Centre *for* Environmental Rights
Advancing Environmental Rights in South Africa

Department of Mineral Resources and Energy
Chief Director: Planning
Mr Thabang Audat

Attention: Zitha Harber and Thilivhali Mulangaphuma
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31 January 2022

Dear Sirs/Mesdames

COMMENTS ON THE GAS MASTER PLAN BASECASE REPORT

1. We refer to the draft Gas Master Plan Basecase Report ("the Report"), published for public comment on 14 December 2021 by the Department of Mineral Resources and Energy ("the Department").

2. Thank you for the opportunity to make input on the Report. We submit these comments on behalf of the Life After Coal Campaign.[1]

3. Our general and overriding submissions are summarised below:

   3.1. The Report has failed to consider the implications of the Gas Master Plan in the context of, inter alia, the climate emergency; South Africa's policy position on addressing the climate emergency; and government's obligations per the Constitution of the Republic of South Africa, 1996 ("the Constitution")[2] to uphold the rights in the Bill of Rights, and in doing so, to refrain from exposing the people of South Africa to the harms of the climate crisis. South Africa, and the African continent generally, are extremely vulnerable to the impacts of climate change. Temperatures in the region are increasing at twice the rate of the global average.[3] It is the government's constitutional imperative to protect the people of South Africa against the impacts of climate change. This includes committing to the transition away from fossil fuels. As a default position (and to avoid additional cost and exposure to climate risk) government should **not** be putting frameworks in place that facilitate or accelerate new fossil fuel development, such as gas infrastructure. The International Energy Agency said in a recent report[4] that if the world is to avoid

[1] Life After Coal is a joint campaign by organisations Earthlife Africa, groundWork, and the Centre for Environmental Rights, which aims to: discourage the development of new coal-fired power stations and mines; reduce emissions from existing coal infrastructure and encourage a coal phase-out; and enable a just transition to sustainable energy systems for the people. See https://lifeaftercoal.org.za/
[2] Act 108 of 1996.
[3] South Africa First Nationally Determined Contribution under the Paris Agreement, September 2021. See at https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/South%20Africa%20First/South%20Africa%20updated%20first%20NDC%20September%202021.pdf
[4] https://www.iea.org/reports/net-zero-by-2050

irreversible, catastrophic climate change, no new oil or gas fields should be developed as at 2021, i.e. no new investments should be made in gas production fields. By implication this should extend to downstream gas power projects as well. The Gas Master Plan supports fossil fuel development which will have far reaching implications for people both nationally and globally ranging from environmental impacts to the displacement of people and their livelihoods[56] in the affected areas to increasing our greenhouse gas ("GHG") emissions, which will in turn contribute to climate change. Consultation processes - and further consultation processes in developing this plan, should it proceed despite our objections - therefore need to be meaningful, accessible and inclusive of all communities on a national scale.

3.2. The Gas Master Plan supports fossil fuel development which will have far reaching implications for people both nationally and globally, ranging from environmental impacts to the displacement of people and their livelihoods[78] in the affected areas, to increasing our greenhouse gas ("GHG") emissions, which will in turn contribute to climate change. Consultation processes - and further consultation processes in developing this plan, should it proceed despite our objections - therefore need to be meaningful, accessible and inclusive of all communities on a national scale.

3.3. The National Environmental Management Act, 1998 ("NEMA")[9] is referred to as a barrier to the development of the gas market, and boldly states that 'adherence to' and 'fully complying' to the regulations is time-consuming and expensive. However, it should also be noted that NEMA is fundamental environmental legislation, enacted to give effect to section 24 of the Constitution and therefore uphold and protect the right to an environment not harmful to health and wellbeing. A Gas Master Plan that does not align with NEMA, including its section 2 principles and requirements, would stand contrary to NEMA and the Constitutional section 24 right, among others. Government cannot opt out of its legal and Constitutional obligations.

3.4. The National Political, Economic, Social, Technology, Environmental and Legal factor ("PESTEL") analysis, which is stated as being a tool used for environmental and market analysis to support strategic decision-making, inadequately describes the environmental factors associated with the development of the gas market. The analysis accurately mentions that the gas industry affects the environment negatively but provides no examples or elaboration. More concerningly, it mentions these negative impacts as an inhibiting factor for industry, that would 'challenge the industry's social license to operate' but does not recognise the negative environmental impacts on the health and lives of the people of South Africa as a justifiable reason to refrain from the development of gas infrastructure. Of even more concern is that little to no mention is made of climate or transition risks.[10] Fundamental to any decision-making on gas

[7] See reference to such impacts: https://www.aljazeera.com/opinions/2020/2/24/gas-rich-mozambique-may-be-headed-for-a-disaster

[8] Adam,A.B & Owen,J & Kemp, D (2015) Households, livelihoods and mining-induced displacement and resettlement. The Extractive Industries and Society.2. See at: https://www.researchgate.net/publication/278049856_Households_livelihoods_and_mining-induced_displacement_and_resettlement

[9] Act 107 of 1998.

[10] Climate risk can be categorised as either physical risk or transition risk. Physical risk is the risk of actual damage or disruption to people, communities, assets or infrastructure due to climate change induces impacts. Transition risk is that risk that arises out of social, financial economic, regulatory, political or market responses to climate change. e.g changes in regulations and laws, consumer patterns, investment patterns, technology changes as the like. as an example, the business case for building a coal

infrastructure investment is the consideration of risk exposure. These include risks of gas projects becoming stranded assets as they are outcompeted by cleaner and more affordable alternatives, and become unaffordable to operate and/or obsolete in future. This is particularly relevant in light of the global shift away from fossil fuels, including gas; increased domestic and international taxes on fossil fuels; increased litigation and liability of governments in failing to reduce greenhouse gases; and the high costs associated with being locked into outdated fossil fuel infrastructure at a time when South Africa needs to be increasingly frugal with its limited resources. There is also a risk that any climate finance to South Africa would be prejudiced and/or refused on the basis of the government's continued and long-term commitment to fossil fuel exploitation. The large-scale commitment to gas exploitation evidenced in the Report, certainly prejudices South Africa's prospects of accessing international support in its climate crisis response, and in being a potential leader in the just transition space. The World Economic Forum ("WEF") Energy Transition Index 2021 ranked South Africa globally as the sixth worst-prepared country for the energy transition,[11] meaning the country is regarded – even by the WEF - as being far behind in terms of our preparedness for the inevitable transition away from fossil fuels. We have long submitted that South Africa needs to do more to protect the people of South Africa in the transition and to adopt a credible, just and consultative plan as soon as possible to move away from fossil fuels.

3.5. The Report reflects the Department's intention to prioritise the development of the fossil fuel industry, which is incongruous to actual energy modelling and forecasts for South Africa. The Vital Ambition Report[12] by Meridian Economics in collaboration with the Council for Scientific and Industrial Research ("CSIR") Energy Centre ("the Meridian Report") states that gas to power is only justified in the South African energy mix in so far as it is required for balancing the system during peaking power demand and confirms that no investments in gas power are needed now or in the near future. The Meridian report also confirms that **there is no need for the government to commit to gas at this stage from an energy security perspective**. The Report states that "South Africa has taken the first steps in a gas-to-power programme to be executed under the Integrated Resource Plan 2019, aiming to increase the national energy mix natural gas contribution from 2.6% to 15.7% by 2030."[13] This statement is not supported in the Integrated Resource Plan 2019 ("the IRP") which simply indicates a requirement for 1000MW in 2023 and 2000MW in 2027. According to the IRP this "represents low gas utilisation, which will not likely justify the development of new gas infrastructure and power plants predicated on such sub-optimal volumes of gas."[14] The Report further contradicts the draft National Infrastructure Plan which states that "... a least cost path would see coal and gas respectively accounting for about 5% and 3% [by 2050]". Embarking on the Gas Master Plan, and attempting to create the "anchor demand" through the electricity sector to facilitate a localised gas demand, is thus not in line with any modelled least cost plan (including those of Meridian Economics and CSIR Energy Centre, the Department of Public Works and Infrastructure, and the Department's own IRP modelling). As a result, these plans will expose the country to high costs, increased electricity costs and high risk.

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fired power station is negatively impacted by changes in affordability, desirability and acceptability - as a result of these transition risks, it no longer remains viable. If already built it could become a stranded asset.

[11] World Economic Forum, 2021. Fostering Effective Energy Transition Insight Report. See at: https://www3.weforum.org/docs/WEF_Fostering_Effective_Energy_Transition_2021.pdf

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

[13] Gas Master Plan Basecase Report at Page 1.

[14] South African Integrated Resource Plan, 2019. Page 49.

3.6. The Report exposes a drastic difference in electricity infrastructure planning between government departments and government advisory forums, further entrenching the mal-alignment of sector and national policy documents. The background on which the Report is motivated refers to the National Development Plan 2030 ("the NDP") which, as a living document, must be read with the National Planning Commission's regular reviews, including those most recently contained in the draft National Infrastructure Plan 2050 ("NIP 2050"). The NDP was heavily criticised by our client groundWork at the time of drafting for reproducing environmental injustice through its infrastructure development plans,[15] and the National Planning Commission ("the NPC") has, over the years, had a number of social dialogues on the Just Transition and prepared reports which reflect how the NDP should be implemented to reflect changing priorities. The NPC has handed over its reports on the Just Transition to the Presidential Climate Commission. This should include the reports developed under the Pathways for a Just Transition Project including the Concluding Conference Report and each individual province Pathways Report. which contain the vision and pathways toward achieving a zero carbon, net zero economy by 2050. In December 2020, the NPC also prepared a large-scale review which called for "course correction" and one of the requirements related to energy. As mentioned above, the Report also errs in its reference to the gas allocation of the IRP. The Gas Master Plan would, in its support for the development of a gas industry, contradict the NPC in its development of the above-mentioned documents and pathways.

3.7. On the basis of the above, the Department and government more broadly, should not be embarking on a process of gas infrastructure development at all, and certainly not of the scope and scale envisaged by the Report. Such a plan is not only reckless and unnecessary, but it also flies in the face of the rights enshrined in the Constitution, and is contrary to Government's own policies and plans.[16]

4. In our comments, we seek to provide a more comprehensive picture of the climate crisis context; gas's harmful impacts and contributions to climate change; and the applicable legal position as it relates to the development of a gas market; which, if taken up, would provide a more level, objective Basecase picture in South Africa to appropriately guide policy planning.

Part A: General Comments on the Gas Master Plan in the context of climate emergency - the case for abandoning the Master Plan entirely

5. We note that the objects of the Report include: "*to establish baseline information for the natural gas sector in South Africa as well as outline the Gas Master Plan roadmap. Such baseline information includes an overview of the gas value chain and regulatory framework. The report also sets the scene for the Gas Master Plan development process*".[17]

6. We note that the object of the Gas Master Plan is to serve as a policy instrument, providing a roadmap for taking strategic, political and institutional decisions which will guide industry investment planning and coordinated

[15] groundWork, 2014. Planning Poverty: The NDP and the infrastructure of destruction. See at: https://www.groundwork.org.za/reports/Planning%20Poverty%20gWReport%202014.pdf

[16] Including but not limited to the National Climate Change Response White Paper, National Climate Change Adaptation Strategy, Low Emission Development Strategy 2050, the National Development Plan 2030, the draft National Infrastructure Plan 2050, the Just Transition Framework

[17] https://www.dmr.gov.za/news-room/post/1941/dmre-releases-the-gas-master-plan-basecase-report

implementation of the gas market. We submit that any plan that seeks to unlock a gas market in the current circumstances will give rise to serious harmful impacts, not only from a climate change perspective, but environmental, health and social harms as well. On this basis, the plan, in its entirety, should be reconsidered. In light of the scientific consensus on the impacts of the climate crisis and South Africa's own vulnerability thereto, the development of a gas industry in South Africa poses a serious threat to the rights, including the health, livelihoods and futures of rural and poor communities, women, children and future generations.

7. The government has confirmed South Africa's extreme vulnerability to the impacts of climate change. These impacts will largely be felt through: significant warming (as high as 5–8°C, over the South African interior by the end of this century, as a conservative estimate);[18] impacts on water resources, such as decreased water availability; and a higher frequency of natural disasters. These are in fact highlighted in the NDP, on which this Gas Master Plan is motivated:

> *"South Africa is not only a contributor to greenhouse gas emissions – it is also particularly vulnerable to the effects of climate change on health, livelihoods, water and food, with a disproportionate impact on the poor, especially women and children. While adapting to these changes, industries and households have to reduce their negative impact on the environment. This will require far-reaching changes to the way people live and work. The impact of climate change is global in scope and global solutions must be found, with due consideration to regional and national conditions."*[19]
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> And further that: *"Climate change is already having an impact on South Africa, with marked temperature and rainfall variations and rising sea levels. Over the short term, policy needs to respond quickly and effectively to protect the natural environment and mitigate the effects of climate change. Over the long term, with realistic, bold strategies and global partnerships, South Africa can manage the transition to a low carbon economy at a pace consistent with the government's public pledges, without harming jobs or competitiveness".*[20]

8. Already the impacts of drought, extreme weather events, and fires in South Africa have cost the country billions. Virtually every province in the country has recently experienced, or is currently experiencing, severe, extended drought. The impacts of climate change are crippling livelihoods and jobs, and will have long-term impacts on food security, food prices, human settlements, and health. Government is having to subsidise these high costs, and will increasingly have to do so. A recent report[21] titled "Climate Change Implications for SA's Youth" by Nicholas King states that "South Africa … will suffer enormous negative physical, socio-economic and ecological impacts, under all scenarios. These will include extreme heat stress, extreme weather events, including storms, flooding and droughts, sea-level rise and coastal damage, crop failures and food insecurity, water stress, disease outbreaks, various forms of economic collapse and social conflict and mass migration to informal settlements around urban areas. Impacts do not rise linearly with rising temperature, but with an ever-steepening curve,

[18] P8, National Climate Change Response White Paper 2011, at https://www.environment.gov.za/sites/default/files/legislations/national_climatechange_response_whitepaper.pdf. See also the Address by the Minister of Environment, Forestry and Fisheries, Ms Barbara Creecy in the National Assembly in response to the State of the Nation Address (SONA) on 18 February 2020 ("SONA Response Address"), available at https://www.gov.za/speeches/minister-creecy-18-feb-2020-0000 where Minister Creecy noted those impacts occurring across the country in the form of prolonged periods of drought, severe storms and flooding.

[19] National Development Plan 2030 at page 23.

[20] Ibid at page 48.

[21] King, 2021. Climate Change Implications for SA's Youth. See at https://cer.org.za/wp-content/uploads/2021/09/Nick-King-Report-Final.pdf

rapidly making large parts of the interior of the country, as well as vulnerable low-lying coastal areas, uninhabitable. All of these impacts together will dramatically alter the lives and prospects for today and tomorrow's youth, who will suffer significant harms, in a combination of detrimental physical health and wellbeing, mental trauma, social upheaval and reduced opportunities for self-advancement." The United Nations Fund ("UNICEF") released their global report titled "'The Climate Crisis Is a Child Rights Crisis: Introducing the Children's Climate Risk Index' in August 2021.[22] This report highlights how children and young people in South Africa are among those most at risk of the impacts of climate change, threatening their health, education and protection.

9. The South African government has repeatedly acknowledged the reality of climate change and the severe threat that this poses to the country.

9.1. The government's National Climate Change Response White Paper published in October 2021 ("White Paper"), sets out the government's "vision for an effective climate change response and the long-term, just transition to a climate-resilient and lower carbon economy and society".[23] The White Paper acknowledges that "Even under emission scenarios that are more conservative than current international emission trends, it has been predicted that by mid-century the South African coast will warm by around 1 to 2 °C and the interior by around 2 to 3 °C. By 2100, warming is projected to reach around 3 to 4 °C along the coast, and 6 to 7 °C in the interior. With such temperature increases, life as we know it will change completely: parts of the country will be much drier and increased evaporation will ensure an overall decrease in water availability. This will significantly affect human health, agriculture, other water intensive economic sectors such as the mining and electricity-generation sectors as well as the environment in general."

9.2. The NDP acknowledgments of climate change risks are quoted in paragraph 7 above.

9.3. The harms of climate change have also been recognised in the cabinet-approved National Climate Change Adaptation Strategy ("Adaptation Strategy"). The Adaptation Strategy provides a common vision of climate change adaptation and climate resilience for the country, and outlines priority areas for achieving this vision. It recognizes that South Africa is already experiencing the negative impacts of climate change and is expected to suffer significant consequences in the future.[24]

9.4. Our country's specific vulnerability is also recognized in the government's Low Emission Development Strategy 2050.[25] This strategy was published by the government in 2020, in terms of the Paris Agreement obligation to "formulate and communicate long-term low greenhouse gas emission development strategies" by 2020. The Strategy states that "South Africa is particularly vulnerable to the impacts of climate change. These changes will impact on water resources and food production, and increase the

[22] UNICEF, 2021. The Climate Crisis Is a Child Rights Crisis: Introducing the Children's Climate Risk Index. See at: https://www.unicef.org/reports/climate-crisis-child-rights-crisis
[23] National Climate Change Response White Paper. See at: https://www.dffe.gov.za/sites/default/files/legislations/national_climatechange_response_whitepaper_0.pdf
[24] National Climate Change Adaptation Strategy, 2019. See at: https://www.dffe.gov.za/sites/default/files/docs/nationalclimatechange_adaptationstrategy_ue10november2019.pdf
[25] Low Emission Development Strategy 2050. See at: https://www.dffe.gov.za/sites/default/files/docs/2020lowemission_developmentstrategy.pdf

vulnerability of impoverished communities, amongst others. For this reason, the South African government regards climate change as a considerable threat to the country and its socio-economic development, having the potential to undermine many of the advances made in recent years."

9.5. In a speech given by President Ramaphosa at a Virtual Leaders' Summit on Climate Change in April 2021, he referred to the South African government's position on addressing climate change, stating, inter alia, that "We remain committed to contributing our fair share to reduce global emissions, and to do in the context of overcoming poverty, inequality and underdevelopment. **Climate change is the most pressing issue of our time."**

10. The United Nations' Intergovernmental Panel on Climate Change ("IPCC") has confirmed a dramatic increase in risk and impact severity if the global average temperature increase exceeds 1.5 °C for our climate. South Africa's Nationally Determined Contribution ("NDC") under the Paris Agreement states that South Africa "warmly welcomed the IPCC's special report on global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways", and "considers the IPCC reports to be of the highest importance in guiding our actions".[26] However, South Africa is already falling behind on its global and constitutional obligations to address climate change. The NDC falls outside the fair share range; and is not consistent with the Paris Agreement 2°C target – let alone the 1.5°C benchmark set by the IPCC.[27] This, while it has been recognised that Africa and South Africa, are warming at a rate that is about twice the global average temperature increase rate.[28] [29] The effects of this will be catastrophic – impacting particularly on the most vulnerable sectors of South African society.

11. The World Economic Forum's annual "Global Risks Report 2022"[30] which is used as an indicator of investor and business sentiment, states that "extreme weather and climate action failure are among the top five short term risks to the world, but the five most menacing long-term threats are all environmental. Climate action failure, extreme weather and biodiversity loss also rank as the three most potentially severe risks for the next decade." It also states that "…increasing concern with climate action failure reveals respondents' lack of faith in the world's ability to contain climate change, not least because of the societal fractures and economic risks that have deepened".[31] The risks that this report analyses are risks which have already materialised and will become more severe unless urgent meaningful action is taken.

12. It is the constitutional imperative of the government to ensure that people in South Africa are protected against these impacts – that their rights enshrined in the Constitution are upheld and protected. There is no justifiable basis on which the rights to life, dignity, an environment nit harmful to health and wellbeing could be limited by

[26] South Africa First Nationally Determined Contribution under the Paris Agreement, September 2021. See at https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/South%20Africa%20First/South%20Africa%20updated%20first%20NDC%20September%202021.pdf

[27] https://climateactiontracker.org/countries/south-africa/

[28] South Africa First Nationally Determined Contribution under the Paris Agreement, 2021. At page 13.

[29] In her SONA Response Address (see footnote 3), Minister Creecy noted that "Science tells us that our country and our continent are warming much faster than the rest of the world. Whereas the world, on average, has warmed by roughly 1 degree, above pre-industrial times, in southern Africa, the rate of warming is twice that".

[30] World Economic Forum, 2022. The Global Risks Report 2022. See at: https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2022.pdf

[31] Ibid at page 23.

plans to develop further fossil fuel capacity, where less harmful alternatives are available. Further, economic development and sustainable livelihoods will be compromised in a country devastated by the effects of climate change, and it should be noted that, ultimately, there will be no jobs on an uninhabitable planet.

13. In the next 10 years, significant ambition is needed to sufficiently reduce GHG emissions within the necessary trajectory range and to get South Africa where it needs to be to avoid the worst impacts of the climate crisis. Doing this requires a commitment to phase out existing fossil fuels and halt new fossil fuel investment as soon as possible – and certainly to refrain from locking-in to new fossil fuel infrastructure, which is not needed. Yet – despite available science, evidence of harms and the incontrovertible acknowledgement by the government of SA's exposure to the harms of climate change, the Report's primary aim is the development of an oil and gas sector (fossil fuel exploitation) in SA. This stands in contradiction to the just transition and climate response imperative, and we submit that it is both unreasonable and irrational, in addition to posing a substantial threat to the Constitutional rights of the people of South Africa.

14. Given South Africa's extreme vulnerability to the impacts of climate change[32] - arguably any decision to lock the country in to more harmful GHG emissions, through fossil fuel exploitation, which is neither necessary nor desirable, would be in direct contravention of the state's constitutional obligations to protect the rights of the people of South Africa, and the duty of care embodied in section 28 of NEMA. On this basis, we urge the Department to abandon the Report, and strongly recommend, and request, that the Gas Master Plan, which seeks to develop a gas market in South Africa, be abandoned in its entirety.

15. We note the frequent reference[33] in the Report to gas power as a cleaner energy option. Below we address this and explain why this is a fallacy.

<u>The Myth that Gas Power provides a clean energy alternative to enable decarbonisation</u>

16. We note the agenda to push gas as a "bridging fuel"—cleaner and with lower carbon dioxide emissions than coal or oil—and with the flexibility to enable renewable energy uptake, in order to help address climate change. Expert analyses have shown this narrative to be false and outdated, particularly now in light of available and cleaner flexible energy alternatives and increased evidence of the high GHG emissions associated with gas exploitation. Non-conventional gas technologies - Liquefied Natural Gas ("LNG"), shale gas, coal bed methane and underground coal gasification - are particularly dirty and prone to leaking. In addition, the massive investments in new infrastructure to support this industry, including pipelines, liquefaction facilities, export terminals, and tankers, creates new fossil fuel dependence, making the transition to actual low-carbon and no-carbon energy even more difficult.[34]

17. Expert analyses have increasingly shown that relying on gas as a bridge fuel towards transitioning to clean energy cannot be supported[35]. A recent report by Robert W. Howarth titled "Gas Lifecycle Methane Emissions, Richards Bay Review" concludes that the climate impacts of gas are greater than those of coal per unit of energy

[32] P8, National Climate Change Response White Paper 2011, at https://www.environment.gov.za/sites/default/files/legislations/national_climatechange_response_whitepaper.pdf.
[33] On pages 1,2,22,28,47 and 51 of the Report.
[34] https://www.nrdc.org/sites/default/files/sailing-nowhere-liquefied-natural-gas-report.pdf, page 4
[35] Ibid at page 2.

produced when evaluated in a 20-year timeframe, the period most relevant for climate change if humans are to avoid catastrophic run-away warming. Though gas emits less carbon dioxide at combustion per unit energy than coal, its upstream GHG emissions are more problematic for the climate, as it releases potent methane in leaks and venting throughout its lifecycle; researchers have been able to better detect emissions across the lifecycle of gas ever more accurately given new methodologies and technologies (particularly "top-down" measurements using satellite and aerial assessments).

18. Research has shown the Paris Agreement's 1.5°C target cannot be met with new gas development; gas reserves already found in the ground must be left in the ground and all new fossil fuel development must be halted; essentially, gas plants cannot replace coal plants if we are to reach that target.[36] In fact, even emissions from existing and proposed energy infrastructure represent more than the entire carbon budget that remains if we are serious about not exceeding a 1.5°C temperature increase.[37]

19. Compared with coal, burning gas emits half as much carbon dioxide. However, the extraction, processing, and transport of gas also emits GHGs, including large amounts of methane from leaks and intentional releases at wells, pipelines, and storage and processing facilities. Methane, which is the principal component of gas, does not persist in the atmosphere as long as carbon dioxide, but its climate impact is more than 80 times stronger in the short-term (20-year) time frame and 28 times stronger over the long term (100-year) time frame; it is the second-biggest driver of climate change.[38][39][40] Gas is therefore as emission-intensive as coal, if not more so.

20. Additionally, emissions relating to the full life cycle of gas activities are often under-reported or under-assessed. These include emissions at liquefaction, overseas tanker transport, and regasification during which even more carbon dioxide and methane are emitted. These increase the total GHG emissions resulting from the use of gas— and raise serious questions about the effectiveness of LNG as a strategy to reduce emissions and combat climate change.[41]

Part B: Comments on specific sections within the Report

21. In the event that the Report is to be retained and plans for the Gas Master Plan proceed despite our strong objections, we reserve our clients' rights in this regard and make the comments and recommendations in the section below on the specific provisions of the Report. We have structured Part B of these comments under the following headings to coincide with the relevant Report sections:

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[36] IPCC Special Report: Global Warming of 1.5 degrees C. See at: https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf

[37] Ibid at page 127.

[38] Ibid page 8.

[39] One ton of methane has the same climate-forcing impact as 84 tons of CO2 over a 20-year period and the same impact as 28 tons of CO2 over a 100-year period.
See G. Myhre et al., "Anthropogenic and Natural Radiative Forcing," Table 8.7, in Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, T. F. Stocker et al., eds. (Cambridge, U.K., and New York, N.Y.: Cambridge University Press, 2013), https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf.

[40] U.S. Environmental Protection Agency (hereinafter U.S. EPA), "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017," April 2019, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2017.

[41] Ibid page 9.

Section 2: Natural Gas as an Energy Source
Section 8.1.6: Legislative Gaps, Overlaps and Barriers
Section 9.1.2: National PESTEL Analysis: Economic Factors
Section 9.1.3: National PESTEL Analysis: Social Factors
Section 9.1.5: National PESTEL Analysis: Environmental Factors
Section 9.3.1: Role of Gas in National Development

Section 2: Natural Gas as an Energy Source

22. Section 2 states that "when burned, natural gas is one of the cleanest and most powerful forms of energy available" and "considering that only 2.6% of South Africa's primary energy needs are currently sourced from natural gas and Government's international climate change and carbon reduction commitment, exploitation of natural gas will play an integral part of South Africa's future energy mix diversification."

23. As made clear above, we regard the Department's use of decarbonisation as a motivation to develop another fossil fuel, and GHG-intensive market as misguided and incorrect in light of the reports and evidence referenced above. The knowledge that has been gained around natural gas lifecycle emissions (which will be further discussed in paragraph 34 to 43 below), and the technological advancements that have been made in cleaner alternatives make clear that gas power is neither clean nor necessary in SA's energy sector.

24. We submit that South Africa cannot justify allocating very limited carbon space to a GHG emission-intensive sector in light of the global need to urgently phase out fossil fuels and the availability of cleaner alternatives. In 2018, the IPCC found that to limit warming to 1.5°C, countries must reduce CO2 emissions by 45% within the next decade and achieve net zero emissions around 2050.[42] The IPCC has estimated that limiting warming to 1.5°C would require limiting atmospheric CO2 concentration to no more than 430 parts per million (ppm), a level we are getting closer to daily, and that mitigation pathways consistent with a 1.5°C target involve "decarbonisation of electricity and other fuels".[43]

25. The Report mentions on numerous occasions that the electricity sector, through the "development of a gas to power programme" would create significant gas anchor demand, which would in turn enable distributed gas and in turn localised gas demand. We submit that the reliance on gas to power to facilitate adequate demand for the development of the gas market is, again, misguided and incorrect in light of: knowledge on gas to power GHG emissions, the availability of viable, clean alternatives; and the high costs and risks. In this discussion of need and desirability of gas to power projects, we submit the following:

    25.1. The Meridian Report, referenced in paragraph 3.5 above, shows clearly that the least-cost scenario for the grid does not require new mid-merit gas capacity until the 2030s, if at all.[44] Rocky Mountain Institute - an independent nonprofit that advises on transformation of global energy systems through market-

[42] IPCC Special Report executive summary, page 12.
[43] IPCC Special Report at Page 51 and 95.
[44] Meridian, 2021. A Vital Ambition. Page 59. See: https://meridianeconomics.co.za/wp-content/uploads/2020/07/Ambition.pdf

driven solutions - recently reviewed and validated Meridian and CSIR's approach in the context of another proposed gas project.[45]

25.2. The Meridian Report confirms that South Africa "does not need to expand gas infrastructure to support the power sector for the foreseeable future" because existing open-cycle gas-turbine ("OCGT") plants powered by liquid fuels (diesel) can provide needed fuel capacity for at least the next 10 years and into the late 2030s, in all realistic mitigation scenarios.

25.3. Moreover, because renewable energy may soon become cheaper than gas, moving forward with gas now risks that gas-related infrastructure will soon become stranded assets as renewable energy and storage technologies become more cost-competitive.[46]

25.4. In summary, new mid-merit gas capacity is simply not needed in South Africa. What is clear is that any gas power envisaged by the IRP 2019 and other energy models would be a limited amount for peaking capacity. This is woefully at odds with the gas infrastructure build out that the Report (and ultimately the Gas Master Plan) seek to justify, based on a fabricated need and in light of known harms. Such an approach is reckless, unreasonable, and poses an unjustifiable threat to Constitutional rights.

Section 8.1.6: Legislative Gaps, Overlaps and Barriers

26. The National Environmental Management Act is referred to as a barrier to the development of the gas market, and the Report boldly states that 'adherence to' and 'fully complying' with the regulations is time consuming and expensive. The implication is that the requirement for 'full compliance' is a barrier to be overcome by applicants for gas development projects. This is dismissive of our constitutional dispensation, and reflects an agenda to weaken environmental regulation to enable and serve industry interests.

27. We suggest that this wording be revised, to reflect the binding nature of NEMA, together with the rights afforded to the people of South Africa through the Constitution, which are paramount.

Section 9.1.2: National PESTEL Analysis: Economic Factors

28. The economic factors listed in the Report do not adequately consider the economic risks associated with gas developments, or the economic risks and effects of climate change. For less developed countries such as South Africa (with already constrained fiscal resources) disaster response, relief work and rebuilding will very likely overwhelm the state's ability to respond adequately, compromising every aspect of future service delivery and socio-economic wellbeing. Addressing rising disaster relief costs and rebuilding will become increasingly unaffordable for a country with an already weak economy, massive unemployment and the world's greatest inequality and the ensuing growing social support demands.

[45] RMI, 2021. Assessment of the Need for the proposed Karpowership Power Plant projects ("the projects") located at the Port of Saldhana Bay (Western Cape), Port of Ngqura (Eastern Cape) and Richards Bay (KwaZulu Natal). See at: https://cer.org.za/wp-content/uploads/2021/08/AJ1-RMI_Report-27.07.2021.pdf

[46] RMI, C. Bloch et al., Breakthrough Batteries: Powering the Era of Clean Electrification at p. 7 (2019).

29. We urge that the analysis be revised to consider all factors and risks, including the following suggested paragraphs:

29.1. Goods and service created using fossil fuel energy are going to have a high carbon footprint due to the direct and indirect GHG emissions caused by their production. This means exposure to increased taxes and other costs. The European Union introduced the Carbon Border Adjustment Mechanism ("CBAM") which will levy a fee on all imports based on their carbon footprint.[47] An extensive fossil fuel powered electricity system will ensure that South Africa's exporters are heavily penalised and their competitiveness is at risk.

29.2. As laws and regulations on climate change come into existence and/or are tightened, and as policies, targets and financial pressures become ever more restrictive, there is a very real risk that fossil fuel infrastructure and developments will become inviable and illegal to operate long before the end of their economic lifespan, resulting in stranded assets that will never realise the profits counted on by the owners, and very likely placing burden on the public purse in terms of decommissioning and management costs.[48]

29.3. There is a range of climate and transition financing mechanisms becoming available from the Global North for countries embracing accelerated decarbonisation policies and measures. South Africa is viewed as an attractive destination for such financing given the relatively low cost of decarbonisation for the country. While we in no way endorse any finance deals without first having sight of the terms and conditions (which must be subject to a rigorous public consultation process), we do point out that in order to remain attractive, the country needs to embrace strong emission reduction measures and avoid expanding or even maintaining carbon intensive fossil fuel use, such as gas. Financing is known to be needed in order to fund mitigation and adaption measures, and assist with a implementing a Just Transition.[49]

29.4. Continued use and development of fossil fuel infrastructure, energy generation and services brings with it reputational risk whereby South Africa is seen as a reckless and unnecessarily intensive carbon emitter.

29.5. As more stakeholders align with the imperatives of halting global warming, litigation risk increases, and more than one thousand climate litigation cases have been launched around the world between 2015 and 2020.[50] South African courts have already recognised that new coal fired power developments pose a risk to climate change imperatives,[51] and the climate science relating to gas will result in similar and increasing challenges to new gas developments.

[47] See at: https://economics.rabobank.com/publications/2021/july/cbam-carbon-border-adjustment-mechanism-eu-explained/
[48] See at: https://oilprice.com/Energy/Crude-Oil/A-Third-Of-Fossil-Fuel-Assets-May-Soon-Be-Stranded
[49] See at: https://www.climatechangenews.com/2021/08/20/us-guidance-development-banks-puts-gas-infrastructure-finance-question/
[50] See at: https://energymonitor.ai/policy/litigation-increasingly-the-only-option-when-big-emitters-fail-to-address-climate-change
[51] See at: https://cer.org.za/wp-content/uploads/2017/03/Judgment-Earthlife-Thabametsi-Final-06-03-2017.pdf

Section 9.1.3: National PESTEL Analysis: Social Factors

30. A comprehensive analysis of social factors linked of gas developments must consider the social impacts that climate change will have on the people of South Africa.

31. Although an environmental issue on the face of it, climate change is in fact also a social issue, an economic issue, a health and safety issue; an energy issue, an infrastructure and human settlements issue, a food and water security issue and more. The climate crisis is a crisis with far-reaching implications for the full spectrum of human rights in our Constitution – rights which all spheres of government are obliged to respect, protect, promote and fulfil. This notwithstanding, the primary responsibility of managing South Africa's climate change response resides.

32. Climate change impacts will include huge emotional trauma induced by physical, social, economic and cultural disruption. The increasing inability to cope with climate impacts, and the knowledge that government services are overwhelmed and unable to help, will almost certainly create feelings of abandonment, hopelessness and depression amongst a growing proportion of the populace. Many people will likely lose their sense of place and identity through dramatic changes in their surroundings, the breakdown of social ties and cultural connections as they are forced to move, to try and survive and access services such as health care, education and social grants. Informal settlements will expand dramatically, including with in-migration from countries to the north as climate change impacts compromise livelihoods across the region, with conflicts and xenophobia leading to violence. All of this will reduce people's economic status and compromise their physical and mental wellbeing. Children in particular, will be traumatised at these upheavals and the inability of their parents to provide for them, and their health and safety.[52]

33. The Report states that the development of the gas sector will enable social upliftment on a national level through job creation and skill development. We submit that any alleged social benefits will be woefully overshadowed by the negative resultant social harms outlined above. Further, the upstream gas sector in particular is dependent on highly skilled resources which will result in very few local jobs in the offshore upstream activity or onshore in fracking activities.

Section 9.1.5: National PESTEL Analysis: Environmental Factors

34. The PESTEL Analysis, whilst done at a high level for all factors, provides an insufficient picture of the environmental factors associated with the full lifecycle of gas projects. As this is the only section in the Report that provides an opportunity for an objective view on whether a gas market should be pursued in the current environmental climate, we propose amending the section to include a thorough description of direct, indirect emissions across the full life-cycle of the gas industry.

35. For gas, or any other fossil fuel, life-cycle analysis is used to quantify the total amounts of GHG emissions (predominantly carbon dioxide and methane) from every step in the process, from extracting the fossil fuel at the well or mine to burning it at a power plant or other facility - this is because these are all ancillary and inextricably linked activities, which cannot be viewed in isolation. More specifically, such an analysis must

[52] King, 2021. Climate Change Implications for SA's Youth. See at https://cer.org.za/wp-content/uploads/2021/09/Nick-King-Report-Final.pdf

include extraction of the gas; transportation to the plant; construction of the plant, operation of the plant; and decommissioning.

36. The consideration of the full lifecycle GHG emissions and the full footprint of the sector is essential in considering whether it is the best option for investment in South Africa. Furthermore, including reference to a holistic and cumulative impact assessment approach would be in line with national environmental legislation and the Best Practice Principles for impact assessments, as published by the International Association of Impact Assessment.[53]

37. As mentioned in paragraph 22 above, the Report states that "when burned, natural gas is one of the cleanest and most powerful forms of energy available."[54] However, as explained above, the extraction, processing, and transport of gas also emits GHGs, including large amounts of methane from leaks and intentional releases at wells, pipelines, and storage and processing facilities.[55]

38. Additionally, overseas export of gas extends the gas life-cycle, adding steps for liquefaction, overseas tanker transport, and regasification during which even more carbon dioxide and methane are emitted.[56] These increase the total GHG emissions resulting from the use of gas, thus negating the misperceived use of LNG as a strategy to reduce emissions and combat climate change.

39. Finally, the expanded production, export, and use of LNG will require large amounts of massive, long-lived, and single-purpose infrastructure such as pipelines, liquefaction plants, LNG terminals, and tankers, as well as gas-fired power plants.[57] These types of investments lock in fossil fuel dependence and the associated emissions, making the transition to clean energy even more difficult.

40. It is patently false to refer to gas as "one of the cleanest forms of energy available" particularly in light of available alternatives from renewable resources (solar and wind), which do not pose the same threats of harm as those posed by fossil fuels (gas).

41. We strongly object to any references to gas as being a cleaner energy alternative, throughout the report and recommend that this wording be deleted and revised.

42. We propose that the following breakdown also be included in the PESTEL Analysis:
    UPSTREAM: Extraction of gas at the well, processing, and domestic pipeline transport; occurs in exporting country; greenhouse gas emitted: predominantly methane.

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[53] Byer, P., Cestti, R., Croal, P., Fisher, W., Hazell, S., Kolhoff, A., and Kørnøv, L. (2018) Climate Change in Impact Assessment: International Best Practice Principles. Special Publication Series No. 8. Fargo, N.D., USA: International Association for Impact Assessment at Page 2.

[54] Basecase Report at page 2.

[55] Ramón A. Alvarez et al., "Assessment of Methane Emissions From the U.S. Oil and Gas Supply Chain," Science 361, no. 6398 (July 13, 2018): 186-188, https://science.sciencemag.org/content/361/6398/186.

[56] Leslie Abrahams et al., "Life Cycle Greenhouse Gas Emissions From U.S. Liquefied Natural Gas Exports: Implications for End Uses," Environmental Science & Technology 49, no. 5 (February 2015): 3237–3245, http://pubs.acs.org/doi/full/10.1021/es505617p.

[57] Peter Erickson et al., "Assessing Carbon Lock-In," Environmental Research Letters 10, no. 8 (August 2015), http://iopscience.iop.org/article/10.1088/1748-9326/10/8/084023/pdf.

LIQUEFACTION: Gas is cooled to -162 degrees Celsius to reduce its volume and convert it to liquid form; occurs in exporting country; greenhouse gas emitted: almost all carbon dioxide.
TANKER TRANSPORT: Liquefied natural gas is loaded onto an LNG tanker and transported to its destination port; occurs on the high seas; greenhouse gas emitted: mostly carbon dioxide.
REGASIFICATION: Liquefied natural gas is re-warmed to convert it to a gas; occurs in importing country; greenhouse gas emitted: mostly methane.
POWER PLANT OPERATIONS: Gas is burned in a power plant to generate electricity; occurs in importing country; greenhouse gas emitted: almost all carbon dioxide.

43. A thorough PESTEL analysis would consider all environmental factors associated with gas developments, particularly marine impacts from offshore exploration and production, water use and pollution for fracking, toxics in fracking fluids, intensive land use, intensive trucking and associated spills, and high air emissions from landfill gas ("LFG").[58]

Section 9.3.1: Role of Gas in National Development

44. As mentioned in Part A above, the reliance on the NDP for the development of a gas market in South Africa is misguided.

45. We submit that the Department is at risk of acting outside of national policy guidance on the development of the Energy Sector. In this regard, the NIP 2050[59] states that "by 2050, energy supply should be enabling, and not a constraint of economic growth and development. This will require reduced reliance on coal and growing reliance on renewable energy, especially solar and wind which are the least-cost technology, and where SA has significant comparative advantage."

46. To achieve this vision, the NIP 2050 recommends that "the transition away from fossil fuels progresses in a convincing and just manner. New installed capacity consists primarily of wind and solar where South Africa has comparative advantage. Stakeholders, whether business, workers or communities) involved in fossil fuels are supported through this transition." our interpretation of this is that the development of gas infrastructure should be avoided.

47. It is clear therefore that the role of fossil fuels (including gas) is to diminish and that least cost technology such as solar and wind should be prioritised. We submit that the Department, in developing a Gas Master Plan, would undermine national policy aimed at a just energy transition.

Part C: Conclusion

48. We submit that before any decision to proceed with the development of a Gas Master Plan can be made, consideration must be given to: the multifaceted impacts of a Gas Master Plan for the climate crisis, including the additional GHG emissions that would arise from the production, use and transportation of gas, which would

[58] Impacts and environmental factors are more thoroughly considered in the Report titled:"Shale Gas Development in the Central Karoo: a scientific assessment of the positive and negative consequences". See at: https://www.researchgate.net/publication/313768592_Shale_Gas_Development_in_the_Central_Karoo_A_Scientific_Assessment_of_the_Opportunities_and_Risks
[59] GN 44951 dated 10 August 2021.

be accelerated under this Plan – including indirect emissions from construction, transportation and decommissioning, rehabilitation etc. – and the implications of the Gas Master Plan for the following:

48.1. the exacerbation of South Africa's own vulnerability to the climate crisis, including the social, external costs of these GHG emissions, the resultant climate impacts for South Africa and the constitutional rights of people in South Africa;[60]

48.2. South Africa's international climate commitments under the Paris Agreement and its GHG emission reduction targets; and,

48.3. the extent to which the further exploitation of gas would even be economically and legally viable in a market where fossil fuels are increasingly constrained and such projects are likely to become stranded assets with high economic costs for the country.

49. We dispute the Department's suggestion that the development of the gas and petroleum industry in South Africa would further economic development or resolve the energy crisis. Any economic development from gas is not justifiable against the environmental costs. A ramped up rollout of renewable energy would provide more jobs than the gas sector and, given the development timeframes applicable to renewables, it would be a more immediate and unquestionable solution for addressing the energy crisis. We urge the Department to abandon its Gas Master Plan, and to focus increased attention onto the development of much-needed clean renewable energy in South Africa.

50. We thank you for the opportunity to submit comments on the draft Gas Master Plan Basecase Report and invite discussion on any aspect hereof, should this be necessary or useful.

Yours faithfully
CENTRE FOR ENVIRONMENTAL RIGHTS

per: 

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[60] The Interagency Working Group on the Social Cost of Greenhouse Gases (IWG) in the USA has attributed global amounts in scope and applicability, representing the costs of global climate impacts. This is a widely used method for calculating the cost of projects' GHG emissions. The social cost of carbon, as determined by the IWG, is a consensus of the estimate of the social cost of carbon as calculated by three proprietary models: FUND, DICE, and PAGE, as described in the Technical Support Document available at https://www.epa.gov/sites/production/files/2016-12/documents/scc_tsd_2010.pdf (p5):
"We rely on three integrated assessment models (IAMs) commonly used to estimate the SCC: the FUND, DICE, and PAGE models. These models are frequently cited in the peer-reviewed literature and used in the IPCC assessment. Each model is given equal weight in the SCC values developed through this process, bearing in mind their different limitations."