

Parliamentary Portfolio Committee on Mineral Resources and Energy
Public Hearings on the Gas Amendment Bill [B9 - 2020]
Oral presentation by Marilyn Lilley 30 November 2021

.Part of the preamble of the Gas amendment Bill [B9 - 2020]states that the purpose of the amendments is:

- to provide for socio-economic and environmentally sustainable development; and
- to facilitate gas infrastructure development and investment.

This statement does not acknowledge the fact that gas is a fossil fuel and that the extraction, distribution, processing and consumption of this resource is a key and primary driver of greenhouse gas emissions and climate change.

This further places this Bill and South Africa directly at odds with the Paris Climate Agreement, to which South Africa is a signatory, which requires divestment from and a reduction in the extraction of all fossil fuels.

This Bill seeks to facilitate further investments in the gas sector.

Our challenge is

Will awareness in South Africa of the **'Code Red'** level of our present climate crisis lead to action, to our reduction of gas related operations and their global warming emissions, along with the reduction of other fossil fuels operations and our dependency?

Or will SA continue to promote the development of the gas industry as in the preamble of the Gas Amendment Bill, and with this, knowingly increase our global warming green house gas emissions?

Will SA be on the right side of climate change and on the right side of history, or will SA be on the wrong side of climate change and on the wrong side of history? This Committee with its oversight role has very important decisions to make.

This Gas Amendment Bill is focused on infrastructure, transmission, storage and related activities and processes

The health and pollution risks and impacts are also important during the fugitive emissions at each stage of the processing and transmission phase and operations, the many related industrial facilities, pipelines, compressor stations, waste disposals, transport etc - and not only during the drilling and production phase.

We cannot look at these two phases in isolation from each other.

These risks and impacts cover the entire process from exploration to end usage – the entire lifetime of gas

IPCC Report 7 August 2021 Intergovernmental Panel on Climate Change

‘The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.’

Key IPCC points:

‘South Africa is a climate change “hotspot”.’

‘Limiting other greenhouse gases and air pollutants, especially methane, could have benefits both for health and the climate’, says IPCC lead author Panmao Zhai.’

‘Andersen said: “Cutting methane is the strongest lever we have to slow climate change over the next 25 years. We need international cooperation to urgently reduce methane emissions as much as possible this decade.” ‘ Inger Andersen, UN environment chief.

‘The surge (in methane) is partly due to the increased use of fossil fuels, especially gas produced by fracking, Shindell said’

Article, Video re IPCC report- Reducing methane and fossil fuels

8/9/21 'Methane Is a New Big Enemy in the Battle Over Climate Change, IPCC Says'

'For the first time, the IPCC has focused on the need to drive down methane emissions

Countries need to figure out ways to make "strong, rapid and sustained reductions" in methane emissions—in addition to ramping down CO2_'

<https://gizmodo.com/methane-is-a-new-big-enemy-in-the-battle-over-climate-c-1847449684>

Aug 17, 2021

Prof Francois Engelbrecht, Wits Global Change Institute,

South African Climate scientist, was one of the lead authors of the report

Gave a presentation –'**Implications for Africa and South Africa**'

'The most recent science that has come out of the recently published IPCC report on climate change'

hosted by the Climate Justice Charter Movement; EFS, Wits and COPAC.

<https://youtu.be/USrIsdhuckI>

The work undertaken by Sharon Wilson with Earthworks in detecting unseen emissions from gas infrastructures using a FLIR camera is internationally recognised

Sharon Wilson, Earthworks: “There would be no #fracking boom if you could see through my lens. I want everyone to see #oilandgas through my lens. #methane from #oilandgas is accelerating #Climate Change”

Video of emissions from a gas facility - unseen to the naked eye- are seen using a FLIR camera

VIDEO 48 seconds : <https://twitter.com/TXsharon/status/1212479572765229056>

See more videos of emission from gas facilities captured with a FLIR camera on Earthworks' youtube channel:
<https://www.youtube.com/c/Earthworks/videos>

THE FLIR (Forward Looking InfraRed) GF320 CAMERA uses state-of-the-art, independently verified technology capable of detecting volatile organic compounds (VOCs), including known carcinogens, and greenhouse gases.'

https://earthworks.org/publications/flir_gasfinder_320_infrared_camera/

EARTHWORKS – Infrared FLIR camera detects greenhouse gas venting, fugitive emissions and VOC's from gas facilities. **Out of sight is not out of harm's way**

Earthworks is a non-profit organization dedicated to protecting communities and the environment from the adverse impacts of mineral and energy development while promoting sustainable solutions.

“Concerns over fracking spread far beyond well pad and gas or oil production. After gas or oil is brought to the surface, the industry needs a variety of equipment and facilities to process, transport, and deliver both Oil and gas and their spin-off products from production to markets”

Cycle of pollution

Taken together, all this infrastructure can have wide-ranging impacts on communities and the environment.

<https://earthworks.org/campaigns/infrastructure/>

During the drilling, fracking and extraction processes, significant amounts of fugitive gas emissions take place, with serious implications for air pollution, climate change and human health.

‘Volatile organic compounds (VOCs) are emitted as gases from certain solids or liquids. VOCs include a variety of chemicals’

‘Benzene, toluene, ethyl benzene, and xylenes are naturally present in many hydrocarbon deposits, and may be present in drilling and fracking chemicals.

These VOCs can cause symptoms such as headache, loss of coordination, and damage to the liver and kidneys; benzene is a carcinogen as well.’

'Health and fracking: Should the medical profession be concerned?'

'South African Medical Journal [Vol 104, No 5 \(2014\)](#)

Health and Fracking: Should the medical profession be concerned?

Rachel Mash, Environmental co-ordinator of the Anglican Church of Southern Africa; Department of Family Medicine, Stellenbosch University, South Africa

Jolynn Minnaar, Journalist and director of Unearthed, South Africa

Bob Mash, Division of Family Medicine and Primary Care, Stellenbosch University, Tygerberg, South Africa

...**These health concerns have not yet been fully addressed in policy making**, and the authors recommend that the voice of health professionals should be part of the public debate on fracking and that a **full health impact assessment be required before companies are given the go-ahead to drill.**'

<http://www.samj.org.za/index.php/samj/article/view/7860>

'April 22, 2013 – In one of the first peer-reviewed nursing articles summarizing the known health and community risks of fracking, **Professor Margaret Rafferty**, Chair of the Department of Nursing at New York City College of Technology wrote, **"Any initiation or further expansion of unconventional gas drilling must be preceded by a comprehensive Health Impact Assessment (HIA)."**

Fracking is a public health issue, human rights issue, an environmental justice issue and a climate justice issue

The Constitution is the supreme law in South Africa. The environment and citizens need to be protected in all the many aspects and activities of fossil fuel operations.

'Environment

24. Everyone has the right—

- (a) to an environment that is not harmful to their health or wellbeing; 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 resource

Everyone has the right to an environment that is not harmful to their health or wellbeing'.

Children

'A child's best interests are of paramount importance in every matter concerning the child'

Among other Rights e.g.- Water, Access to information, Life, Dignity, Public Participation

The Endocrine Disruption Exchange – what is in the emissions from fracking oil and gas operations and how do they affect us?

TEDX - The Endocrine Disruption Exchange was pioneered by the late **Dr Theo Colburn**

This research remains relevant to date

TEDX's [Oil & Gas Program](#) pioneered the identification of health effects associated with unconventional oil and gas operations, known as fracking.

Many endocrine disruptors originate with fossil fuel extraction.

Endocrine disrupting chemicals are chemicals that interfere with normal hormone action.

The endocrine system is the body's exquisitely balanced system of glands, organs, and hormones that regulates such vital functions as body growth, response to stress, sexual development, production of insulin and utilization of glucose, metabolism, neurodevelopment, intelligence, behavior, sleep patterns, blood pressure, and the ability to reproduce

Chemicals that disrupt hormone function can have substantial and sometimes permanent impacts on health.

TEDX -Oil and Gas Spreadsheets, Drilling and Fracking Chemicals, products, chemicals and their health effects

January 27, 2011 <https://endocrinedisruption.org/audio-and-video/chemical-health-effects-spreadsheets>

OIL AND GAS SPREADSHEETS

Find research related to health impacts of chemicals used in unconventional oil and gas operations, including drilling, fracturing, and waste removal.

TEDX's spreadsheets are tools for government and non-government organizations, the public, and scientists to have easy access to relevant research.

Drilling and Fracking Chemicals Spreadsheet

Download the [Summary](#) and [Excel Spreadsheet](#) of products, chemicals and their health effects.

Drilling Chemicals Spreadsheet

Download a [Summary](#) and [Excel Spreadsheet](#) of the products and chemicals used to drill the Crosby 25-3 well.

Wastewater Spreadsheet

Download a [Summary](#) and [Excel Spreadsheet](#) of chemicals found in drilling reserve pits in New Mexico.

Download a [Summary](#) of chemicals on national toxics lists found in the New Mexico pits.

In 2011, a report and list of 750 chemicals used in hydraulic fracking was published by the

'UNITED STATES HOUSE OF REPRESENTATIVES COMMITTEE ON ENERGY AND COMMERCE MINORITY STAFF APRIL 2011

CHEMICALS USED IN HYDRAULIC FRACTURING'

http://ecolo.org/documents/documents_in_english/gas-Hydraulic-Fract-chemicals-2011-report.pdf

Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction) Seventh Edition December 2020 www.concernedhealthny.org

'The Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (the Compendium) is a fully referenced compilation of evidence outlining the risks and harms of fracking.

It is a public, open-access document that is housed on the websites of Concerned Health Professionals of New York (www.concernedhealthny.org) and Physicians for Social Responsibility (www.psr.org)'

'About this Report

The Compendium is organized to be accessible to public officials, researchers, journalists, and the public at large.

The reader who wants to delve deeper can consult the reviews, studies, and articles referenced herein.

In addition, the Compendium is complemented by a fully searchable, near-exhaustive citation database of peer-reviewed journal articles pertaining to shale gas and oil extraction, the Repository for Oil and Gas Energy Research, that was developed by **PSE Physicians, Scientists and Engineers** and is housed on its website

<https://www.psehealthyenergy.org/our-work/shale-gasresearch-library/> '

Physicians, Scientists and Engineers (PSE)

<https://www.psr.org/issues/environment-health/fracked-gas/>

Concerned Health Professionals of New York (CHPNY): **New additions to be included in the upcoming 8th Edition of the Compendium**

March 31, 2021 – **Fracking activities “pose significant risks to the public health profile across the Oklahoma population” according to a unique study using a comprehensive health profile of the population across 76 counties, over twenty years (1998–2017).**

April 17 2021 **Air pollution, methane super-emitters, and oil and gas wells in Northern California: the relationship with migraine headache prevalence and exacerbation**

'2021 Jul 21. Press release: **Residential proximity to oil and gas drilling linked to lower birthweights in newborns**

Associations between Residential Proximity to Oil and Gas Drilling and Term Birth Weight and Small-for-Gestational-Age Infants in Texas: A Difference-in-Differences Analysis

September 30, 2020 – **A Texas-based study on flaring found links between childhood asthma hospitalizations and both unconventional and conventional gas development.** Previous research addressing fracking and asthma used Pennsylvania data, and these Texas findings corroborate those findings.

A few examples of the topics in the Compendium, Seventh Edition December 2020

Extracts: [Emerging Trends \(page 29\)](#)

[A few of the Topic Headings:](#)

Public health problems associated with drilling and fracking include poor birth outcomes, respiratory impacts, cancer, heart disease, and mental health problems

Drilling and fracking contribute to toxic air pollution and ground-level ozone at levels known to have health impacts.

Regulations are simply not capable of preventing harm.

Drilling and fracking activities bring naturally occurring radioactive materials to the surface.

Regulations cannot stop radioactive emissions

Regulations cannot eliminate earthquake risks

Regulations cannot prevent air pollution

Regulations cannot stop wells from leaking.

Fracking and natural gas are incompatible with climate solutions.

Fracking and the disposal of fracking waste threaten drinking water

Fracking raises human rights and environmental justice issues

[Compilation of Studies & Findings: \(page 60\)](#)

(In the Index –Clicking on any topic will take you straight to that section)

‘Health professionals are increasingly calling for bans or moratoria on fracking’

‘Health professionals are increasingly calling for bans or moratoria on fracking, based on a range of health hazards and as reviews of the data confirm evidence for harm’

www.concernedhealthny.org

‘Drilling and fracking activities bring naturally occurring radioactive materials to the surface
Regulations cannot stop radioactive emissions’: www.concernedhealthny.org

There is **radiation at every stage of fracking** and related facilities and operations - even in one’s kitchen using gas to cook with.

This is part of the reason, apart from geology, why radon test kits are a feature in many US homes.

There is **no known way to clean toxic radioactive frack flowback and wastes to any safe level for humans or the environment.**

Various Occupational Health and Safety Acts in SA apply to workers dealing with **hazardous chemicals and radioactive wastes.**

Importantly

What rights and health and safety legislation in SA applies to the public similarly exposed to the known hazardous toxic chemicals and radioactivity from industrial oil and gas operations and infrastructures where communities live?

Recommendations

That

- The Committees on Mineral Resources and Energy, also Health, Environment Forests and Fisheries, Water and Sanitation, the Human Rights Commission

their related Ministers, Departments, PASA, The Energy Regulator and any other related body in gas and fossil fuel affairs

Note, record, and file the 'Compendium' for future reference, **'Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction) Seventh Edition December 2020** www.concernedhealthny.org

- The above Committees, Ministers and Departments and any other bodies involved in assessing all fossil fuel permit applications –**take into account the contents of the Compendium**
- **Adopt the Precautionary Principle until the known health issues and other impacts are properly researched and proved safe for humans, the environment and for the climate**
- **Instate a Moratorium on fracking, including coal seam gas fracking.**
- That a timeline of six months be given to address a policy on reducing gas and other fossil fuel operations, development and dependency in South Africa, and especially methane related operations
- That a timeline of six months be given to address the incorporation of a Health Impact Assessment in assessing all fossil fuel permit applications, and especially gas fracking operations, and all related infrastructures upstream and downstream.
- Due diligence requires that a HIA be undertaken

All wells eventually leak, casings and pipes rust, cement crumbles and chemicals leach into groundwater



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2021 Jan 23 - **Natural gas development, flaring practices and paediatric asthma hospitalizations in Texas**

March 29, 2021- **Living near urban oil drilling sites in South Los Angeles was linked with reduced lung function among residents** in a community-driven USC and Occidental College epidemiological study.

November 20, 2020 – **A public health nursing study found a correlation between oil development and gonorrhoea rates in North Dakota between the boom years of 2002 to 2016. ‘**

(This is one of the many impacts related to mancamps where large numbers of men, often oil and gas industry expats working on pipeline construction move into rural areas especially near poorer and indigenous communities, known issues including sexually transmitted diseases, rape, violence, drugs, sex trafficking occur)

Further reading: climate change and fugitive emissions

IPCC:

Wed 1 Sep 2021

'Opec member urges oil producers to focus more on renewable energy'

'Iraqi minister and International Energy Agency chief urge countries to move away from fossil fuel dependency'

https://www.theguardian.com/environment/2021/sep/01/opec-member-urges-oil-producers-to-focus-more-on-renewable-energy?CMP=Share_iOSApp_Other

Summary for Policymakers: <https://www.ipcc.ch/report/ar6/wg1/?s=09#SPM>

7 August 2021 IPCC: This Report addresses the most up-to-date physical understanding of the climate system and climate change, <https://www.ipcc.ch/report/ar6/wg1/?s=09>

<https://www.theguardian.com/environment/2021/may/06/cut-methane-emissions-rapidly-fight-climate-disasters-un-report-greenhouse-gas-global-heating>

Earthworks:

'Venting, Fugitive emissions methane and VOC's from natural gas facilities captured using a FLIR infrared camera'

<https://earthworks.org/>

Further reading: EARTHWORKS – Infrared FLIR camera detects greenhouse gas venting, fugitive emissions and VOC's from gas facilities. Out of sight is not out of harm's way

Video of gas emission with a FLIR camera

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VIDEO: <https://twitter.com/TXsharon/status/1212479572765229056>

VIDEO Pipeline Vent, Epping, ND

<https://www.youtube.com/watch?v=RQNRMPKxEm0&t=12s>

See more videos on Earthworks' youtube channel:

<https://www.youtube.com/c/Earthworks/videos>

Further reading: health impacts

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Medical journals and findings

‘South African Medical Journal [Vol 104, No 5 \(2014\)](#)

Health and Fracking: Should the medical profession be concerned

Rachel Mash, Environmental co-ordinator of the Anglican Church of Southern Africa; Department of Family Medicine, Stellenbosch University, South Africa

Jolynn Minnaar, Journalist and director of Unearthed, South Africa

Bob Mash, Division of Family Medicine and Primary Care, Stellenbosch University, Tygerberg, South Africa

‘..concerns have been raised regarding the health and environmental impacts.

<http://www.samj.org.za/index.php/samj/article/view/7860>

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<https://concernedhealthny.org/compendium/>