EMG

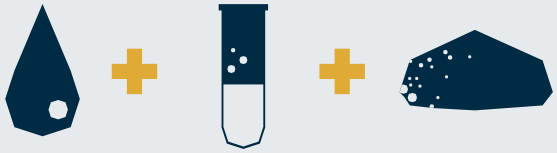
FACT SHEET 1

Fracking: facts and key messages

EMG
Environmental
Monitoring Group

Just so we know what we're talking about... what is fracking and what's happening with fracking in SA?

Fracking – short for 'hydraulic fracturing' – is the process of pumping a mixture of **water, chemicals and sand deep** into the shale bedrock to **shatter** it and **release** the **natural gas** buried there. The extraction process is not new, but only in the past decade has there been such a surge of interest in it.



A brief timeline of fracking in South Africa:

2010/11

Shale gas hits the SA energy agenda, with a slew of applications to government, to prospect for this natural resource. Shell is the most high profile applicant. Areas targeted for prospecting are scattered and cover about 20% of the country.

Civil society lobbies government to err on the side of caution. Government places a moratorium on the issuing of exploration licences.

2012

The moratorium is lifted, but fracking is listed as a 'controlled activity', meaning companies need a water licence to do it. The Department of Mineral Resources publishes a draft policy on exploration for fracking – but it is roundly criticised as being inadequate by civil society.

2013

The February budget speech reveals fracking – the incipient 'game changer' for the South African economy – to be well and truly on the government agenda. In August 2014 Treasure Karoo Action Group (TKAG) writes to the Public Protector to request that the moratorium on fracking exploration is re-instated. Nevertheless, in October 2014 it is announced that Challenger Energy's exploration license application will be processed by Petroleum Agency of South Africa (PASA), the first of a batch of applications to be processed.[1]

2014

Fracking poses a threat to water in multiple ways:

It has extremely high water requirements that would exceed the available groundwater in the Karoo, so alternative sources would have to be trucked into the area. These might include municipal waste water or abstraction from deep aquifers, possibly our best alternative supplies of water in the future – or sea water, which would require costly and energy-expensive treatment before being used.

It results in groundwater contamination from: methane gas migrating from active wells to nearby water sources; fracking fluids migrating back up the well and leaking into surface water or aquifers; or fracking fluids migrating back up to the surface along 'preferential pathways' e.g. dolerite dykes.

It requires wastewater management: large amounts of highly toxic fracking fluid and 'drilling mud' have to be stored at the surface and then transported and 'disposed of' or recycled somewhere else. This process carries many risks of leakage and spillages, and it is unlikely SA will have the capacity to deal adequately with the high volumes of toxic waste, given our poor track record with municipal wastewater treatment and acid mine drainage.

Embarking on hydraulic fracturing in an area covering 20% of South Africa's total land mass will have serious consequences for both water and food security.

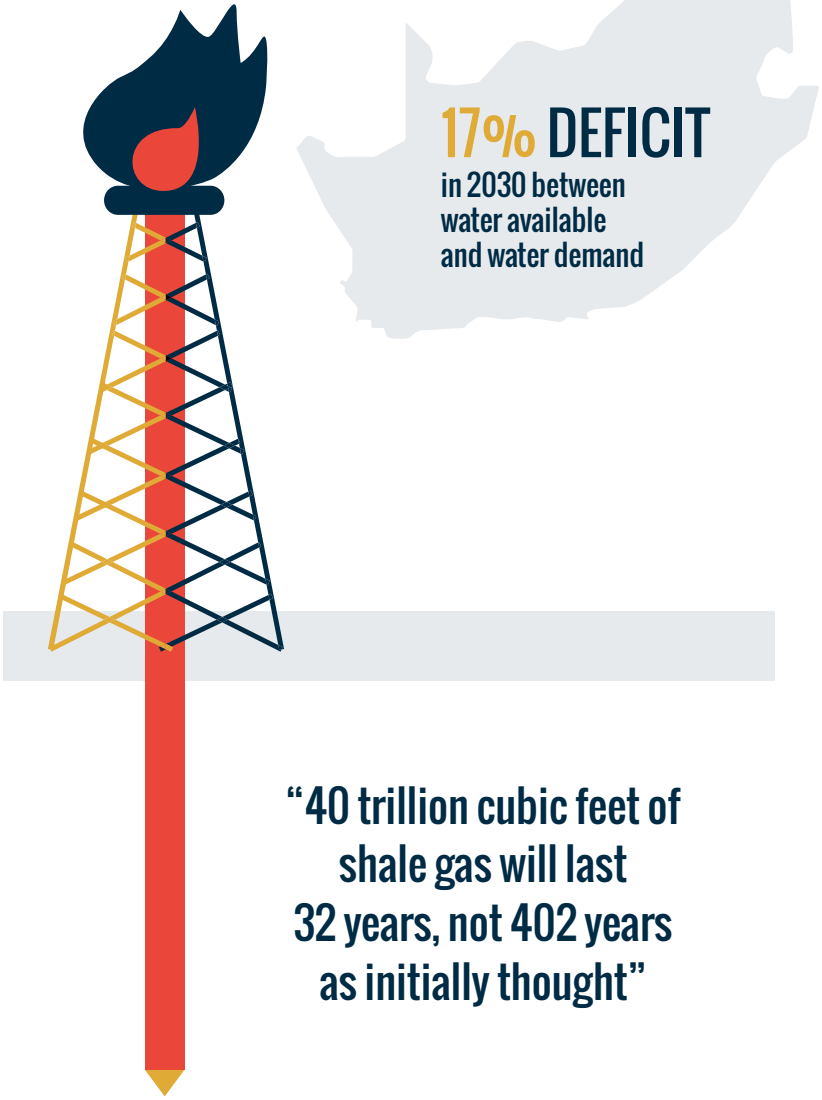
Fracking is not just a farmers' problem – whole towns could be devastated: 94% of towns in the Karoo depend on groundwater.

What does EMG have to say about fracking?

South Africa cannot afford to pollute and lose vast amounts of groundwater due to fracking.

It is estimated that we are currently **using 98% of South Africa's available surface water resources**[2], and that the deficit between available water and water demand will be 17% by 2030.[3]

Water used in the fracking process is effectively removed from the water cycle, as it is transformed into a **toxic cocktail** mixed with radioactive substances. South Africa cannot afford the quantity of water that is lost to fracking. Further, hydraulic fracking requires different regulation from existing mineral resources and so we **do not have the legal framework for dealing with it.**



"40 trillion cubic feet of shale gas will last 32 years, not 402 years as initially thought"

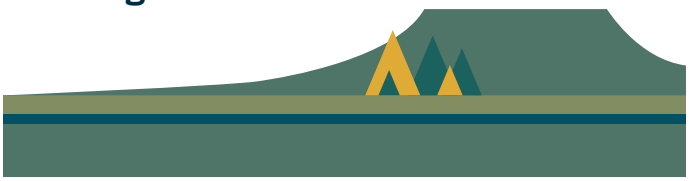
Fracking is a false solution to energy security, climate change and economic growth

Zuma, in his 2014 State of the Nation speech, again referred to fracking as a potential 'game changer' for the economy, saying that 'we will pursue the shale gas option within the framework of our good environmental laws'. Given the lack of compliance with and enforcement of these laws in mining, especially, his words are not reassuring. Even with the necessary legal framework, **SA does not have the expertise or regulatory capacity** to manage an industry notorious for its ecological violations all over the world.

More and more evidence suggests that there is not as much shale gas available in SA as was initially thought: 'But suddenly it's not the "game-changing" 485 trillion cubic feet of gas that some or other impressive-sounding institute thought we might have. Nor is it their revised 370 trillion cubic feet. No, according to the Petroleum Agency of South Africa, it is just 40 trillion cubic feet".[4]

Forty trillion cubic feet translates to just 32 years of shale gas, not 402 years of gas as originally projected. The supposed 'game changer' is likely to have far less impact on economic growth and employment opportunities – but the **long-term threat to water from fracking remains.**

"...industry notorious for its ecological violations..."



It is clear that the risks fracking poses to water and food security undermine its potential contribution to energy security. If we go ahead with fracking, we might slightly delay the energy crisis, but we will replace it with a much-accelerated water crisis.

Further **'hidden costs' of fracking** include: road transport and associated damage to national, provincial and local road networks; air pollution; water pollution; waste disposal; health care for potentially diseases such as cancer, leukaemia and silicosis; and loss of existing jobs in the agriculture and tourism sectors.

Fracking is often promoted as a clean energy source, which can fulfill a bridging role between current dirty coal and future renewable energy sources, and therefore a good choice in terms of climate change. However, while shale gas (consisting mostly of methane gas) burns cleaner than coal, **over its full production cycle shale gas may be more harmful to the atmosphere than other fossil fuels.**[5]

Plus, there is **no clear strategy** of how shale gas can bridge a high-to-low carbon path for South Africa, and there is no move towards weaning us off coal (the newly-built Medupi and Kusile lock us into 50 more years of coal-based energy).

Renewable energy specialists fear that large-scale gas production will deter the development of true renewables. Furthermore, evidence suggests that the 'escaped' methane – emissions released by fracking but not captured – makes **fracking worse for climate change than coal.**

'Ultimately, **it's about energy versus water.** Given we have other sources of energy (like abundant sunlight beaming free energy down on us across most of the country almost all year round) but we don't have an abundant supply of water, you'd think it would be a no-brainer? South Africa is a water scarce, sunny country. Water should trump gas hands down.' [6]

Footnotes

1. http://www.miningmx.com/page/news/energy/1647139-SA-Govt-kicks-on-with-Karoo-shale-gas-permits#.VFjOc_Q59D1
2. Blignaut, J. and Van Heerden, J. 2009. The impact of water scarcity on economic development initiatives. *Water SA* (35)4
3. Greenpeace. 2011. *The true cost of coal in South Africa.* Available at http://www.greenpeace.org/africa/en/News/news/The-True-Cost-of-Coal/
4. http://www.bdlive.co.za/businesstimes/2014/07/27/fracking-beware-what-lies-beneath
5. Howarth, R., et al. 2011. Methane and the greenhouse-gas footprint of natural gas from shale formations. *Climatic Change Letters* 105: 5
6. Joubert L. *Frack that!* Available at http://untoldstories.org.za/Story-4_Frack-that.html

Resources

1 'You can't have your gas and drink your water!' by Liane Greeff. Available at http://www.emg.org.za/images/stories/water_cl_ch/fracking%20and%20water%20in%20sa_tp%20print.pdf

2 Treasure the Karoo Action Group: http://www.treasurethekaroo.co.za

3 Facebook discussion group: 'Chase SHELL OIL out of the Karoo!'

4 Southern Cape Land Committee: http://www.sclc.co.za

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