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<sup>31</sup> Meridian Economics, 2020 “A Vital Ambition: Determining the cost of additional CO2 emission mitigation in the SA electricity System” <https://meridianeconomics.co.za/wp-content/uploads/2020/07/Ambition.pdf>

<sup>32</sup> Meridian report, p59

<sup>33</sup> Meridian report, p59

<sup>34</sup> Meridian report, p59

- 21.1. section 24 of the Constitution provides that: Everyone has the right – (a) to an environment that is not harmful to their health or well-being; and b) to have the environment protected, for the benefit of present and future generations...”
- 21.2. Furthermore, Section 2 of NEMA sets out the environmental management principles (“NEMA Principles”) that must “**serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of [NEMA] or any statutory provision concerning the protection of the environment**” and must “**guide the interpretation, administration and implementation of [NEMA], and any other law concerned with the protection or management of the environment.**” Accordingly, section 2(4)(a)(i) provides that “**the social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment**”.
22. As stated above, considerations around energy risk mitigation cannot be the only factor considered in determining the need and desirability of the project, and this certainly cannot render the EIA outcome a foregone conclusion. The success of this application cannot solely rely on an energy risk mitigation process by DMRE. It is still a relevant factor that there are alternative cheaper, cleaner and less harmful ways to generate the electricity, which could also develop and grow the country’s economy.
23. In considering the above, an energy procurement process run by the DMRE, cannot override prescribed environmental law considerations, nor can this serve as a foregone conclusion or incontrovertible evidence of the need and desirability of the proposed project. Ultimately a weighing exercise is required, of: 1) the allegedly positive impacts of the proposed project including its ability to address energy shortages and allegedly positive socio-economic impacts through the energy supply; **as well as** the 2) negative impacts including on the environment, climate, ecology and socio economic impacts and on communities.
24. In this instance, as indicated above, any alleged need for the project is far outweighed by the harms (as set out above and below) and thwarted by the existence of feasible alternatives that could meet the country’s electricity requirements.
25. According to the DFFE decision reasons for the refusal of the EA, many of the reports contained gaps which meant that all of the impacts of the project could not be fully assessed, including the need and desirability of the Karpowership project. We agree that these gaps are material, and also stress that there have been vast changes to the DEIR, that did not identify some of the harms. The FEIR included new and material information relating to the harms which should have been addressed, through public participation. Some of the harms evidenced in the additional material, that are relevant for consideration include the: 1) peer review of climate change report and subsequent inclusion of additional expected GHG emissions (which still do not address the full cumulative and lifecycle emissions of the project); 2) an assessment on the existence of seagrass within the levelling activities and impact of sea temperature increase (as a result of Karpowership’s activities) on seagrass; 3) the updating of the noise impact study to include data from Ghana’s example; 4) a peer review of the marine and estuary impact assessment; 5) changes to the impact ratings for various impacts assessed, and others. These were not subject to public participation and is a fatal procedural flaw to the granting of the EA. Even with the amendments to the FEIR, as the DFFE correctly identified in its refusal, there are **still** material gaps that exist in the assessment, including the climate change and noise impact assessment (which without proper assessment also impact on the comprehensiveness of other assessments, such as the marine and ecological assessments), which does not enable the decision makers to ascertain the full extent of the harms and impacts of the proposed project.
26. These gaps are of Karpowership’s own making. Therefore, even if there were evidence to show that the project is both necessary and desirable (which we dispute), the DFFE could not have conducted a comprehensive assessment to this effect, with key and material information missing from the EIA records.
27. Given the above, we submit that this ground of appeal should fail and be dismissed.

**C. Response to Grounds 2 and 8: the contention that the socio-economics of the application were not adequately considered is disputed (Para 33, 76-81)**

28. Grounds 2 and 8 will be dealt with together, as they address essentially the same aspects, related to the failure to consider the positive socio-economic impacts:

28.1. Karpowership states in ground 2, the DFFE heavily relied on particular components of the application and did not holistically assess the application. In support, ad paragraph 43 of the Appeal, Karpowership states that in addition to the needs and desirability, the socio-economic assessment and its findings were not considered, and the socio economic impact assessment indicates that the net positive socio-economic impacts outweigh any net negative effects;

28.2. Similarly, in ground 8, Karpowership argues that DFFE failed to assess the impact of the project being declared as a Strategic Integrated Project (SIP), and states ad paragraph 76-81 that as a result, "*DFFE failed to consider the considerable economic benefit of the Project, as against the dire need for electricity in the country.*" As a consequence, it failed consider the socio-economic consideration of s2(4)(i) of NEMA as well as inter-governmental co-ordination in terms of s 2(4)(l) of NEMA.

29. The same response posed in paragraphs 1-27 is also applicable here. Irrespective of the existence of any other legislation, policies and decisions including procurement under the RMIPPP, or in this instance, the project being considered as a SIP, DFFE has to fulfil its obligations in terms of the s24 of the Constitution, NEMA, and the EIA Regulations. The DFFE is responsible for protecting, conserving and improving the South African environment and natural resources, and it is bound by its duties to fully assess the impacts of proposed activities under NEMA and the EIA Regulations. The project's status as a SIP is irrelevant and cannot have any particular bearing on the decision of the DFFE in the discharge of its mandate and discretion to refuse or grant an EA.

30. Further, as outlined above and indicated in the DFFE's refusal, all of the negative and positive socio-economic impacts have to be identified in order to make a decision, and these weighed against the environmental impacts. However, according to DFFE's refusal, many of the reports contained various gaps which would have made it impossible for DFFE to comprehensively weigh up all considerations.

31. As stated in the receding paragraphs, it is necessary to weigh up impacts and apply section 24 of the Constitution, NEMA and its principles, as well as the EIA Regulations and both the positive and negative impacts of the proposed project must be considered. This is entrenched in section 23(2)(b) of NEMA, which states as follows:

*"The general 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 set out in section 2".*

32. It is clear from the decision that DFFE does not necessarily dispute some of the socio-economic impacts of this project but rather it rightly seeks to ascertain a holistic picture, considering the impact the project could have on the much broader community, surrounding the Port of Ngqura. Furthermore, it is also clear that the reason for the refusal is due to the lack of material information, which the Karpowership failed to provide in its EIA. These gaps directly impact on the adequacy of the socio-economic assessment.

33. The gaps identified in the DFFE Refusal which would have a bearing on the socio-economic consideration include:

33.1. Lack of a qualitative Noise Impact Assessment on threatened African Penguin Species and megafauna living, foraging, feeding or transiting nearby: This may have further impacts on socio-economics for tourism in the region;

33.2. Lack of underwater noise impact study to assess the impacts fish and in turn the implication for small scale fisheries; and

33.3. Limitation of various studies including those that were undertaken in the wrong season, and raises concern regarding the validity of the findings.

34. In addition, DFFE also mentions, in its refusal, several gaps identified in various reports. Whilst Karpowership indicates that the Socio-Economic Impact Assessment indicates no fatal flaws, and has an overall net positive impact, the study itself was deficient, in that it does not include the socio-economic impacts related many aspects. These include: socio-economic impacts due to loss of biodiversity, and implication on tourism and tourism related jobs; negative impacts ( such as underwater noise, heated water discharge, pollution, climate change impacts) on juvenile fish, and in turn the socio economic implication on local fishermen and mariculture in the Ngqura region; socio-economic impact of climate change, such as loss of property, life, and food security. Further impacts which have bearing on the socio economics as a result of climate change outlined in the CCIA are: negative impact on health, water stress, negative impact on housing market, heat waves affecting work productivity, negative impact on service delivery, reduced yields with in climate sensitive sectors such as subsistence and commercial agriculture as well as nature based tourism. Some of the impacts related to socio-economics identified in the Marine Ecological assessment is the possible impact on fisheries (commercial/recreational/subsistence) and aquaculture/mariculture; tourism provided by Addo Elephant park and surrounding beaches, nursery areas for marine biota which are commercially important. The Ngqura port also serves as nursery for fish, which means that release of heated water may have additional impact on plankton and fish viability, and in turn on fishermen in the local area. Underwater noise impacts is not well understood, and baseline noise with likely noise of powership on the marine ecology should be assessed. Despite this, none of these are assessed in the Socio-Economic Impact Assessment.
35. In addition to those reports with gaps specifically by DFFE, there are the following additional gaps which may have additional socio-economic implications, which have not been addressed by Karpowership:
- 35.1. The socio-economic value of estuaries and wetlands which can mitigate severe storms and flooding and other extreme weather events, and prevent damage to surrounding properties – impacts which are expected to intensify as the climate crisis progresses;
  - 35.2. A socio-economic assessment of the impacts of climate change on the project itself, the surrounding communities, as well as the impact the project will have through emissions of over 17million tCO<sub>2</sub>e is absent. The CCIA only provided these impacts superficially including loss of property, loss of working hours from temperature increase, droughts and food insecurity etc, outlined in para 9 and 33 above.
  - 35.3. A socio-economic impact assessment of biodiversity related services is absent.
  - 35.4. The socio-economic Impact on the tourism economy as a result of loss of megafauna and negative impacts to the CPA, FSA, and other protected nature reserves and estuaries in the area has not been assessed.
  - 35.5. Socio-economic impact on fishing and mariculture in the area (which includes the negative impact on juvenile spawning ground for fish, is also absent
  - 35.6. Fatal flaws: the assessment matrix (appendix C of Karpowership EIA) does not contain an option for fatal flaws, and thus the socio-economic impact assessment could not have identified fatal flaws.
  - 35.7. The assessment of alternatives: The socio-economic impact itself not only assesses the jobs that would be produced by Karpowership, but benefits to the economy and jobs as a result of electricity production on the country as a whole, casting a very wide net in terms of positive impacts. However, such a wide assessment has not been done in terms of the negative impacts. These, for example, include the impacts on the country as a whole as a result of the climate change impacts (including mitigation and adaptation implication) that the project would contribute to and exacerbate, the economic implications of commitments to unnecessarily expensive capacity from the project over the 20 year period of the power purchase agreement, as a whole. The negative impacts assessed are scaled down to a local level only, and not all the impacts were assessed. This kind of assessment is defective as it does not compare like for like. If benefits of entire electricity systems to South Africa are to be included in the assessment, other alternative systems such as one based on renewables which are less harmful and more cost effective, with job benefits, should also be considered. Importantly, the negative impacts of the proposed project on tourism, fisheries, climate change on the country as a whole should have been assessed and reported
36. Owing to the gaps in the various reports including the socio-economic impact assessment, DFFE could not adequately make an assessment on the net positive or negative impacts.
37. Accordingly, these grounds of appeal should be dismissed.

**D. Response to Grounds 3 and 5: The allegation that DFFE considered comments by environmental groups and not those of Karpowership is unfounded (Paras 34, 36-40 of the Appeal)**

38. Karpowership states in Ground 3 of its Appeal ad para 35, that DFFE considered comments and objections by Environmental groups outside of public participation process (PPP) timelines, and was not afforded an opportunity to respond. There is no substantiation for this statement. It merely refers to Ground 5 of the Appeal instead.
39. Ground 5 of Karpowership's Appeal states that DFFE failed to consider inputs of Karpowership and the Environmental Assessment Practitioner (EAP). In substantiation ad para 37-39 it states that DFFE did not consider Karpowership's memorandums sent on 18 and 23 June 2021. Only the 23 June Memorandum is applicable since that relates to Ngqura. The memorandum is a responding statement in relation to CER's request for suspension of the EIA process, due to lack of a quantitative noise study on marine life in the area. The response states in essence that that:
- 39.1. There are no fishing communities within Ngqura, but flyers were provided to Eyethu fishing and Ward 60 Councillor;
- 39.2. An assessment of Karpowership's noise impact in situ is not possible since there is no Karpowership operation in South Africa, and thus a reliance on a Ghana sound study was adequate. A site specific quantitative study is impossible prior to commissioning;
40. Firstly, DFFE could not have considered the 23 June 2021 letter, since the decision to refuse the Environmental Authorisation was handed down on 23 June 2021. At any event, this correspondence was in relation to separate process to request a suspension of the EIA process, owing to gaps in the various reports, therefore there is no indication that DFFE formed its opinion of whether or not to issue and Environmental Authorisation purely based on these separate and distinct set of submissions.
41. The 23 June Letter also indicates that there are no small scale fishers. However, Karpowership's own Marine Impact Assessment as well as Coastal and Estuarine Impact assessment make mention of local fishers and mariculture operations. In the Coastal and Estuarine Assessment indicates that pollution from the project could affect the mariculture facilities by introducing pathogens.<sup>35</sup> Moreover Marine Ecology Assessment indicates existence of commercial/recreational/subsistence fishing as well as aqua/mariculture established in 2020, of which is within 2.5 km of port of Ngqura.<sup>36</sup> It is not certain why they were not contacted for public participation.
42. Be that as it may, even if DFFE had considered the submissions or been under an obligation to consider the submission, it should not have made a difference to the outcome. Karpowership's own specialist report, refers to the lack of site specific quantitative noise impact modelling, and the need for it.
43. Moreover, it is Karpowership's own specialists who indicate that site specific modelling in relation to underwater noise should have been undertaken:
- 43.1. The FEIR at page 276 recommended that: A baseline study of the underwater noise climates in the Port of Richards is initiated. This information should be combined with the likely powership noise estimates presented above and the impacts of the total noise on the marine ecology should be reassessed.
- 43.2. FEIR at page 284: indicates that the Ghana study only applies to the berthed Powership and not the vessel traffic associated with the operation thereof i.e. LNG deliveries etc. Further, that the marine ecological specialist studies can use the Ghana study data to evaluate the underwater noise impacts.
- 43.3. Marine Ecological Impact Study at pages 37: **"It is concluded that there is not enough information about underwater noise and vibration levels from floating power plant ships in the context of the Port of Ngqura to conduct an assessment.** Therefore, general sound levels from commercial vessels and from a powership moored in another location are presented,

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<sup>35</sup> Coastal and Estuarine Impact Assessment, p 39

<sup>36</sup> Marine Ecology Assessment, p6

*as are the biological thresholds of sensitive receptors. **A quantitative underwater noise assessment is recommended to comprehensively assess the impact on the marine ecology.... A noise modelling study should be undertaken to gain a more quantitative understanding of the noise produced from powership operations in the Port of Ngqura and the cumulative impacts on the surrounding marine ecology.***<sup>37</sup> (Emphasis added)

44. To the extent that impacts are not, or cannot be, adequately assessed, (which is disputed), the project authorisation should be refused. This is in line with the NEMA principle that requires a risk-averse and cautionary approach. Nevertheless, experts advise that sound modelling is possible, and should have been conducted in this instance, to ensure a better understanding of the potential sound impacts. The need for an adequate noise impact assessment will be dealt with fully in paragraphs to follow.
45. Karpowership's submission that its own socio-economic impact assessment is somewhat a definitive indication that no negative impacts on local fishermen and that there are no fatal flaws associated with the socio-economic impacts on fishermen, is no answer. As indicated above, gaps in various reports identified by DFFE, including the noise impact assessment, if addressed, may still change the socio-economic findings in relation to the fishermen in the region. If the underwater noise impacts negatively impacted on the nursing habitat for fish and crustaceans, it means that there may be fewer fish and populations in the entire region, may have been impacted. As it stands, impacts on local mariculture, local fishermen are not well understood.
46. In any event, it has already been demonstrated above that Socio-Economic impact assessment contains various gaps and deficiencies.
47. On the above basis, grounds 3 and 5 of Karpowership's appeal should be dismissed.

**E. Response to Ground 4: the inter-governmental engagement under s2(4)(l) of NEMA does not absolve DFFE from discharging the NEMA and Constitutional Obligations (para 35 of the Appeal)**

48. Karpowership states in Ground 4 of its Appeal that DFFE failed to assess the Project in accordance with the provisions of Sec 2(4)(l) of NEMA, in that that there was no inter-governmental engagement with regard to the action taken by the DFFE. In support, ad para 36 it is submitted that although the Project was declared a SIP and it is important to have the RMIPPPP projects deliver electricity to the grid, there was no co-operative governance and co-ordination between the government departments as required by Section2(4)(l) of the NEMA.
49. We refer to our response in paragraphs 1-26 above, in that again, the existence of other policies, and the need for co-ordination with other departments, does not absolve DFFE from discharging its obligations in terms of s24 of the Constitution, NEMA, EIA Regulations and associated guidelines.
50. Furthermore, this ground of appeal has no bearing on why DFFE refused to grant the EA, and is therefore irrelevant for purposes of the present appeal. We do not dispute the obligation for cooperative governance on EIA processes and environmental considerations. Instead we point out that whether or not there was coordination between government departments on the EIA process, the EA would – and should have – still been refused due to the omissions and flaws in the EIA as listed by DFFE.
51. Accordingly, this ground of Appeal should be dismissed.

**F. Response to Ground 6 and to specific ground regarding public participation ad para 82-84.6 of Appeal: Karpowership has not discharged the public participation requirements**

52. Karpowership states in Ground 6 of its Appeal that DFFE failed to consider that it has met the threshold for public participation. In support of its submission, it states that:
  - 52.1. DFFE failed to consider Karpowership's memorandum on minimum legislative requirements for public participation and its compliance with those, including various initiatives taken during the public participation process (para 40-65 of the Appeal);

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<sup>37</sup> Marine Ecological Impact Assessment, Ngqura, pg 37, 49

- 52.2. Public participation is to take place within a defined period, and is not meant to be ongoing until the point of exhaustion, and that comments were uploaded and taken down at the appropriate times (ad para 52.2, 82.3-82.7);
  - 52.3. DFFE had an obligation to consider the inputs of not only the I&APs but of Karpowership as well, and in terms of fair administrative action under the Promotion of Administrative Justice Act, 2000 (PAJA) (para 53 - 55);
  - 52.4. No new reports or documents have been submitted during the process and as part of the FEIR, and thus not having conducted public consultation on the FEIR as submitted is not prejudicial to I&APs (ad para 55-); and
  - 52.5. Issues and reasons for the Refusal should not have resulted in a refusal, but rather been incorporated as conditions of an authorization as mitigation measures (ad para 57).
53. Arguments made in Ground 6 are further repeated in specific grounds related to inadequacies of the public participation process ad para 81-82 of the Appeal. As well as a specific ground related to failure to comply with s24(1A)(c) of NEMA (Para 82-3 of the Appeal) These will therefore dealt with simultaneously.

*The Karpowership was required to meet more than the “minimum threshold” for public participation*

54. Karpowership goes to great lengths to quote various international laws such as the Aarhus Convention, and the National Policy Framework for Public Participation. These are not relevant for EIA purposes, not only because SA is not a signatory to the Aarhus Convention, or that the Policy Framework applies to municipalities, but, more importantly, because specific public participation provisions exist in NEMA, and the EIA Regulations— which **must** be complied with – and these are further expanded on in the NEMA public participation Guidelines, 2017. These include:
- 54.1. Section 2(4)(f) of NEMA, which provides that “***The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.***” Special weight is given to the participation of particular groups in Section 2(4)(q) which provides that “***The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.***”
  - 54.2. S40(2) of EIA regulations, states that The public participation process contemplated in this regulation must provide access to all information that reasonably has or may have the potential to influence any decision with regard to an application unless access to that information is protected by law and must include consultation with—(d) all potential, or, where relevant, registered interested and affected parties.
  - 54.3. S41(6) of the EIA Regulations states that when complying with this regulation, the person conducting the public participation process must ensure that— (a) information containing all relevant facts in respect of the application or proposed application is made available to potential interested and affected parties.
  - 54.4. S41(2) of the EIA Regulations gives some of the basic public participation mechanisms including notice on the site, advertisement in newspapers, notice in writing.
  - 54.5. The NEMA Guidelines on Public Participation, 2017 (“PP Guideline”), states that where I&APs include rural or historically disadvantaged communities or people with special needs (e.g. illiteracy, disability, or any other disadvantage), the following could, *inter alia*, be considered to facilitate their participation or overcome potential constraints: • announcing the PPP on a local radio station in a local language, at an appropriate time (e.g. peak hours); • using participatory rural appraisal and participatory learning and action approaches and techniques could be used to build the capacity of the I&APs to engage and participate more effectively; • specific approaches to existing community structures, committees and leaders; • holding public meetings at times and venues suitable to the community; • holding separate meetings with vulnerable and marginalised groups; and • appropriate access to information must be provided. The level of assessment is assessed by the table provided.
  - 54.6. S23(1)(b) of EIA Regulations, requires that where “*significant changes have been made or significant new information has been added to the environmental impact assessment report or EMPR*” not included in the initial public participation process, the revised environmental impact assessment report or EMPr will be subjected to another public participation process of at least 30 days, and notification must be submitted to DFFE that EIR will be submitted within a longer

period of 156 days. Further, s23(2) of the EIA regulations requires that in such instances, comments received on the additional information should be included in the final EIR submission.

55. As can be seen from the above, public participation is vital, to inform the public of the development, so that I&APs can comment meaningfully. The depth of public consultation depends on the circumstances, but as indicated in the PP Guidelines, Table 1, if the proposed development: 1) occurs in an area that already suffers from socio-economic problems or environmental problems, and the project is likely to exacerbate these impacts; 2) if there is widespread public concern about the potential negative impacts of the project; 3) if it has the potential to create unrealistic expectations; and 4) if the area is one with high social or cultural diversity; then the minimum requirements of public participation will not suffice, but rather extensive consultation is required in order to gather more information, and to ensure minimal negative impact, including addressing diversity, and needs of the I&APs.
56. With regards to local communities, who may be illiterate, or fall into previously disadvantage categories, further efforts are required to reach those communities and enable them to participate meaningfully – without the PPP becoming a mere tickbox exercise. As per the Public Participation Guideline, such efforts include announcing the project during peak hours in local radio stations, specific approaches to existing community structures, and holding separate meeting with marginalized groups, for example. As far as we are aware no local radio broadcast has been done during peak hours in local languages.
57. On this basis, we submit that Karpower has not met the legal requirements for public participation for the project.

*The public participation documents should be easily accessible, and Scoping Report, the Draft EIR, the Final EIR should all be made available until the final decision is reached, at least*

58. One of the grounds for refusal by DFFE included the allegation that public participation documents were not available throughout the process. Only upon complaint, were the documents made available again.
59. Karpowership indicates that specific documentation were made available during specific public participation period, and that public participation should only take place during the defined period. Ad Para 82.4-82.7 of the Appeal submission, Karpowership indicates that DEIR was made available from 26 February to 31 March, and the link was removed. Subsequently at an unspecified date, at the request of certain I&AP for a request for extension of the submission period, the link was reinstated from an unspecified date to 6 April 2021.
60. In response Karpowership submitted CA4, which is an email indicating that public participation on the DEIR will take place from 26 February to 31 March 2021. However this email does not serve as proof of when the documents were uploaded or removed, whether these were password protected or widely accessible, and whether scoping reports were made available during the DIER commenting phase.
61. In the interests of fair administrative process guaranteed by the Constitution, and the public participation provisions outlined above, all public participation documents (the scoping reports and DEIR, etc) should be made available and be easily accessible at the very least, throughout the public participation process. There is no reason for withholding these records which contain vital information. I&APs should at any time be able to access and refer back to the scoping reports and other records during the comment on the draft EIR stage, all the way up until the decision stage. Failure to make these records accessible is highly prejudicial to the I&APs' rights to participate and comment on the EIA, and more generally breaches the rights of access to information.
62. We advise that on 16 April 2021, after the DEIR commenting stage, the CER was also required to request the EIA documents to be made available from the EAP, since these documents were password protected and inaccessible. It was stressed that these documents should be freely available to ensure an open public participation process. No answer was provided for why these documents were password protected. Nonetheless, on 19 April the EAP enabled access to a google drive on request. We submit however, that this is unduly onerous and burdensome, and therefore unacceptable, for interested parties and members of the public who should be able to have momentary access to these crucial public records, without having to undertake prior requests (at their own time and expense) and delays.

63. There is no reason that any documents should be taken down until decision is taken and even thereafter. Nor should they be password protected. These are public documents, and should be made publicly available.

Material information was added subsequent to the DEIR, and it should have been subject to a 30 day consultation period

64. As indicated above, s23(1)(b) requires that public consultation be conducted in respect of new information, that has not been subject to public participation previously.

65. Karpowership argues in response that there were no new reports that were commissioned, or new material information submitted, therefore the s23(1)(b) public consultation requirement did not apply.

66. This submission is incorrect, as substantial new information was added that was material and of interest to I&APs. As a result, the FEIR submitted to DFFE contains significant new edits of the text and contents of specialist reports, which the public had not had sight of before. These include many pages of all the blue text in the FEIR, that Karpowership submitted in its appeal, Whilst not all the pages will be included, some of the new text includes the following: 1) the importance of underwater noise study on pg 284-285; 2) Impacts on potential cumulative impact on terrestrial ecology, and Avifauna, and wetlands at pages 288-290, 3) cumulative impacts on climate change, estuaries, ad para 291-292; These (and other changes) should all have been subject to public consultation.

67. These edits took place, as a vast number of expert reports were peer reviewed and/or revised subsequent to the DEIR. The list of the changes that occurred are contained in Annexure CA5 and summarised in paras 83.9 to 83.9.9 of the of the Appeal. Whilst Karpowership attempts to state that these changes were "minor" or the reports were "refined". This is at best incorrect and at worst, misleading. Some of the major changes which go to the heart of the EIA and which are material include the following:

67.1. Peer review report by Prometheus Carbon dated April 2021, which critiqued the previous CCIA indicating that the impacts were not assessed adequately, and that scope 3 emissions should be added. The content and adequacy of peer review report could not be considered or addressed by I&APs, as this report was not made publicly available;

67.2. A revised CCIA, of April 2021 included the scope 3 indirect emissions. Indirect Scope 3 emissions were previously not included in the CCIA. The stipulated scope 3 emissions could therefore not be considered or evaluated as this was not made available for comment subsequent to the DEIR and before the FEIR submission. According to the FEIR and the revised April 2021 CCIA, a total of 17 million tCO<sub>2</sub>e (based on a 20-year operational lifetime of the project), greenhouse gas emissions (GHG) is expected to be released. A further additional 670 000tCO<sub>2</sub>e direct emissions will be released from FSRU operations, indirect scope 3 emissions of 126 000tCO<sub>2</sub>e will also be released. This would amount to 0.82% of South Africa's carbon budget, and the EIA rating is "Very High" with impact being definite and mitigation not being possible. This is the highest possible negative rating. Ordinarily, a highest possible rating, which cannot be mitigated, should result in a fatal flaw, with the project not being able to go ahead. Looking at Karpowership Ngqura alone, due to the fatal flaw of a very high rating in terms of GHG emissions, this project should not go ahead. Cumulatively with all three vessels, the GHG emissions essentially treble. All three Karpowerships would emit approximately 46 million tCO<sub>2</sub>e over the project's 20-year lifespan, additional 2 million tCO<sub>2</sub>e for direct FSRU operation, and a further additional 370 000 tCO<sub>2</sub>e for Scope 3 emissions. In other words, the three Karpowership projects alone, would amount to almost 50 million tCO<sub>2</sub>e GHG emissions, taking up over 1.18% of SA's national carbon budget over the lifetime of 20 years;

67.3. Even in the most recent revision of the CCIA, the scope 3 indirect emission were not adequately assessed, since full cycle emissions were only calculated from when the ship enters South African waters. Full cycle emissions are not limited to vessels entering the port but should include the entire emissions from extraction of gas to the end point when the gas is used. Had groundWork been given an opportunity to comment on the revised CCIA, it would have made this submission. The public did not have an opportunity to assess this however, as the revised information was not made available. The fact that full cycle emissions were not adequately assessment means that the CCIA is fatally flawed. On 19 August 2021, at the National Energy Regulator South Africa (NERSA) public hearing in relation to Karpowership's electricity generation licence application, Dr Eloise Marais from the University College of London, has submitted her findings of her research. She has indicated under oath that the cumulative GHG

- emissions from the Karpowership could be as high as 70-105million tCO<sub>2</sub>e. A copy of the summary of the report on which the presentation based, is attached as Annexure “AJ2”;
- 67.4. Moreover, CCIA did not assess the climate change impacts in relation to all three Karpowership projects, nor did it assess the cumulative impact resulting from other proposed gas operation in the pipeline. These include the 8400MW Nseleni Project in Richards Bay, Eskom 3000MW project in Richards Bay, 3000MW Coega Development Corporation gas project in Ngqura among many others. This is also a fatal flaw in the report, since cumulative impacts of all the GHG emissions were not assessed;
  - 67.5. The impact rating of climate change impacts after mitigation is rated as “high”. More specifically in the CCIA itself, the rating is “very high”. Karpowership indicates in various paragraphs that none of the impacts were identified as a fatal flaw, however. This is because its impact rating schedule in Appendix C of the EIA does not provide for fatal flaws. Normally however, the highest possible rating (in terms of climate change, or otherwise) which cannot be mitigated, usually results in a fatal flaw being identified. Again, I&APs did not have an opportunity to interrogate this. Had we had an opportunity, we would have brought this vital information to the attention of DFFE;
  - 67.6. Marine Ecology Assessment: referenced the Ghana noise data and included this in the report;
  - 67.7. Updates to the noise impact assessment which contained new data pertaining to a Karpowership project in Ghana; and
  - 67.8. Changes in impact ratings for most activities. For example, as can be seen from the figure below, the climate change impact rating in the DEIR was not considered, whereas the FEIR states these risks are high before and after mitigation.
68. Again, Karpowership submits that these changes are minor, yet Annexure CA5 describes 10 pages of information which specified the changes from DEIR to FEIR. These changes in the information in the various reports are material and significant. It is unclear whether these changes have also resulted in the change in ratings.
69. It is submitted that extensive, far reaching and material changes had taken place, and the failure to subject these changes to further public participation for a further 30 days, in fulfilment of s23(1)(b) EIA regulations is in violation of the public participation provisions of NEMA and the EIA Regulations.
70. In terms of climate change, the gaps in the information provided to DFFE, prevents DFFE from reaching an informed decision, given the material nature of the missing information. This is highly problematic given the significance of the climate crisis, for South Africa in particular, and increasing evidence on the need to take adequate and urgent steps to mitigate the harms of the climate crisis.
71. The Intergovernmental Panel on Climate Change (IPCC) 1.5 Report indicates that “*at approximately 1.5°C of global warming (2030), climate change is expected to be a poverty multiplier that makes poor people poorer and increases the poverty head count...Poor people might be heavily affected by climate change even when impacts on the rest of population are limited...Climate change alone could force more than 3 million to 16 million people into extreme poverty, mostly through impacts on agriculture and food prices... Unmitigated warming could reshape the global economy later in the century by reducing average global incomes and widening global income inequality... The most severe impacts are projected for urban areas and some rural regions in sub-Saharan Africa...*” Further “[t]he impacts of 1.5°C of warming would disproportionately affect disadvantaged and vulnerable populations through food insecurity, higher food prices, income losses, lost livelihood opportunities, adverse health impacts and population displacements ... Some of the worst impacts on sustainable development are expected to be felt among agricultural and coastal dependent livelihoods, indigenous people, children and the elderly, poor labourers, poor urban dwellers in African Cities...”<sup>38</sup>
72. South Africa is already lagging behind in the global effort to address climate change. The Climate Action Tracker (CAT), which takes into account current government action and policies, rates South Africa’s proposed actions and policies under the Paris Agreement as “highly insufficient”. It states that “*South Africa’s climate commitment in 2030 is not consistent with holding warming to below 2°C, let alone limiting it to 1.5°C as required under the Paris Agreement, and is instead consistent with warming between 3°C and 4°C: if all countries were to follow South Africa’s approach, warming could reach over 3°C and up to*

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<sup>38</sup> IPCC 1.5 Report, p 244, 227.

4°C. This means South Africa's climate commitment is not in line with any interpretation of a "fair" approach to the former 2°C goal, let alone the Paris Agreement's 1.5°C limit."<sup>39</sup>

73. The most recent *IPCC Sixth Annual Report (AR6): Climate Change 2021 The Physical Science Basis Summary Report for Policy Makers*<sup>40</sup> of 9 August 2021, confirms the previous findings and adds to what we already know:

- 73.1. climate change is already occurring, and human action is the main driver of the current changes (such as heatwaves on land and in the ocean). Urgent action is needed since we already reached the 1.07°C warming in 2019. In 2019, CO<sub>2</sub> concentrations were higher than the last 2 million years, and Methane and Nitrous Oxide emissions were higher than at any time in 800 000 years;<sup>41</sup>
- 73.2. past emissions and resultant climate change impacts (such as sea level rise, warming and ocean acidification, loss of polar ice caps) are irreversible for centuries to millennia;<sup>42</sup>
- 73.3. it is imperative that immediate and urgent cuts to our emissions are made to remain within the 1.5 degree threshold;<sup>43</sup>
- 73.4. In terms of reduction, each 1000GtCO<sub>2</sub> of cumulative CO<sub>2</sub> emissions is likely to cause global surface temperature increase of approximately 0.45 °C.<sup>44</sup>, and that In order to stand a 50% chance of remaining within the 1.5 degree threshold (the safe level for a livable climate), the remaining carbon budget from 2020 would be 500GtCo<sub>2</sub> and if we increase the odds to 83% of staying within the 1.5 degree threshold, the remaining carbon budget is 300GtCO<sub>2</sub>.<sup>45</sup>
- 73.5. The AR6 report indicates that not only are CO<sub>2</sub> emission reductions necessary, but that it is crucially important to reduce Methane emissions.<sup>46</sup>

74. In other words, the AR report tells us that each gigaton of greenhouse gas emissions has a direct correlation to the temperature increase, and if we are to stand a greater chance of remaining within the 1.5 degree goal, our remaining budget of emissions is very small. This means that the faster and quicker we reduce the CO<sub>2</sub> and Methane emissions, the more we increase the likelihood of remaining within a safe temperature increase of 1.5 degree. Considering new and unnecessary source of GHG emissions, would be counterproductive in this endeavor, including Karpowerhip, which is anticipated to emit almost 50million tCO<sub>2</sub>e GHG emissions.

75. The crucial role that methane reduction plays in meeting the 1.5 degree target is outlined in the May 2021 UNEP Global Methane Assessment Summary Report.<sup>47</sup> The report indicates the following:

- 75.1. over half of Methane emissions are as a result of human activities, including the exploitation of fossil fuels, which takes up a 35% share;
- 75.2. "*human caused methane emissions is one of the most cost-effective strategies to rapidly reduce the rate of warming and contribute significantly to global efforts to limit temperature rise to 1.5°C*";<sup>48</sup>
- 75.3. reducing Methane emissions by 45% by 2030 will avoid nearly 0.3 °C warming by the 2040's, prevent 25 0000 premature deaths, 775 000 asthma related hospital visits and 47 million hours of lost labour from extreme heat and 26 million tonnes of crop losses globally;<sup>49</sup>
- 75.4. methane reductions are also in line with multiple sustainable development goals including climate action, zero hunger, good health and well-being;<sup>50</sup>
- 75.5. The fossil fuel sector (oil, gas, coal) has the greatest potential for emission reduction; and

<sup>39</sup> <https://climateactiontracker.org/countries/south-africa/fair-share/>

<sup>40</sup> IPCC AR5: Climate Change 2021 The physical Science Basis Summary Report for Policy Makers [https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_SPM.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf)

<sup>41</sup> IPCC AR6 pg 9

<sup>42</sup> IPCC AR6 p 28

<sup>43</sup> IPCC AR6 pg 38

<sup>44</sup> IPCC AR6 p36

<sup>45</sup> IPCC AR6 pg 38.

<sup>46</sup> IPCC AR6 pg 39

<sup>47</sup> UNEP Global Methane Assessment Summary for Decision Makers, May 2021

[https://wedocs.unep.org/bitstream/handle/20.500.11822/35917/GMA\\_ES.pdf](https://wedocs.unep.org/bitstream/handle/20.500.11822/35917/GMA_ES.pdf)

<sup>48</sup> UNEP GMA, pg 5

<sup>49</sup> UNEP GMA report, pg 5, 8-9

<sup>50</sup> UNEP GMA report, pg 9

- 75.6. “without relying on future massive-scale deployment of unproven carbon removal technologies, **expansion of natural gas infrastructure and usage is incompatible with keeping warming to 1.5°C**<sup>51</sup> It also states that “urgent steps must be taken to reduce emissions this decade”.
76. In other words, the UNEP report makes clear that avoiding methane emissions can reduce global temperature in the more immediate term. This is because methane, although it has a more potent global warming potential than CO<sub>2</sub> (by 84 times over 20 years), it is a substance that lasts for a shorter period in the atmosphere. This means that reducing methane now (and avoiding future emissions) can reduce temperature increase by the 2040’s and increasing it will have the converse effect. Reducing emissions or not authorizing gas projects such as Karpowership, will better serve the world’s efforts to meet the 1.5 degree target, will be a cost effective way in reaching the target, and will be more aligned with the sustainable development goals. As the report indicates, Karpowership, which will be an expansion of natural gas infrastructure and usage, is incompatible with keeping the global temperature to below 1.5 degrees.
77. In light of the above, in the context of very high and irreversible Methane emissions from gas power project, authorising the proposed Karpowership project would be contrary to meeting the 1.5 °C target and ensuring a healthy environment for present and future generations in terms of section 24 of the Constitution but also would be contrary to many s2 NEMA principles.
78. In addition to the GHG emissions, the understanding of the noise impacts are crucial in order for DFFE to reach its decision. This is because the noise impacts may negatively impact the sensitive ecology in the area, and in turn, the socio-economics related to the fishing and tourism industry, as well as other biodiversity related services that may exist. In this regard:
- 78.1. Karpowership would impact negatively on the project area’s (and South Africa’s more broadly) a number of critical biodiversity and protected areas, as well as estuaries, endangered or endemic species and such as dolphins, penguins and birds. The Port of Ngqura, is within a Critical Biodiversity Area; near the Addo Elephant National Park Marine Protected Area and the Algoa to Amathole Ecologically or Biologically Significant Marine Area (EBSA). The Algoa Bay has also received a status as one of the world’s four Whale Heritage Sites.<sup>52</sup>
- 78.2. This area is not only important from large number of endemic bird species in the area but, according to the Marine Ecological Assessment for Ngqura, “*the Algoa Bay area provides a large number of ecosystem services to society. Most of these fall under socio-economic topics and are only briefly mentioned here, but some are directly dependent on ecosystem health and functionality. Provisioning services provided include: fisheries; commercial/recreational/subsistence), and aquaculture/mariculture (bivalves and finfish). In 2020, authorisation was granted to establish a sea-based Aquaculture Development Zone (ADZ) in Algoa Bay. The ADZ comprises three precincts, one of which, Algoa 7, is located approximately 3 km offshore, 2.5 km from the entrance to the Port of Ngqura. Algoa 7 is approved for the farming of indigenous finfish only (Anchor 2019; TNPA 2020).*”<sup>53</sup> In addition, the report also highlights the area is also of cultural importance, and the area is important also as a nursing habitat for marine biota.<sup>54</sup>
- 78.3. The final EIA acknowledges that “essential habitats” such as the sandy beaches, surf zones, and rocky shores on the adjacent Jahleel Island and in the vicinity of the abalone farm east of the port, the subtidal zone, the islands, artificial surfaces, and the water body itself “could be impacted by the surface noise and the underwater noise from the vessel operations.”<sup>55</sup>
- 78.4. Underwater noise from human activities is known to have a number of adverse effects on individual aquatic organisms arising from exposure to brief high-level sounds.<sup>56</sup> These effects include death, injury, permanent or temporary hearing impairment, or behavioural responses that

<sup>51</sup> UNEP GMA report, pg 7

<sup>52</sup> <https://www.sapeople.com/2021/06/16/algoa-bay-in-south-africa-becomes-prestigious-whale-heritage-site/>

<sup>53</sup> Marine Ecological Assessment, Ngqura, pg 6-7

<sup>54</sup> Ibid.

<sup>55</sup> *Id.* at 206.

<sup>56</sup> *Id.*

may disrupt important life functions.<sup>57</sup> Likewise, chronic effects, such as developmental deficiencies and physiological stress can occur from longer exposures and impact individual health and fitness, foraging efficiency, avoidance of predation, swimming energetics, and reproductive behaviour.<sup>58</sup>

78.5. The final EIA states that estuarine ecosystems are “one of the most threatened ecosystems in the country.”<sup>59</sup> The powerships would be located in close proximity to the mouth of the Coega Estuary, which could have the following result:

*“The project might add to the potential polluting activities in the Algoa bay and Port, especially when combined with other shipping and heavy industrial activities, with resultant negative impacts on the Marine Protected Area, conflict with marine mammals and birds as well as the potential introduction of pathogens which could affect mariculture facilities and operations.”<sup>60</sup>*

79. As with Saldhana and Richard’s bay however, the Marine Ecological Assessment also indicates that the noise impact has not been adequately assessed for Ngqura, and recommends such quantitative assessment should be undertaken. It states that “**No site-specific modelling studies have been undertaken for underwater noise from the proposed FPP operations.** Therefore, this section is presented as a highlevel, non-quantitative assessment based on estimations of underwater noise from commercial ships and powerships moored in other locations. **It is recommended that a baseline study of the underwater noise climate in the Port of Ngqura is done so that a noise modelling study can be undertaken. This will allow for a more quantitative understanding of the underwater noise produced from FPP operations in the Port of Ngqura so that a quantitative assessment of the impact of noise on the surrounding marine ecology can be done.**” (emphasis added)

79.1.

80. Whilst the full extent of the impact is unknown, Karpowership will impact negatively on the surrounding estuaries, protected areas, sensitive species and other natural resources which have the ability to mitigate climate change. As such, the project is not in the public interest, and is not in line with NEM principles including the protection of sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems. It also is not in line with the provision to protect the water resources for future generation in line with the NWA, and cannot be said to meet the s24 Constitutional requirements.

Issues dealt with in DFFE Refusal could have been addressed as a condition of the Environmental Authorisation as a mitigation measures

81. Karpowership argues that most of the issues provided by DFFE in relation to the refusal could have been dealt with through response by Karpowership, and that some issues that cannot be resolved (such as the noise impact assessment) should have been provided as a condition in the Environmental Authorisations.

82. This submission is incorrect in law. All impacts have to be assessed **prior** to any activity being authorised and taking place. It is vital that an EIA provide the decision-maker with all the necessary information to determine whether or not to grant an EA. If information cannot be ascertained prior to a project being authorised then a precautionary and risk averse approach must be taken in terms of s2 of NEMA.

## **G. Response to specific ground in respect of s23(1)(b) of EIA Regulations (para 83-83.18 of Appeal)**

83. Ad paragraph 83, Karpowership argues that Regulation 23(b) EIA regulations does not apply to it, since, no new reports were submitted, and no new or material information was submitted subsequent to the DEIR, which necessitated further comment. According to the annexures contained in the Karpowership’s appeal, DFFE provided Karpowership with specific directive to adhere to this s23(1)(b) EIA Regulation provision. This was, however ignored, and thus this procedural unfairness was caused as a result of Karpowership’s own actions, and cannot be rectified through the Appeal process.

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<sup>57</sup> *Id.*

<sup>58</sup> *Id.*

<sup>59</sup> *Id.* at 310.

<sup>60</sup> *Id.* at 311.

84. It is the EIA Regulations which determines when additional public participation should take place. Regulation 23(b) is clear that when new and material information is submitted, it must be subject to further 30 day public participation process, and such comments should be included before submitting the Final report to DFFE, in terms of Regulation 23(2).
85. The response to this argument is addressed at paragraphs 65-81 above, which detail the significant changes that had taken place between the DEIR and the FIER which were material. We reiterate that there were extensive changes made to the FEIR and various reports which resulted in the impact ratings for the project being changed. These are material and as a result, regulation 23(1)(b) applies.
86. Failure to adhere to the Regulations governing public participation means that Karpowership failed to meet the public participation requirements. This cannot be addressed at a later stage or subsequent to the EA being grant. Such an approach would be highly prejudicial to I&APs.

#### **H. Response to specific ground in respect of Listed Activities (para 85 of Appeal)**

87. Karpowership submits ad para 85 that enquiries were made in relation to uncertainties of certain listed activities, and received no response or further request for input from legal advisors.
88. Karpowership has submitted only a summary of email correspondence between DFFE and Karpowership to substantiate its claims, and has not attached the actual email interactions. Summary of the interactions seem to indicate that some of the queries were addressed. Moreover, section 13(1)(b) of the EIA Regulations states that the EAP appointed must “*have expertise in conducting environmental impact assessments or undertaking specialist work as required, including knowledge of the Act, these Regulations and any guidelines that have relevance to the proposed activity*”. In other words, one would anticipate that the EAP would have a clear indication of which listed activities apply and which do not.
89. Again, this ground of appeal can in any event not remedy the flaws in the process, which brought about the refusal of the EA and can therefore have no bearing on the DFFE’s decision to refuse the EA.
90. Notwithstanding the above, this appeal ground is better suited to be addressed by DFFE.

#### **I. Response to specific ground in respect of Noise Modelling Study (Para 86-86.9 of Appeal)**

91. Karpowership argues ad paragraphs 86-86.13 that the noise assessment it conducted was sufficient, and even if it was not, this issue should not be fatal to the outcome of the decision, since further modelling could be carried out and this could be incorporated as a condition of the record of decision (ROD).
92. Please refer to para 39-47 above, 78-82 and 95-100 below as indicative of our response.

#### **J. Response to specific ground in respect of South African Council for Natural Scientific Professions (SACNASP) Peer Review (Para 87-87.7 of Appeal)**

93. Ad Para 87-87.7, Karpowership argues that a peer review of the Estuarine Report was not intended as a peer review but rather to provide a SACNASP accreditation to the report, which was done by a non-accredited consultant. This according to Karpowership is a common practice. On this basis Karpowership seems to indicate that the recommendation by the SACNASP Peer Review of the Estuarine Report (recommending that gaps pertaining to regional and global scale impacts as well as specific recommendation must be reassessed) should be ignored.
94. We dispute the position taken by Karpowership. Annexure CA9 of the Karpowership appeal includes the letter by the peer reviewer, MER dated 6 April 2021. It states that “*MER was requested by the consulting companies Coastwise Consulting and GroundTruth to review three reports focused on assessments of the environmental impacts of the Gas to Power developments proposed for the harbours of Richards Bay, Coega and Saldanha Bay*”. So it was in fact a review, not merely a confirmation of SACNASP accreditation. In any event, to the extent that recommendations are made by an expert institution for an

EIA these should not be ignored. They also serve to corroborate the allegations around significant gaps in the reports and the need for a more thorough assessment.

## **K. Response to specific ground in respect of Underwater Noise Impact Assessment (Para 88-88.6 of Appeal)**

95. Please refer to para 38-47 above, and 78-82 as indicative of our response.

96. In addition, as indicated in these paragraphs, at the DEIR stage, the Ghana sound information was not made available to the public and was subsequently added to the FEIR, which the public did not have access to. Using this information, Karpowership argues that generic sound information provided in relation to the Ghana ship is sufficient to indicate the noise impact at the local sites. Further, it stated that until a Karpowership arrives in South Africa, quantitative noise impact assessment is impossible.

97. This is simply not the case, since for various projects that are not yet built, certain modelling exercises can and must be conducted, that are site specific in order to model the possible impacts. This is true for air quality impact modelling, for example. The inadequacy of the sound impact assessment and usage of Ghana information if, publicly made available in accordance with s23(1)(b) of EIA regulations, could have been commented on by the public, however, this was not made available in compliance with the law.

98. Nonetheless, in addition to Karpowership's own Marine and Estuary Impact Assessments indicating a need for a site specific sound assessment, an expert report by Michelle Fournet, attached as "**AJ3**" also indicates that site-specific sound modelling is necessary, and is possible under the circumstances. Michelle Fournet is an expert and a postdoctoral research associate at Cornell University K. Lisa Yang Centre for Conservation Bioacoustics, and uses bioacoustics to study human impacts on Marine Organisms, and an author on numerous bioacoustics research. Having looked at the FEIR, the Specialist Reports (Appendix J) as well as the Technical reports (Appendix J) for all three Karpowership at Coega, Richards Bay and Ngqura, the expert finds the following:

- 98.1. Local sound propagation modelling is possible and essential to determine the underwater noise impacts, and that propagation modeling from Ghana is not applicable to another area, due to differences in water depth, temperature, seasonality, bottom substrate, bottom densities and other variables which impact the modelling.<sup>61</sup> Ghana figures are best served as input variables to be included in noise modeling efforts.<sup>62</sup>
- 98.2. The Karpowership (1) failed to complete the necessary research (desk or field) to conduct a reasonable environmental assessment of noise impacts in the marine environment; and (2) failed to propose adequate long term marine noise mitigation.<sup>63</sup>
- 98.3. The EIA failed to address the impact of anthropogenic noise on important prey species. This is significant because the proposed sites are in the near proximity or directly adjacent to Marine Protected Areas (MPAs), National Parks and Critical Biodiversity Areas. Noise may endanger prey species in or *en route* to these areas. This could disrupt the base of the food web and may be ecologically significant throughout trophic levels.
- 98.4. The EIA failed to adequately describe likely potential sound sources and amplitudes (e.g. vessels, pile driving noise, suction noise, etc.). This is significant because, without this information, the studies were unable to understand noise impacts on important species or ecosystems including how far sound will travel.
- 98.5. The EIA failed to adequately quantify baseline ambient sound levels at any of the three proposed sites. This is significant because marine organisms use sound for navigation, prey detection, and foraging, so alterations made to the baseline natural soundscape will have ecological consequences that may be severe.
- 98.6. The EIA failed to adequately quantify naturally occurring contributions to the marine soundscape. This is significant because in the absence of known natural ambient noise levels, it is not possible to assess how much the proposed activities will increase ambient noise levels in the soundscape. The naturally occurring baseline is therefore necessary for assessing impacts of proposed noise.

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<sup>61</sup> Fournet, M Environmental Authorisation for Three Gas to Power Powership Projects Led by Karpowership (Pty) Ltd, pg 8

<sup>62</sup> Fournet, M Environmental Authorisation for Three Gas to Power Powership Projects Led by Karpowership (Pty) Ltd, pg 9

<sup>63</sup> Fournet, M Environmental Authorisation for Three Gas to Power Powership Projects Led by Karpowership (Pty) Ltd, pg 2

- 98.7. The EIA failed to adequately model/measure sound propagation in these regions. This is significant because sound propagation may impact protected areas. Quiet biological sounds are used as a cue for foraging megafauna such as odontocetes. Anthropogenic noise at even low levels in these regions may mask biologically relevant sounds associated with predator foraging or larval settlement.
- 98.8. The EIA failed to assess the risk associated with permanent soundscape alterations due to permanent changes on the seafloor due to construction activities. This is significant because animals use the soundscape as a cue to inform migration, habitat suitability and settlement (i.e., where juvenile animals select to grow and populate).
- 98.9. The EIA failed to consider the impact of noise on marine areas outside of the immediate construction range including coastal areas and along vessel routes. This is significant because vessel noise outside of, and adjacent to, the proposed powership may permeate and potentially overwhelm protected areas. Vessel noise has a wide range of negative impacts on marine fauna throughout the food web. These impacts may be ecologically substantial.
- 98.10. The EIA failed to consider the physiological effects of anthropogenic noise on sound sensitive species including marine mammals, invertebrates, and fish. This is significant because the studies failed to consider how biologically critical behaviors that are important both for the fitness of the individual and overall population may be impacted.
- 98.11. The EIA failed to adequately consider the impact of noise on the behavior protected or sound sensitive species- including marine mammals. Noise can have significant impacts such as separating cetacean calves from mothers. This is particularly relevant given the recent decline in Southern right whale abundance (including cows and calves) and given that humpback cow-calf pairs utilize this area and may be disturbed by noise.
- 98.12. The EIA failed to incorporate International Whaling Commission's (IWC) Resolution 2018-4. Resolution on Anthropogenic and Underwater Noise, which requires effective remediation of noise impacts when cost effective solutions are available and states a lack of information is not grounds for ignoring the potential threats of anthropogenic noise.
- 98.13. The EIA failed to consider impact of noise on the ecosystem holistically, including a failure to consider the links between trophic levels (e.g., predator and prey), and links between ecosystems and economics (e.g., commercial fish and fisheries). This is significant because it omits some of the largest, though not immediately obvious, potential and cumulative impacts of noise on this ecosystem and the users who rely on it.
- 98.14. The EIA failed to incorporate best science into assessment of underwater noise impacts. This is significant because the results of the EIA mitigation efforts are not based on reliable scientific information, and therefore may not adequately protect sensitive ecosystems.
- 98.15. In order to assess the impact of anthropogenic noise and efficacy of proposed mitigation efforts pertaining to the projects, several considerations must be included:
- 98.15.1. Ecologically/economically important species and trophic interactions;
  - 98.15.2. Sources of anthropogenic noise;
  - 98.15.3. Alterations anthropogenic noise will make to the natural soundscape;
  - 98.15.4. Sound propagation within the region;
  - 98.15.5. Physiological responses of organisms to anthropogenic noise;
  - 98.15.6. Behavioral responses of organisms to anthropogenic noise;
  - 98.15.7. Uncertainty and noise mitigation; and
  - 98.15.8. Relationships between affected marine species and natural resource economics of the region.
- 98.16. Further Fournet finds that where the EIA indicates that there is minimal impact to noise on sensitive species, or that there are adequate mitigation measures which exist to mitigate the impacts, these findings in fact cannot be supported or relied upon due to the lack of a proper study to substantiate these claims. Further, Fournet states that *"(t)he lack of research resulting from this exact region on these specific faunal communities is not grounds for ignoring potential noise impacts, rather it is a greater indication of the need for baseline research in this region prior to development, and a need for careful mitigation measures."*
99. The experts (Karpowership's own expert, and Fournet) all indicate that a site specific sound impact study is necessary. Karpowership's submission that this is only possible once the Karpowership arrives, is disputed, since modelling can be conducted. This claim would render the need for an EIA redundant and defeat its purpose entirely – which is to comprehensively assess the impacts of a proposed project **before** it happens or is authorised, in order to inform a decision on whether or not a project should be authorised.

100. Given that there are significant gaps identified in the sound assessment conducted by Karpowership which may have impacts on the sensitive areas, and mortality rates of various fish and crustaceans, specific to each region, the EA should be refused, as the assessment is not sufficient for decision-making.

**L. Response to specific ground iro Limitation of Specialist Studies (Para 89-89.4 of Appeal)**

101. In terms of limitation of studies, ad paragraph 89, Karpowership argues that CA10 of the Appeal indicates that there are no gaps in the report.

102. Contrary to the EAP's submissions, the FEIR on page 319-328 outlines numerous gaps, limitations and assumptions.

103. In addition, we have identified several gaps in the CCIA, even after the revised version was submitted. We reiterate again that changes should have been made available for public consultation under s23(1)(b) of EIA Regulations.

**M. Conclusion and Relief Sought**

104. Ad para 90-98, Karpowership seeks the relief that either A) the EA is granted, and the 23 June 2021 refusal set aside; OR B) the project is authorised, refusal be set aside, and concerns raised by decision maker form part of specific condition in the Environmental Authorisation.

105. groundWork submits that none of the appeal grounds should be upheld by DFFE. It is further submitted that to address certain gaps through inserting the concerns raised by DFFE in the refusal as conditions in the EA is irregular and unlawful. This would not be consistent with the NEMA requirements<sup>64</sup> or the precautionary and risk averse approach in section 2 of NEMA.<sup>65</sup>

106. Further, given that there was inadequate public participation, procedural unfairness cannot be cured after the fact. The deficiencies, concerns and gaps outlined by DFFE in its reasons to refuse the EA still remain and without addressing these gaps, DFFE cannot adequately consider the negative or positive impacts of the project, including the socio-economic considerations.

107. It is submitted that in any event Karpowership is not needed or desired both from energy security or socio-economic perspective. Its anticipated harms – for climate, biodiversity and socio-economic considerations – far outweigh any alleged benefits, particularly in light of the feasibility of less harmful alternatives to meet the country's electricity needs. Due to the unknown noise impacts on fish and local fishermen, DFFE should take the precautionary and risk averse approach and uphold the decision to refuse the EA. Accordingly, we request that the decision to refuse the EA be upheld.

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<sup>64</sup> NEMA s24(O)(1) states that the Minister, must— (b) 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

<sup>65</sup> NEMA Principles applicable are: S24(a) sustainable development requires consideration of all relevant factors including: 2(4)(a)(v) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and (viii) that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.