



Gas Amendment Bill: oral submission by CER to Portfolio Committee MRE – 10 November 2021

1. We thank you for the opportunity to address you on the Gas Amendment Bill, 2021 (“the Bill”), which we do in our name as well as on behalf of groundWork. Subsequent to our submitting comments on the Bill on 30 July 2021, the United Nations Intergovernmental Panel on Climate Change (IPCC) released the first report in its sixth assessment cycle. Released on 9 August, this report addresses the latest findings from around the world on the physical science basis of climate change. The climate crisis is more severe than has been found up to now, and we are entering a new era where pressure to respond is going to increase to unprecedented levels. On this basis, we take this opportunity to focus on the climate change aspects as they relate to the Bill, and amplify the climate related comments in our submission.
2. Fundamentally, we don’t believe that there should be any investment in fossil fuel energy infrastructure, and therefore object to legislation which will facilitate thus kind of development. In the event that the Bill is deemed to be necessary, we believe that there needs to be significantly strengthened provision for, and consideration of, climate change impacts.

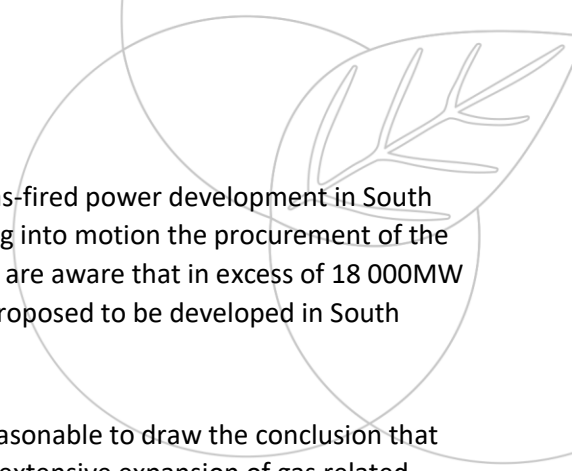
The nexus between the Bill and the emerging context of extensive gas infrastructure development.

3. It is clear from the wording in the preamble to the Gas Amendment Bill (“the Bill”) that the intention is to, *inter alia* enhance the facilitation of potentially extensive new gas developments. This intention is further signalled by the inclusion of a definition of the Gas Master Plan, and the creation of a new Section 28A which directs the Minister to, *inter alia*, compile such master plan. Section 28B, also new, empowers the Minister to make determinations that new gas facilities or services are required, and are to be developed and acquired by the state.
4. The South African Gas Master Plan Discussion Document¹ promotes and describes the so-called benefits of gas, and details various mechanisms through which gas demand can be stimulated. This includes the South African power generation sector and the document openly advocates for more gas-to-power development.
5. There have been repeated statements from the Minister signalling ambitions to expand the gas sector, including in the Budget Vote speech of May 2021, where he states that the Bill “...aims to unlock investment into the gas sector and facilitate the development of gas infrastructure.” and that “...we continue our commitment of developing the gas industry into our economy.”² On the occasion of this speech, the Minister was also reported to have said that “[w]e are going to be a major player in gas and oil.”³

¹ https://drive.google.com/file/d/10QCyOGW-Ep_zOdvNRD_gP4115oERH32X/view

² <https://www.gov.za/speeches/minister-gwede-mantashe-mineral-resources-and-energy-dept-budget-vote-202122-18-may-2021>

³ <https://www.dailymaverick.co.za/article/2021-05-23-its-the-green-train-now-and-youre-on-the-wrong-platform-gwede-mantashe/>

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6. The Integrated Resource Plan (IRP) 2019⁴ provides for 3000mw of new gas-fired power development in South Africa, and in September 2020 the minister issued a determination⁵ setting into motion the procurement of the entire 3000mw provided for in the IRP. Over and above this however, we are aware that in excess of 18 000MW of gas to power projects and/or associated projects are currently being proposed to be developed in South Africa.
 7. When all of these factors are considered together, we submit that it is reasonable to draw the conclusion that this Bill is being amended as proposed in order to, *inter alia*, facilitate an extensive expansion of gas related infrastructure.

Introducing the climate change aspect

8. This is happening at a time when investment in fossil fuel infrastructure, including gas, will introduce unprecedented levels of risk to society, the environment and the economy as a result of the climate change implications.
9. The scientific community has overwhelmingly and repeatedly warned that to avert major climate change risks and impacts, all efforts should be made to limit global warming to 1,5°C above pre-industrial levels. This has been affirmed by the United Nations Intergovernmental Panel on Climate Change (IPCC) in its 2018 Special Report on Global Warming of 1.5°C.⁶ This report states unequivocally that in order to limit warming to now more than 1,5°C, global greenhouse gas (GHG) emissions need to be reduced by 45% by 2030 (over 2010 levels). The South African scientists who contributed to the report say that Southern Africa is warming twice as fast as the average for the rest of the globe and they name one of the immediate risks if we don't dramatically reduce emissions to be a Day Zero for Gauteng – within the next 20 years. This will have enormous human health impacts and will be crippling for our economy.
10. In August 2021, the IPCC released the Sixth Assessment Report - Working Group 1: the Physical Science Basis ("IPCC AR6"), which states that *"human-induced global warming to a specific level requires limiting cumulative CO2 emissions, reaching at least net zero CO2 emissions, along with strong reductions in other greenhouse gas emissions. Strong, rapid and sustained reductions in CH4 [methane] emissions would also limit the warming effect resulting from declining aerosol pollution and would improve air quality"*
11. A pervasive justification for the development of gas production and infrastructure is based on the very real need to urgently and drastically decarbonise our economy and society. Gas is presented as being a cleaner, more climate-friendly form of energy production and use, and has become widely known in some circles as a 'bridging fuel', using incorrect and inadequate information to justify the claim that extensive gas infrastructure is needed for the transition to a decarbonised energy system.

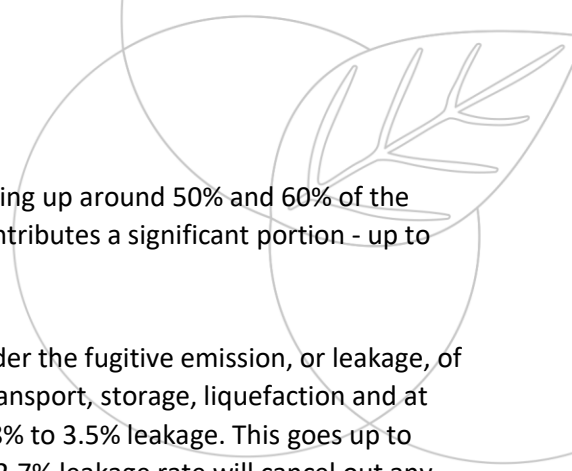
The Science: gas, methane and climate change

12. The claim that gas is a cleaner and more climate-friendly energy source is based on generally accepted findings that burning gas emits approximately 50% to 60% of the CO2 emissions caused by burning coal. While this is significant, it must be borne in mind that these are still significant emissions levels which are not consistent with the required rapid emissions reduction trajectories. **Importantly, this does not account for the substantial and upstream GHG emissions gas, which effectively negate any alleged benefits at the gas power generation stage.**

⁴ https://cer.org.za/wp-content/uploads/2019/10/IRP-2019_corrected-as-gazetted.pdf

⁵ https://www.gov.za/sites/default/files/gcis_document/202009/43734gon1015s.pdf

⁶ https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf

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13. While there is understandably much focus CO₂ as a greenhouse gas, making up around 50% and 60% of the greenhouse gas (GHG) composition causing global warming, methane contributes a significant portion - up to 25% according to the IPCC's Fifth Assessment Report of 2013 (IPCC AR5).⁷
 14. Looking at the full lifecycle GHG emissions of gas we are obliged to consider the fugitive emission, or leakage, of methane that occurs at various points in the supply chain – extraction, transport, storage, liquefaction and at point-of-use. Conventional gas production has been found to result in 2.8% to 3.5% leakage. This goes up to 3.6% to 7.9% for shale gas production, or fracking.⁸ It is estimated that a 2.7% leakage rate will cancel out any climate benefits that gas has over coal.⁹
 15. Methane is a potent GHG, with a global warming potential that is 84 times higher than CO₂ over a 20 year period.
 16. For Liquefied Natural Gas (LNG), additional carbon emissions are produced during the relatively energy-intensive liquefaction process, and liquefaction, tanker transport and regasification add between 8% and 21% to the carbon footprint of this type of gas.¹⁰
 17. According to the United Nations Environment Programme (UNEP), in its May 2021 Global Methane Assessment Report, *“In the absence of additional policies and measures, methane emissions are projected to continue rising through at least 2040. Current concentrations are well above levels in the 2° C scenarios used in the IPCC AR5. The Paris Agreement’s 1.5° C target cannot be achieved at a reasonable cost **without reducing methane emissions by 40–45 per cent by 2030.**”*¹¹
 18. According to Cornell university expert, Richard A Howarth PhD, *“To only reduce emissions of carbon dioxide without reducing methane emissions is far less effective, essentially contributing nothing over the short term; global warming only starts to slow after 30 or more years of reduced carbon dioxide emissions. Increasingly, scientists are calling for a reduction of methane emissions in the face of a possible imminent threat of runaway climate disruption.”*¹²
 19. Howarth goes on to state that *“in 2015 emissions of carbon dioxide from burning fossil fuels and producing cement were 36 billion metric tons. Emissions of methane from all human-influenced sources were approximately 0.38 billion metric tons. At the time of emission, methane is 105-times more potent as a greenhouse gas, and for an integrated 20-year period following a pulsed emission of the two gases, methane is 86-times more powerful. Therefore, the methane emissions are equivalent to 39 billion metric tons of carbon dioxide emissions at first emission and to 32 billion metric tons of carbon dioxide for the average 20-year period after emission. The bottom line: **over the next 20 years, methane emissions from all sources globally are contributing as much to global warming as are the total emissions of carbon dioxide globally. These next 20 years are a critical time, given the very high risk of global runaway warming and climatic disruption.**”*

⁷ IPCC, Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (2013).

https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_SPM_FINAL.pdf

⁸ <https://link.springer.com/article/10.1007%2Fs10584-011-0061-5>

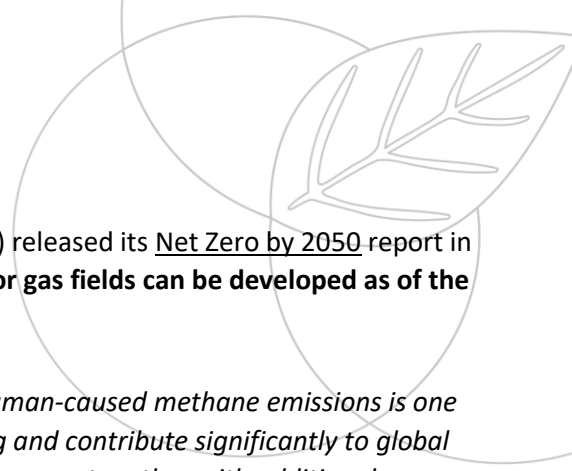
⁹ <https://www.scientificamerican.com/article/methane-leaks-erase-some-of-the-climate-benefits-of-natural-gas/>

¹⁰ Richard A Howarth *Gas Lifecycle Methane Emissions: Richards Bay Review* <https://naturaljustice.org/wp-content/uploads/2021/05/FA-12-Howarth-RichardsBayReview.pdf>

¹¹ Page 8. UNEP Global Methane Assessment report: Summary for Decision-Makers

<https://www.unep.org/resources/report/global-methane-assessment-benefits-and-costs-mitigating-methane-emissions>

¹² Howarth, Note 10 *supra*

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20. Based on the above considerations, the International Energy Agency (IEA) released its Net Zero by 2050 report in July 2021 that states that in order to reach net zero by 2050, **no new oil or gas fields can be developed as of the date of the report.**
21. According to the UNEP Global Methane Assessment report, *“Reducing 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. Available targeted methane measures, together with additional measures that contribute to priority development goals, can simultaneously reduce human-caused methane emissions by as much as 45 per cent, or 180 million tonnes a year (Mt/yr) by 2030. This will avoid nearly 0.3°C of global warming by the 2040s and complement all long-term climate change mitigation efforts. It would also, each year, prevent 255 000 premature deaths, 775 000 asthma related hospital visits, 73 billion hours of lost labour from extreme heat, and 26 million tonnes of crop losses globally.”*
22. As is often the case, certain sectors of society bear the brunt of both climate impacts and air pollution, which has a tendency to aggravate the impacts of poverty and inequality.
23. It can therefore be seen that the position that gas based energy production and use is ‘climate friendly’ and ‘clean’ is misleading and dangerous given what is at stake.

Gas and the South African electricity generation sector.

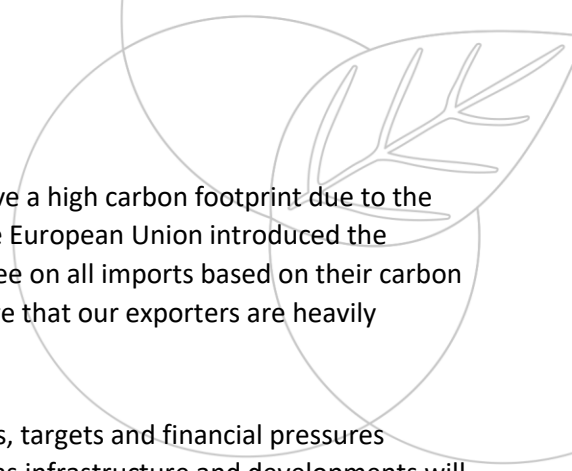
24. In 2020 Meridian Economics released a report titled A Vital Ambition: Determining the cost of additional CO2 emission mitigation in the South African electricity system.¹³ The focus of the report was to look at how South Africa can meet its power demand for the coming decades whilst drastically reducing CO2 emissions from electricity generation. Some of the key findings of the report relating to the use of gas in the electricity sector include:

- 24.1. Gas accounts for less than 3% of energy generation in all scenarios investigated – mostly in the range from 1.5% - 2.5%
- 24.2. Peaking requirements can be provided by liquid fuels for at least the next 10 years in all scenarios
- 24.3. Even the coal-off-by-2040 scenario, which relies on mid-merit capacity to replace coal, has annual fuel consumption until late 2030s in the historic range of existing OCGT liquid fuel usage.
- 24.4. RSA does not need to expand gas infrastructure to support the power sector for the foreseeable future.
Such a decision can wait for 10 – 15 years.
- 24.5. The 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.

The Risks and Impacts of Climate Change for South Africa

25. Continued development of fossil fuel energy infrastructure, including gas, presents a range of **economic risks** for South Africa:

¹³ <https://meridianeconomics.co.za/wp-content/uploads/2020/07/Ambition.pdf?fbclid=IwAR1mcE066kZkGknqJAHlYd5il71BaLZ0Bb7hEb74SBozr1bR4vb6Avn3DUU>



- 25.1. 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. The European Union introduced the Carbon Border Adjustment Mechanism (CBAM) which will levy a fee on all imports based on their carbon footprint.¹⁴ An extensive gas powered electricity system will ensure that our exporters are heavily penalised and their competitiveness is at risk.
- 25.2. As the law continue to get applied more vigorously, and as policies, targets and financial pressures become ever more restrictive, we foresee the very real risk that gas 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.¹⁵
- 25.3. There is a range of climate and transition financing mechanisms becoming available from the Global North for countries embracing accelerate decarbonisation policies and measure. South Africa is viewed as an attractive destination for such financing given the relatively low cost of decarbonisation for the country. In order to remain attractive, we need to send the right signals by embracing strong emission reduction measure and avoid expanding or even maintaining carbon intensive fossil fuel use such as gas. This financing is known to be much needed in order to fund out mitigation and adaption measures, and assist with a implementing a Just Transition.¹⁶
- 25.4. An extensive roll-out of gas infrastructure, energy generation and services brings with it **reputational risk** whereby South Africa is seen as a reckless and unnecessarily intensive carbon emitter, compromising our investment opportunities and depriving the economy of growth opportunities.
- 25.5. 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 2020.¹⁷ Our courts have already recognised that new coal fired power developments are contrary to climate change imperatives¹⁸, and the climate science relating to gas will result in similar and increasing challenges to new gas developments.
26. In terms of **physical risk**, the UPCC AR6 report indicate that the scientific community is more certain than ever before about the impacts of global warming, the links between GHG emissions and warming, the severity and timescales of these impacts. The impacts are well described in our submission, and we add here the key findings of IPCC AR6 as they relate to South Africa:
- 26.1. Under all scenarios, South Africa is going to experience increasing heatwaves and extreme hot weather events;
- 26.2. South Africa is one of the relatively few regions globally that is going to experience an\ decrease in mean average rainfall, and an increase in droughts as a result of global warming. Soil moisture levels are going to decrease.

¹⁴ <https://economics.rabobank.com/publications/2021/july/cbam-carbon-border-adjustment-mechanism-eu-explained/>

¹⁵ <https://oilprice.com/Energy/Crude-Oil/A-Third-Of-Fossil-Fuel-Assets-May-Soon-Be-Stranded>

¹⁶ <https://www.climatechangenews.com/2021/08/20/us-guidance-development-banks-puts-gas-infrastructure-finance-question/>

¹⁷ <https://energymonitor.ai/policy/litigation-increasingly-the-only-option-when-big-emitters-fail-to-address-climate-change>

¹⁸ <https://cer.org.za/wp-content/uploads/2017/03/Judgment-Earthlife-Thabametsi-Final-06-03-2017.pdf>

26.3. Rainfall events are going to increase, causing aggravated flooding risk;

26.4. There is increased risk of tropical storm impacts for the Northern KZN coast and Limpopo Valley.

27. As a result of these physical changes, the Wits University Global Change Institute found that the top climate change risks for South Africa are: food security and the viability of the agricultural sector; shortages of clean water; heat stress; disrupted ecosystems and loss of biodiversity; and a badly handled transition to low carbon energy.¹⁹

South Africa's emissions reduction requirements

28. Already South Africa is falling behind on its global and constitutional obligations to address climate change. The country's commitments fall outside the fair share range²⁰; and are not consistent with the Paris Agreement 2° Celsius target – let alone the 1.5° benchmark set by the IPCC.

29. On South Africa's present emissions trajectory (if all government targets were in the same range as South Africa's), warming (at a global average) would reach between 3 and 4° Celsius.²¹ This would be even more for South Africa - its Nationally Determined Contribution confirms that even a global average temperature increase of 2°C translates to up to 4°C for South Africa by the end of the century.²²

Linking the climate change impacts to the concerns around governance in the Bill.

30. The nature of climate change is such that the impacts are widespread and severe, with proximity to the source of emissions not being an applicable factor. It is therefore essential that our comments relating to **public participation, adequate consultation** and **administrative justice** are taken into account and adequately addressed. Parties from around the country are entitled to and need to have a say in the decision-making process of activities which influence these impacts and their causes.

31. The Ministry and the Department of Environment, Forestry and Fisheries (DFFE) are, rightly, the effective lead co-ordinators of South Africa's climate change responses, as well as being the primary protectors of the rights to a healthy and safe environment. The derogation of the One Environmental System as envisaged by the Bill, and as described and expanded on in our submission, is particularly unacceptable given the crucial importance of ensuring that climate impacting activities are suitably planned and executed. The DFFE is the custodian of South Africa's climate change laws and regulations; of information relating to GHG emissions and inventories, of climate change targets (such as the Nationally Determined Contributions under the Paris Agreement) as well as emission reduction policies and measures. To exclude, bypass or dilute the function of this organ of state in any way creates risk that South Africa's climate change response is not sufficiently holistic and safely co-ordinated, and may not be executed in accordance with the latest science and policy imperatives in this evolving and critically important field.

32. The term "environmental sustainability" is used once in the Bill, and climate change is not referenced at all. Given the profound impact of the activities regulated by the Bill on climate change, we submit that this

¹⁹ <https://www.dailymaverick.co.za/article/2020-10-12-threat-multiplier-the-top-five-climate-risks-likely-to-hasten-our-descent-into-a-hellscape/>

²⁰ <https://cer.org.za/wp-content/uploads/2021/05/NDC-vs-fair-share-memo-v04-corrected-version.pdf>

²¹ <https://climateactiontracker.org/countries/south-africa/>

²² Francois Engelbrecht et al 2015 Environ. Res. Lett. 10 085004 (<https://iopscience.iop.org/article/10.1088/1748-9326/10/8/085004/pdf>)

instrument must reference climate change, in particular with reference to applications, licencing, objections and the principles applicable to the gas master plan.

Conclusion

33. The Bill envisages regulating and facilitating the mass roll-out of activities which are likely to have devastating impacts on our climate and our responses to climate change. Gas is a fossil fuel, the extensive use of which is contrary to the need and imperatives of ensuring a safe and healthy environment for current and future generations. The Bill falls woefully short of recognising this and ensuring that this right is adequately protected.
34. Extensive gas related infrastructure development and use will lock South Africa in to a new era of fossil fuel use which the country cannot afford in terms of the economy and climate change response needs.
35. We submit that the Bill must:
 - 35.1. Ensure socio-economic and environmentally sustainable development
 - 35.2. Manage economic risk – our economy cannot afford the costs of heading down an unsustainable road
 - 35.3. Elevate and centre climate change considerations. There can be an argument that CC considerations should reside in the CC act and DFFE. But if we look at the CC Bill we see that it requires many departments, including DMRE, to actively take responsibility for CC considerations falling within its mandate.
 - 35.4. Strengthen administrative justice considerations.

We thank you.