

# INFORMATION ON SOUTH AFRICA'S FRACKING PROPOSALS IN THE KAROO BASINS: MEDIA AND OTHER SOURCES

(Originally published - April 25, 2011. Updated - April 27, 2011)



Flora of the Karoo - Karoo Desert National Botanic Garden  
- Photograph Karoo Desert National Botanic Garden



Worcester Karoo Flowers - South Africa - Photo: <http://farm4.static.flickr.com>





# The Petroleum Potential of South Africa's Onshore Karoo Basins

By Lindiwe Raseroka and Ian R. McLachlan - Search and Discovery Article #10196 (2009)

Posted June 16, 2009 (Adapted from expanded abstract prepared for AAPG International Conference and Exhibition, Cape Town, South Africa, October 26-29, 2008.)

## Abstract

The Late Carboniferous to Mid-Jurassic Karoo basins hold an important place in South African geology and economics as they occupy more than half of the nation's land area and host the coal deposits that provide most of the country's energy. Together with the gold in the underlying Archean Witwatersrand deposits they have provided the focus for the development of South Africa's industrial heartland. As yet very little systematic modern exploration for petroleum has been done - the opportunity exists for a new generation of explorers to test the potential of these huge basins.

The Great Karoo basin covers an area of over 700,000 km<sup>2</sup> and constitutes a retro-arc foreland basin. Maximum downwarping occurred in the south where cumulative sediment thickness reached 12 km. South Africa's main coal deposits occur in an arc across the northern flank of the basin but major reserves are also contained in the smaller fault controlled basins that lie to the north.

Promising petroleum exploration plays include:

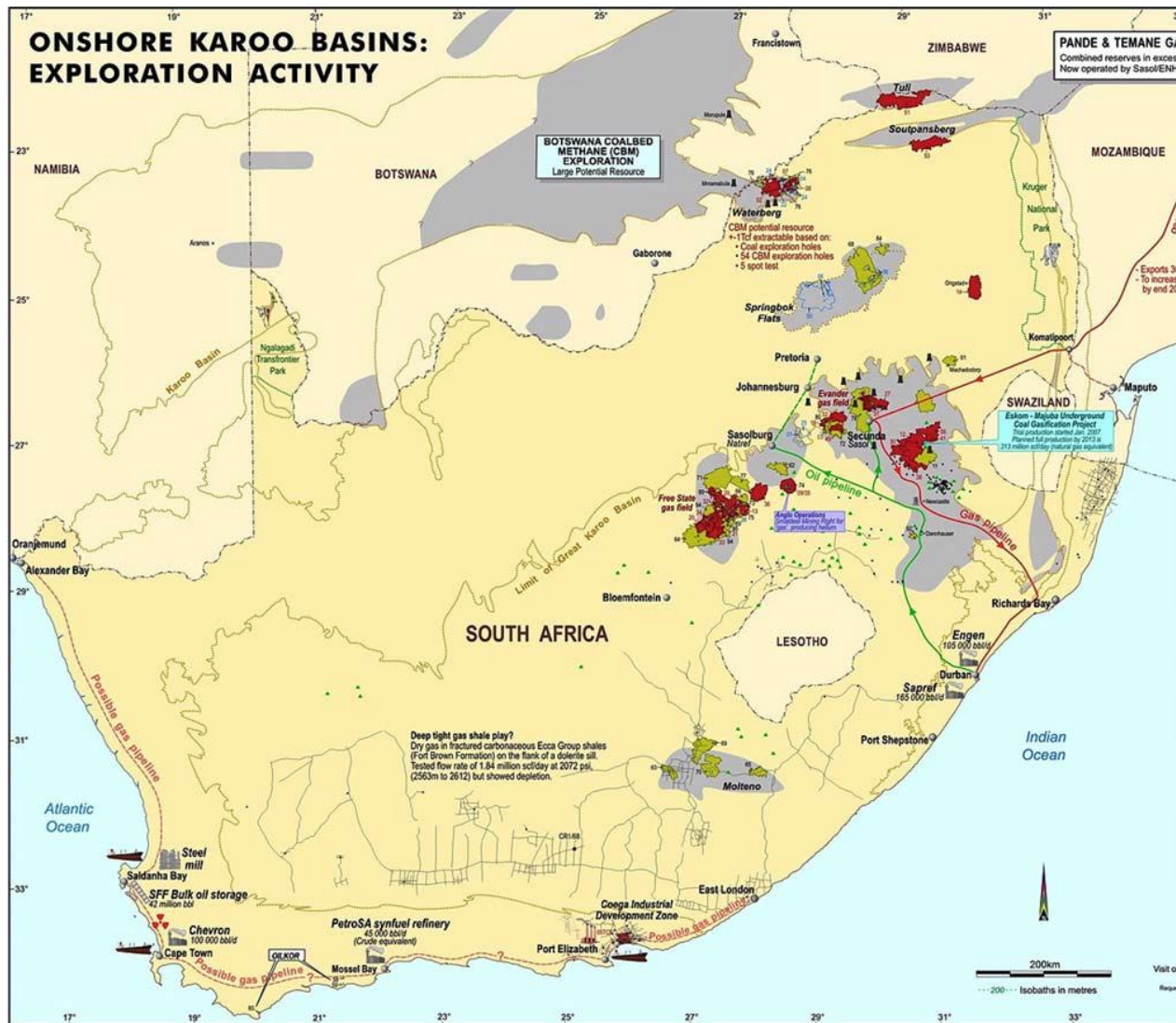
- Coal-bed methane
- Conventional gas
- Unconventional, possibly biogenic gas (associated with high concentrations of helium - up to 26%) that occurs in the Witwatersrand Group and other ancient basement rocks in the Welkom and Evander gold field areas.
- Deep tight shale gas
- Conventional oil

The present energy shortfall in South Africa provides a new impetus for the development of an expanded natural gas industry.

The present energy shortfall in South Africa is providing a new impetus to petroleum exploration. Already there are 26 current exploration rights (four of which are old order rights awaiting conversion under the new Minerals and Petroleum Resources Development Act of 1994) and 34 new applications (received on a first come, first served basis) are being processed. The main focus has been on natural gas. Long term player, Anglo Operations has been operating a five-spot pumping test in the Waterberg since 2004 and plans to start another shortly. In the main Karoo basin since the beginning of 2008, other exploration companies have drilled 20 exploration wells to test coal-bed methane potential. The pace of drilling is expected to pick up significantly before the end of the year.

For decades, the methane encountered in underground gold mining in the Free State and Evander gold fields has been regarded only as a hazard and it is still being blown to waste in large quantities. A number of companies are investigating if this “waste” can be turned to commercial advantage, with associated environmental benefits.

A fresh look is also being taken into the occurrences of oil hosted in sandstones of the Ecca and Beaufort Group in a wide arc across the northern and north-eastern parts of the Great Karoo basin, to determine if new technology can be applied to producing these challenging deposits.



Map from 2009 article showing the Karoo Basins, with South Africa’s Great Karoo Basin outlined in gold colour.

# South Africa: Falcon Oil & Gas secures permit to evaluate South African properties



Energy-Pedia News  
October 27, 2009

**Falcon Oil & Gas**, a global energy company focused on acquiring, exploring and developing large acreage positions of unconventional and conventional oil and gas resources, has announced that the Company has secured a Technical Cooperation Permit to evaluate the Karoo Basin in central South Africa.

Falcon has up to one year to conduct a technical appraisal of the area covered by the Permit, which will include review of the South African Petroleum Data Base. The Permit does not require Falcon to drill any wells during the one-year appraisal period, and establishes Falcon in a priority position for exercising future exploration rights within the lands covered by the Permit.

The principal focus of the 7.5 million acre **Karoo Basin Technical Cooperation Permit**, located about 120 miles northeast of Cape Town, South Africa, is gas from fractured shale and sandstone in Permian age rocks. Nine wells have been drilled in the area (late 60's and early 70's) and all have encountered gas shows. One of the wells, drilled in 1968, had an unstimulated flow rate of 1.84 million cubic feet of gas per day from fractures.

'The acquisition of the permit gives Falcon access to another potential unconventional energy basin and an additional option for Falcon's exploration portfolio,' stated Marc A. Bruner, CEO and President of Falcon Oil & Gas.

## South Africa: Statoil and Sasol apply for shale gas exploration rights

Energy-Pedia News  
November 25, 2009

A multinational gas exploration joint venture has submitted an 'exploration right application' to the Petroleum Agency South Africa (PASA) for an onshore shale-gas resource in the **Karoo Basin**, situated in the central region of South Africa.

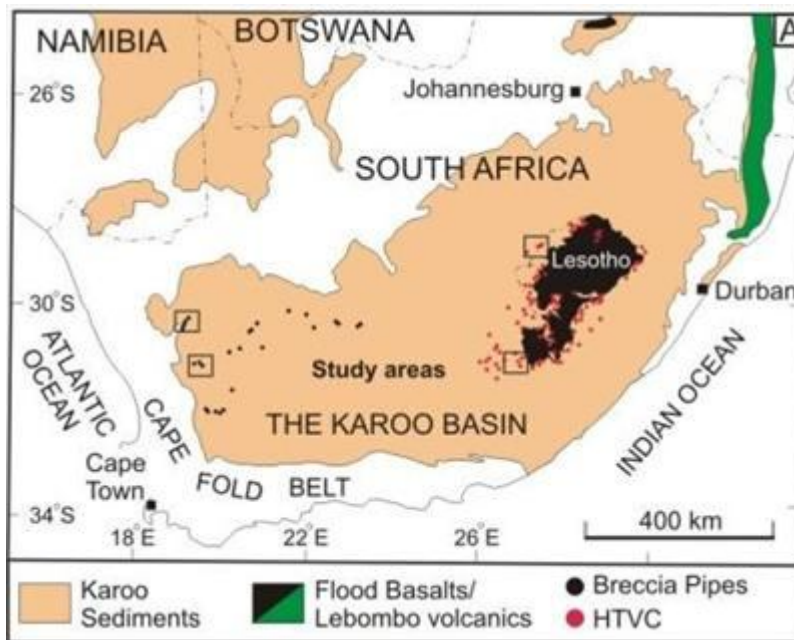
The participants in the joint exploration venture include **Sasol Petroleum International**, a subsidiary of JSE-listed Sasol, **Statoil**, of Norway, and **Chesapeake Energy Corp**, of the US. It was anticipated that the application would take 12 months to process.



PASA, which is South Africa's agency for the promotion of onshore and offshore petroleum exploration, is empowered to issue exploration rights for an initial period of three years, which are renewable for a maximum of three additional two-year periods. Should exploration prove successful, the JV could move to secure a production right for a period of 30 years, which was also renewable.

The Karoo basin programme would focus on the natural gas produced from shale, which is a type of sedimentary rock formed from clay. Shale gas has become an increasingly important source of natural gas in countries such as the US, and interest had also grown in Canada and Europe.

The partners noted in a joint statement that the Karoo basin had unproved shale gas potential and significant exploration efforts were still required to assess the resource. The Karoo Basin in central South Africa has unproved shale gas potential and 'significant exploration efforts are required to assess' Sasol said.



'We're applying for an exploration area, but it will take a while before anything more happens,' Statoil spokeswoman Mari Dotterud has said. 'Once we get the approval, the next step will be seismic surveys and then the next step would be drilling. This can be an interesting area for shale gas.'

Producers such as Statoil and BP are tapping unconventional sources to stem a decline from fields in the North Sea and other maturing areas. Shale rock thousands of feet below the surface is more expensive to develop and needs a greater number of wells than conventional reserves.

Statoil late last year bought a 32.5% stake in Chesapeake's acreage in the Marcellus Shale formation in Pennsylvania, West Virginia and New York. The companies agreed to develop unconventional gas in other countries such as China, Ukraine and Romania, Statoil's head of international exploration Peter Mellbye has said. 'We'll stick to our strategy as we believe shale gas will continue to be an interesting source of energy, both in the short and long term,' Dotterud said. 'We're in a learning phase, this is still a new area for us.'

Statoil and Chesapeake have drilled 49 wells at Marcellus, of which 32 are producing, Dotterud said in e-mailed response to questions. That's up from six producing wells out of 23 drilled in November. The companies expect as many as 17,000 wells. Total production at Marcellus has climbed to 15,500 barrels of oil equivalent a day, from about 3,000 barrels of oil equivalent in November 2008, Dotterud said. Statoil's equity production from Marcellus has reached about 5,000 barrels of oil equivalent a day, she said. The company expects equity production from the field to reach at least 50,000 barrels of oil equivalent a day in 2012, and at least 200,000 barrels a day after 2020.



## Note

This latest application follows a successful application by *Falcon Oil & Gas* in October. (See: [Falcon Oil & Gas secures permit to evaluate South African properties](#)). Falcon announced that the Company has secured a Technical Cooperation Permit to evaluate the Karoo Basin in central South Africa. Falcon has up to one year to conduct a technical appraisal of the area covered by the Permit, which will include review of the South African Petroleum Data Base. The Permit does not require Falcon to drill any wells during the one-year appraisal period, and establishes Falcon in a priority position for exercising future exploration rights within the lands covered by the Permit.

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## Chesapeake explores for shale gas in South Africa

November 27, 2009  
Horn River News



Starting in the Barnett shale of Texas, the shale gas boom has been primarily a North American play. U.S. natural gas company [Chesapeake Energy Corp](#) its joint venture partner [Statoil ASA](#) and the oil and gas arm of [Sasol Ltd](#) recently launched a bid to explore for shale gas in the Karoo Basin in South Africa. The Karoo basin has unproved shale gas potential and significant exploration efforts are required to assess the resource.

Aubrey McClendon, Chesapeake's chief executive officer, told investors in a Nov. 17 presentation that his company and Statoil were looking at potential shale gas fields in Eastern Europe, Asia and South America. Companies are exploring throughout the world for shale gas and new discoveries may have far reaching implications. *Shale gas projects are underway in France and Poland while exploration is underway in other parts of the EU, Asia, Australia and in China. Some comments suggest that the amount of shale gas in the U.K. would offset or replace declining natural gas production in the North Sea. Certainly a large discovery or two in Europe would be welcome news to offset the influence of power Russia yields on the EU energy market.* (See HRN: [Natural gas to postpone global energy crisis](#))

Chesapeake's Karoo application, which requires the approval of the South African government, is expected to take about 12 months to process. [Pasa](#), which is South Africa's agency for the promotion of onshore and offshore petroleum exploration, is empowered to issue exploration rights for an initial period of three years, which are renewable for a maximum of three additional two-year periods. Should exploration prove successful, the JV could move to secure a production right for a period of 30 years, which was also renewable.

# Shale Gas Exploration Goes International

Russell Gold  
Wall Street Journal  
WSJ Blog  
November 30, 2009

The development of shale gas has revolutionized the North American natural gas scene, ushering in an abundance of the cleaner-burning fuel. Will it revolutionize the rest of the world next?



Two recent announcements indicate this is becoming a distinct possibility. Our colleagues at the Wall Street Journal Asia report on [a recent deal between Royal Dutch Shell and PetroChina](#) to develop shale gas in Sichuan province. Developing gas from this previously impenetrable shale rock formations “could potentially alleviate tight gas supplies faced by China,” the article notes. China wants to increase natural gas’ role in the energy mix to 10% by 2020, up from 3% in 2005.

Getting more gas is a big deal for China. Unseasonably cold temperatures has led to a spike in gas demand – and severe shortages — in central China and along the eastern coast.

Meanwhile, Oklahoma City-based shale gas maven Chesapeake Energy has teamed with Norway’s Statoil and South Africa’s Sasol [to develop shale gas in the Karoo Basin in central South Africa](#). While smaller, U.S. companies such as Southwestern Energy, Range Resources and Devon Energy led the effort to unlock shale gas in the U.S., the international effort involves companies with much more experience operating around the globe. Exxon Mobil, for instance, is looking in Poland and Germany for shale gas.

Over the past few years, the shale gas revolution has turned up much more gas in the U.S. – which can be developed at competitive prices – than anyone expected. Experts thought the U.S. would soon become a giant importer of gas. Now they dream of exporting the stuff.

Will the same storyline unfold in places such as Eastern Europe, China and South Africa? Are we entering an era of abundant natural gas?

At the very least China hopes to tap its domestic shale gas resources – and the U.S. hopes to export its know-how to help them. Earlier in November, while Pres. Obama was in China, he signed the Sino-US Shale Gas Resource Cooperation Initiative. If the Shell-PetroChina joint venture is successful, could other partnerships be far behind?

More shale gas could be a big deal for China since it has a very hungry power sector. If it can use more natural gas and less coal to keep the lights on, the giant Asian economy could make more progress in curbing greenhouse gas emissions than many expect.



# Shell awarded permit to study natural gas potential in central South Africa

Royal Dutch Shell Press Release  
December 16, 2009



**The Hague, 16 December 2009:** The South African Petroleum Authorities (Petroleum Agency SA) today awarded Shell a Technical Cooperation Permit for a one-year study to determine the hydrocarbon potential in parts of the Karoo Basin in central South Africa.

The permit covers an area of approximately 185,000 square kilometers. The study will provide a better understanding of the area's geology and shale gas potential, establishing the scope to pursue natural gas exploration. Shell will have the exclusive right to apply for exploration permits following completion of the study.

“This onshore study and the recent award of offshore exploration acreage in the Orange Basin area together reinforce Shell's interest in exploring for oil and gas in South Africa,” said Ceri Powell, Executive Vice President International Exploration.

Shell has been active in the South African retail markets since 1904 and in refining since 1963.

Royal Dutch Shell plc is a leading global energy company whose subsidiaries employ 102,000 people and operate in more than 100 countries and territories. Shell engages in the exploration and production of oil and natural gas, the refining and marketing of transportation fuels and other oil products, the production of chemicals and the development of renewable energy. For more information, see [www.shell.com/aboutshell](http://www.shell.com/aboutshell).



# Shell Enters Karoo Shale Basin

December, 2009  
Oil & Gas Insight

Anglo-Dutch major *Royal Dutch Shell* has been awarded a licence to study shale gas extraction in the onshore Karoo Basin in central South Africa. Shell's move is the latest sign of the majors' attempt to replicate the success of the North American unconventional gas industry around the world.

The Petroleum Agency of South Africa on December 16 awarded Shell a one-year Technical Co-operation Permit for Karoo Basin acreage covering around 185,000sq km, the major announced in a statement. Following the completion of a geological study, Shell will have the exclusive right to obtain an exploration permit for the area. The European major has been present in South Africa for over a century, but until very recently its activities have been confined to marketing and refining. That changed in November 2009, when Shell successfully bid for exploration rights in the Orange Basin, offshore the country's west coast. The Karoo Basin block would be the company's second upstream asset, demonstrating Shell's interest in the under-explored region.

Shell's Karoo deal follows an application for another permit in the basin submitted by US shale-specialist *Chesapeake Energy*, Norway's *Statoil* and Johannesburg-based *Sasol* in November 2009.

## Sasol-Chesapeake-Statoil apply to explore for shale gas in Karoo

Martin Creamer  
March 19, 2010  
Mining Weekly

South Africa's Sasol is taking steps to join the global search for shale gas.

Shale has for long been considered a rock too difficult to drill, but the breakthrough of horizontal drilling and hydraulic fracturing has opened up shale along with the gas that it harbours.

Shale gas is a natural gas in sedimentary shale rock formations, the shale acting as both the source of the gas and the gas's reservoir.

Sasol has let it be known that its exploration arm, Sasol Petroleum International (SPI), has submitted a joint application with Statoil ASA, of Norway, and Chesapeake Energy Corporation, of the US, for onshore petroleum exploration rights in the Karoo Basin.

In the US, Chesapeake drills in the Marcellus region, where it is in joint venture with Statoil, and also in the Barnett region over North Texas and Oklahoma.

The Marcellus is a massive shale formation underlying parts of the states of New York, Pennsylvania and other states and has become a hotbed of drilling activity.

The Sasol-Chesapeake-Statoil application, for the proposed exploration of shale gas resources in the Karoo, is expected to take about 12 months to process.

The move by Sasol and its partners heralds the first South African participation in the so-called global ‘shale gale’.

The technology to extract natural gas from shale has improved dramatically in recent years, leading companies into regions where resources were thought to be depleted.

Last week, the Financial Times of London reported that “the shale gas rush” had made its way over to the UK from the US.

Simultaneously, news wire service Dow Jones reported from the US that energy executives were forecasting that shale gas would play a big role in meeting future energy demand.

Discussion on the role of shale gas also stole the show at this month’s IHS Cambridge Energy Research Associates (Cera) conference, in Houston, which was supposed to be dominated by oil development trends.

“The shale gale has shifted natural gas from a constrained resource to an abundant one with wide-ranging implications for the energy future in North America,” IHS Cera chief energy strategist **David Hobbs** was quoted as saying.

Reuters reported from Canada that the emergence of shale gas has made such an impact that the government of Alberta province had backtracked on its oil and gas royalties because the “massive new shale gas discoveries” in the US and Canada’s British Columbia were threatening to make the production of Alberta’s smaller conventional gas reserves uneconomical.

The Economist reported from London that economies of scale and better techniques had halved the production costs of shale gas.

The French news agency Agence France-Presse said that the new techniques had more than doubled North America’s discovered gas resources to 85-trillion cubic feet.

Oil & Gas Eurasia added that the “shale gale” has the potential to be a “game changer” and quoted IHS Cera chairperson **Daniel Yergin** as saying that “it’s simply the most significant energy innovation so far this century”.

The New York Times quoted ConocoPhillips CEO **Jim Mulva** as saying that shale gas was “nature’s gift to the people of the world”.

The Wall Street Journal quoted Statoil, one of Sasol’s partners in the South African search for shale gas, as being optimistic about the progress of the joint venture with Chesapeake in the prospective Marcellus shale region of the US.



“The more we see it, the more we like it,” Statoil CE **Helge Lund** was quoted as saying.

But Lund was cautious about the progress of shale gas elsewhere, and said that Statoil still wanted proof that the success of shale gas in the US could be replicated in other countries.

On a patch of farmland east of Liverpool, Igas has drilled one of Europe’s first shale gas wells for “uncon-ventional” gas. The investment banker involved said that a year ago applying for licences to drill into big slabs of shale rock would have been regarded as foolhardy, but, currently, he was receiving regular invitations to conferences on shale gas.

Igas has taken leases on shale in north Wales and north-west England, joining the rush of companies large and small in countries such as Poland and Germany seeking to replicate a boom in the US that has captured the industry’s imagination, a Financial Times report said.

It added that the rush of European interest in shale underscored wider awareness of a change in the outlook for gas supplies and that the surge in US production had meant that the world had gone from running out of natural gas to being drowned in it.

### **Environmentalists Stepping In**

Environmentalists may slow things down, however, with the Delaware Daily Times reporting that environmentalists are demanding that authorities stop granting drilling permits in State forest land in the Marcellus region.

Because shale ordinarily has insufficient permeability to allow significant fluid flow to a well bore, most shale is not a commercial source of natural gas. Shale gas production in commercial quantities requires fractures to provide permeability.

Shale gas has been produced for years from shale with natural fractures; the shale gas boom has been due to modern tech- nology in hydraulic fracturing to create extensive artificial fractures around well bores.

Horizontal drilling is often used with shale gas wells to create maximum borehole surface area in contact with the shale.

Water, sand and chemicals are pumped into the ground under pressure, to crack the shale and create gaps so that the gas can flow out.

Water’s use in both hydraulic fracturing and the disposal and treatment of produced water has emerged as the top environmental issue, particularly as the centre of gravity of development moves from the traditional oil and gas producing areas to the more densely populated US north-east.

Shale gas is one of a number of “unconventional” sources of natural gas, like coal-bed methane.

In the US, this process of fracturing, or ‘fracking’, has already caused environ- mental concern with some politicians worried about possible contamination of groundwater.

Gazprom international business head Alexander Medvedev has been quoted as saying that he is counting on environmental concerns to derail ambitions to bring shale gas technology to Europe.

### **Sasol's Advantage**

While the prospect of large new supplies of natural gas has caused the gas price to fall, the shale gas phenomenon has already caused the price of Sasol's gas-to-liquids (GTL) products to rise, because Sasol is effectively producing 'oil' and not gas.

In converting gas into oil using GTL technology, Sasol effectively speeds up Mother Nature by a couple of million years and current crude oil prices expressed as a multiple of natural gas prices show Sasol's GTL to be in a sweet spot (see graphic).

"The reason why the GTL price has shot up is that there's new technology being developed in the US that enables the extraction of gas out of shale, which was previously not economic," Sasol CEO **Pat Davies** explained to *Mining Weekly* in a video interview.

"It's quite a radical shift and it's having an impact on gas prices around the world," Davies said.

This has also allowed Sasol's GTL to gain a competitive advantage over liquefied natural gas (LNG).

"This puts us in a very good space. We make our money in GTL in the price of gas versus the price of oil, because we take gas and we convert that into oil, so the bigger that gap, the more money we make," Davies told *Mining Weekly*.

"If there is shale gas in the Karoo, and if it's economically extractable, that will provide opportunities to supply gas into our own facilities or to on-sell it to others. It's a great business opportunity, but a long-term one," he added.

SPI MD **Ebbie Haan** said that the additional gas resource potentially provided Sasol with a low-carbon feedstock.

"It's an exploration licence and, thereafter, we will look at the economics and what it means in hardware, and that will be a longer-term project," Haan said.

The exploration application was submitted in November.

Sasol's strategy is an organic growth strategy, with SPI the exception and SPI being the one area of Sasol where significant acquisitions are envisaged in gas to help facilitate more GTL projects.

But a strategy is within an environment, and there's been an important change to the environment – the shale gale.

Sasol makes its money from the difference in the gas price and the oil price in that it converts gas into oil.

Thus, the bigger the gap between gas prices and oil prices, the more money Sasol makes out of its GTL offerings.

The reason the gap has widened is the shale gas phenomenon.

Whereas Sasol has for long had a unique competitive advantage in GTL, it is also moving ahead against LNG, which is sold as gas and not as oil, as GTL is.

“We supply into the oil market, which is much bigger, which has led to my colleagues and me getting a lot more interest in our GTL technology and I have no doubt that those phone calls, letters, emails and requests for visits are going to turn into deal flow in the coming years,” Davies told *Mining Weekly*.

## Sasol wants to explore for shale gas in the Karoo

Martin Creamer  
March 19, 2010  
Mining Weekly

JOHANNESBURG (miningweekly.com) – Gas-to-liquids (GTL) producer Sasol has applied to explore for shale gas in the Karoo, together with Chesapeake Energy and Statoil ASA.

The application is for an onshore right to search for the natural shale-based gas, which has already caused Sasol’s GTL price to soar.

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“It’s an exploration licence and thereafter we will look at the economics and what it means in hardware and that will be a longer-term project,” Haan says.

The exploration application, which was submitted in November, may take a year to process.

## Now Anglo applies to explore for shale gas in Karoo – Petroleum Agency SA

Martin Creamer  
March 26, 2010  
Mining Weekly

JOHANNESBURG (miningweekly.com) – Diversified miner Anglo American - as well as Shell International - have applied to explore for shale gas in South Africa’s arid Karoo, Petroleum Agency SA frontier geology manager **Jennifer Marot** tells *Mining Weekly Online*.

This follows the news that South Africa’s Sasol has teamed up with Statoil of Norway and Chesapeake of the US to do the same.

“There has been a flurry of interest since the US’s shale gas successes,” Marot tells *Mining Weekly Online*, pointing out that Petroleum Agency SA – headed by CEO **Mthozami Xiphu** – should not be confused with the State-owned PetroSA.

Petroleum Agency SA, she says, is an entirely separate organisation, which is designated by the Mineral and Petroleum Resources Development Act to promote and regulate oil and gas exploration in South Africa.

Marot says that the first application to explore was from the South African company, Bundu Gas & Oil Exploration, which focused on deep resource gas.

The second application was from American shale-gas explorer Falcon Oil and Gas. Shell International was third, the much publicised Sasol/Statoil/Chesapeake partnership fourth and now Anglo Operations has come in fifth.

“The whole of the southern part of the country is now covered with people interested in investigating shale gas,” Marot tells *Mining Weekly Online*.

Shale, which hosts shale gas, has for long been considered too difficult to drill until a recent horizontal-drilling and hydraulic-fracturing breakthrough led to the so-called “shale gale”. In the US, the process of fracturing, or ‘fracking’ as it is called colloquially, has already caused environmental concern with some politicians worried about the possible contamination of ground water.

Last month, the Financial Times of London reported that “the shale gas rush” had made its way over to the UK from the US and IHS Cambridge Energy Research Associates (Cera) chief energy strategist

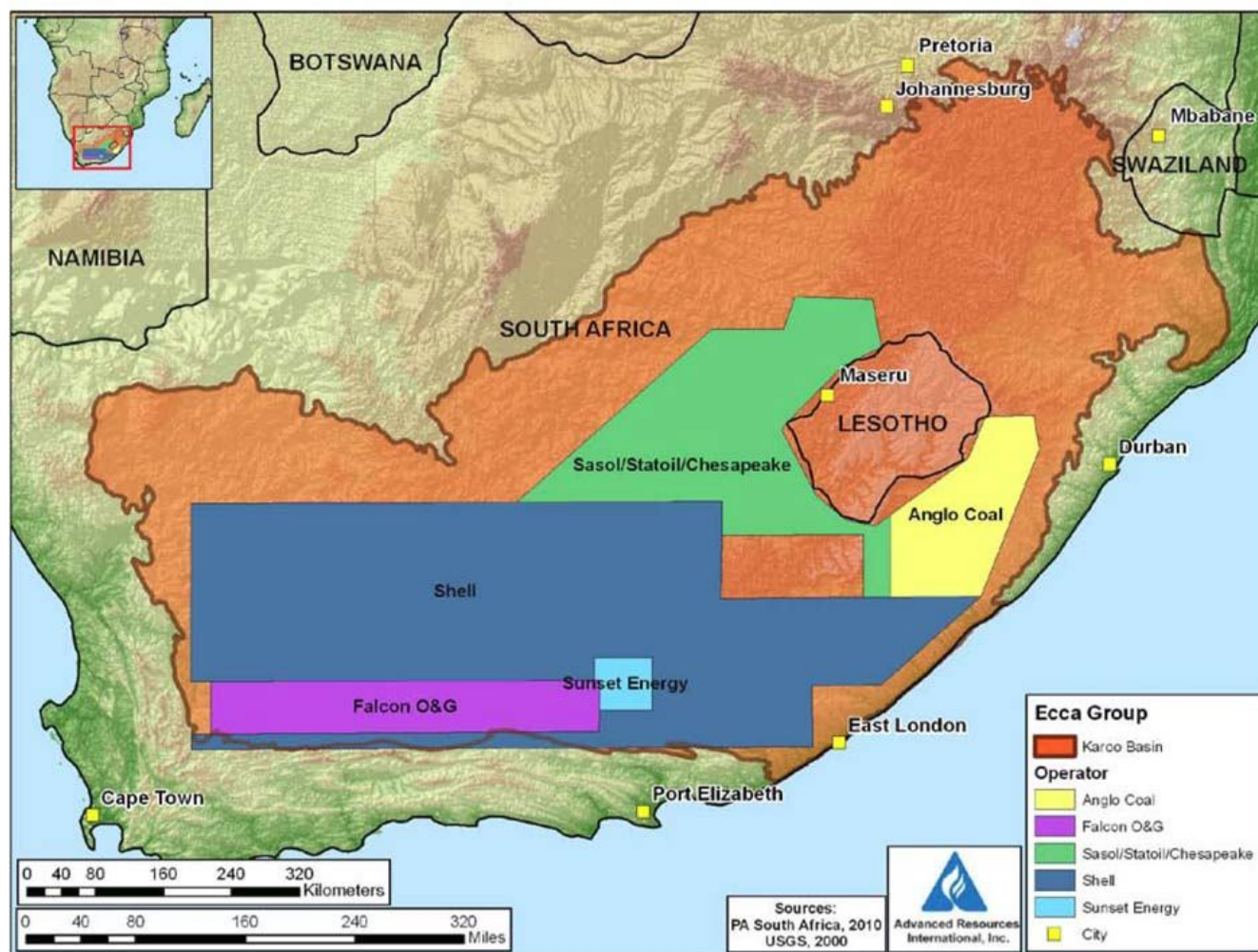
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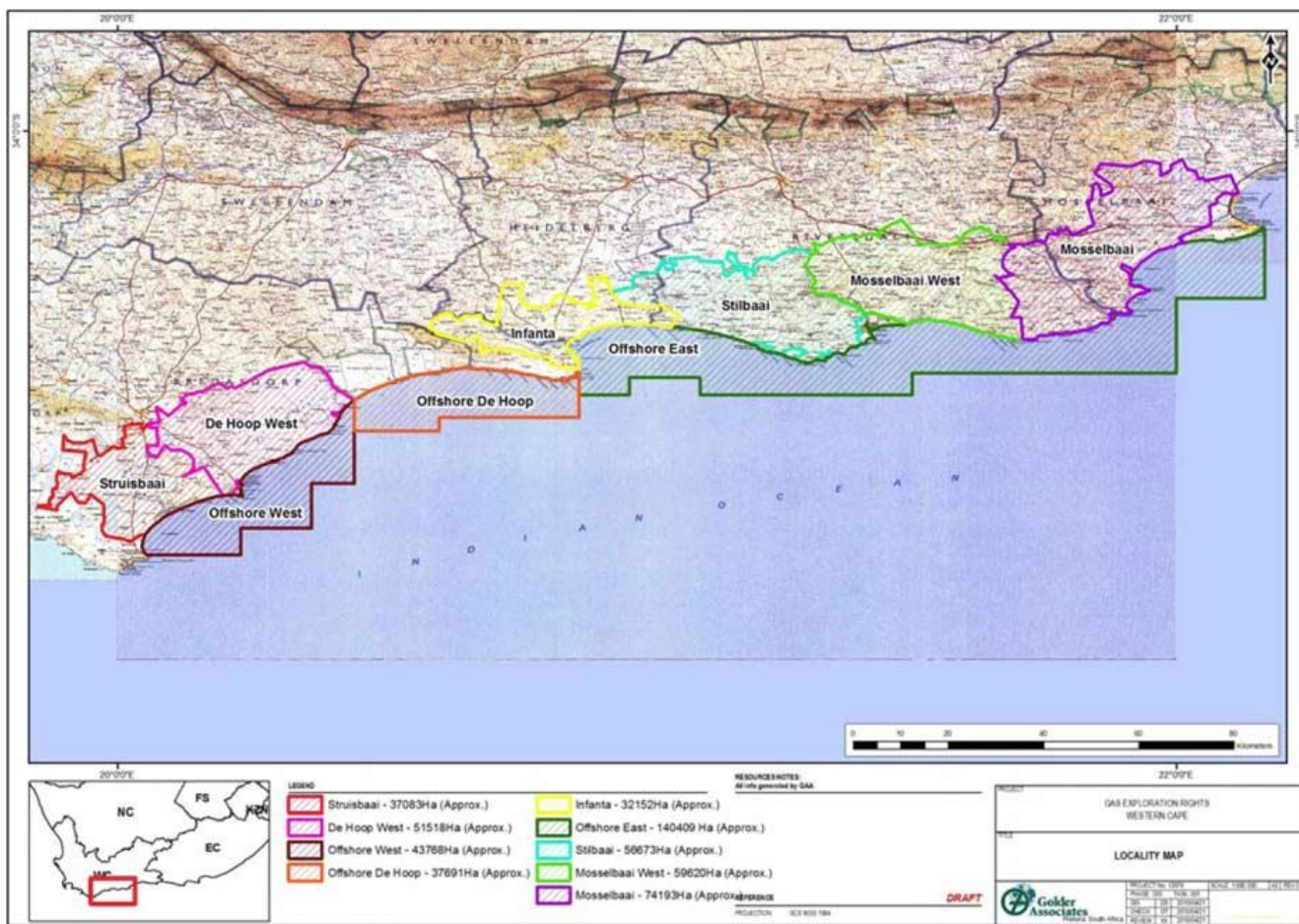
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Shale gas is one of a number of “unconventional” sources of natural gas, like coal-bed methane.

Figure X-9. Map Showing Operator Permits in the Karoo Basin, South Africa<sup>3,16</sup>



Map of South Africa showing the deep shale gas interest areas, from the Energy Information Administration’s April 2011 report, *World Shale Gas Resources: An Initial Assessment of 14 Regions Outside the United States*.



Petroleum Agency of South Africa's (PASA's) updated map, May 2010, showing Advasol (Pty) Ltd.'s application for Natural Gas exploration rights along South Africa's southern coastline, on and off shore. As stated in PASA's document, are the following list of farms (not indicating subdivisions) which may be affected by the proposed exploration activities:

### Affected properties

The proposed exploration activities include the following farms (not indicating subdivisions):

#### Petroleum Agency SA ref no: 12/3/1/181/1 – Struisbaai

Zandfontein 185; Heuning Rugt 247; Zand Vlakte 250; De Groote Eiland 254; Afrikandersbosch 255; Nach Wacht Annex 257; Farm 258; Prince Kraal 259; Meulvley 263; Bushy Park 269; Murio 269; Bonteboks Valleï 271; Klipfontein 272; Visschers Drift 273; Onder Vlei 273; Zoetendals Vlei 280; Farm 343, all in the Struisbaai District, Western Cape.

#### Petroleum Agency SA ref no: 12/3/200/1 – De Hoop West

Klipfontein 64; Farm 75; Ramers Dam 77; Farm 81; Paarde Kloof 164; Apostle 165; Annex Melk Hout Kloof 166; Farm 167; Farm 168; Farm 169; Buffelsfontein 170; Elandsvalley 172; Uyshoek 173; Rietfontein 174; Rietfontein 175; Eilands Valley 176; Toornkop 177; Farm, 178; Boven Drift 179; Nagt Wagt 181; Farm 182; Farm 183; Lowland 184; Reimerskraal 323; Farm 324; Farm 325; De Hoogte 335; Southfield 336; Plaats 352; Dollas Downs 264 and Skihaven 337; all in the Bredasdorp District, Western Cape.



**Petroleum Agency SA ref no: 12/3/196/1 – Infanta**

Port Beaufort 484; Duivenhoks River Mouth 505; Plaas 565; Kadies Valley 486; Klein Duine Rug 477; Kleinfontein 503; Koens Rust 502; Melk Hout River 492; Melkbosch 504; Rhenosterfontein 488; Rolhoek 485; The Rhenosterfontein Estate 490; Vondeling 479; Vondeling 482; Vondeling 481; Westfield 487; Westfield 483; The Potteberg Estates 516; Infanta and Witsand, all in the Infanta district in the Western Cape.

**Petroleum Agency SA ref no: 12/3/1/184/1 – Stilbaai**

Bauers Kloof 375; Annex Bauers Kloof 376; Wolve Kop 381; Wolve Kop 382; Wolvekoppe 383; Brakke Fontein 399; Rietlaagte 403; Saxegotha 404; Farm 405; Watergat 410; New Saxe Gotha 411; Victoriasdale 412; Highlands 413; Klipfontein 414; Watergat 419; Melkhout Kraal 474; Doornhoek 475; Plattebosch 485; Groot Fontein 486; Langebosch 487; Masterstok 488; Zwarte Jongens Fontein 489; Kransfontein 492; Honingbosch 493; Kleine Jongens Fontein 494; Bloemboschfontein 495-; Mosselbank Fontein 496; Drooge Duinen 497; Vermaaklikheid 499; Farm 500; Farm 509; Mosselbankfontein 510; Farm 511; Farm 515; Farm 526; Farm 541; Farm 546; Bloemboschfontein 555; Mosselbankfontein 555; Jongensgat 558; Strandloperfontein 565; Fisante Kraal 567; Farm 575; Duinekroon 581; Farm 590; Duinekroon 591; Heuningbaai 594; De Wig 599; Steenkool Fontein 600; and Portions of State Land, all in the Riversdale and Swellendam Districts, Western Cape.

**Petroleum Agency SA ref no: 12/3/199/1 – Mosselbaai West**

The proposed exploration activities: The exploration of natural gas on the farms Aasvoegelberg 434; Aasvogel Berg 340; Brakke Kuil 366; Brakke Kuil 568; Brakke Kuil 572; Buffelsfontein 435; Buffelsfontein 432; Dantjes Post 471; De Groote Fontein 437; De Rust Plek 469; Driefontein 463; Driefontein 434; Driefontein 465; Driefontein 468; Driefontein Wes 474; Farm 437; Farm 361; Farm 18; Farm 41; Farm 420; Farm 421; Farm 423; Farm 424; Farm 425; Farm 426; Farm 438; Farm 518; Farm 531; Farm 532; Farm 534; Groot Yzervarkensfontein 461; Hectors Kraal 428; Hectors Kraal 476; Hectors Kraal 478; Hectors Kraal 479; Heidpforte 571; Honing Klip 431; Honing Klip Can 457; Klein Soetbatters Vlake 369; Luins Klip 472; Melk Post 481; Melkhoutfontein 480; Melkhoutekraal 416; Middel Post 482; Modderfontein 417; Modderfontein 569; Modderfontein 570; Modderfontein 573; Modderfontein 579; New Buffelsfontein 433; Ratel Post 473x; Riet Valley 470; Riet Valley 484; Stebys Kop 439; Takjes 427; Takkiesfontein 429; Takkiesfontein 460; Vogelstruis Post 475; Welgelegen 436; Wilde Honde Kop 462; Zoutpan 359; Zoutpan 360; Zoutpan 362 and Zoutpan 364, all in the Riversdale District, Western Cape.

**Petroleum Agency SA ref no: 12/3/195/1 – Mosselbaai**

Gouritsmond; Mietjesfontein 152; Elands Dens 206; Zuur-Rug 207; Farm 208; Melkboom 209; Matjesfontein 210; Hartebeest Kuil 213; Welbedagt 215; Farm 216; Hartenbosch 217; Farm 218; Vyf-Brakke-Fonteinen 220; Klein Zuirkop 221; Rietvalley 225; Bartelsfontein 226; Geuik 227; Patrysfontein 228; Leeuwin 229; Annex Leeuwin 230; Baakfontein 237; Baakfontein 239; De Hoek 240; Witteklip 241; Hollaagte 242; Driefontein 243; Dunzig 244; Droogfontein 245; Farm 247; Klipfontein 249; Buffels Fontein 250; Vleesch Baai 251; Vogelvalley 254; De Hoek 255; Brakkefontein 256; Misgunst Aan De Gouritz Rivier 257; Farm 258; Farm 259; Brakkefontein West 260; Zoutpan 261; Brakkefontein Oost 262; Ingang 263; Keerom 264; Vleesch 266; Rooidrif 269; Farm 284; Farm 292; Farm 294; Farm 298; Farm 301; Farm 306; Proteus 308; Farm 310; Farm 316; Farm 323; Farm 324; Farm 325; Bergsig 328; Matjesdrift 329; Farm 336; Farm 337; Farm 339; Farm 440; Snipfontein 441; Plattebos 443; Elberts

Kraal 444 Rogland 445; Schoemanshoek 446; Plattebos 447; Elbertskraal Suid 448; Melkhoutefontein 449; Gansfontein 450; Gansfontein Annex 451; Riet Valley 452; Lange Fonteyn 453; Wolvefontein 454; Buffelshoek 455; Canca 456; Honing Klip Can 458; Doorndrift 459; Farm 519; Farm 533; Farm 536 and Elbertskraal 540 all in the Mossel Bay and Riversdale Districts, Western Cape.

## Shale gas. Bad fracking idea

Charlotte Mathews  
July 15, 2010

*Photo of Bobby Peek*



**For almost a year, Andrew Shapland of Tourism Corp Africa** and Mark and Sarah Tompkins, owners of Samara Private Game Reserve, fought to fend off a shale gas exploration company.

They feared the company's activities would jeopardise the delicate ecological balance of the Karoo reserve.

Last month Petroleum Agency SA notified them that Bundu Oil & Gas Exploration, owned by an Australian-listed company, Sunset Energy, had withdrawn its exploration application.

"Bundu's application was dropped, after a great deal of time, energy and good reasoning," Shapland says.

Oil and gas companies are excited about the potential for extracting shale gas in SA. Shale is sedimentary rock which is both the source and a reservoir for natural gas.

Environmentalists are less enthusiastic about the side effects of extracting the gas from the rock.

A few years ago a "shale gale" was unleashed in the US following the rise in the price of oil, shortages of easily accessible oil reserves and new technology which made it possible to release gas locked into minerals in deep rock.

But the extraction technology — called hydraulic fracturing or "fracking" — which involves pumping a water-based mixture into the rock, followed by horizontal drilling to catch the gas, has environmentalists seriously concerned.

The BP oil spill in the Gulf of Mexico highlighted the potential for what can go wrong with new technology .

An article in Vanity Fair this month, headlined “A Colossal Fracking Mess”, highlighted problems being experienced by residents of Dimock in Pennsylvania in the US.

The residents claim that hydraulic fracturing poisoned their water sources with methane, including one well that “blew up”.

The activities of a number of exploration companies in a rural area has had other unpleasant consequences, like spillages of toxic gases which are also released during fracking, and unsightly drill rigs.

The search for shale gas has spread from the US to Europe and now to SA, where exploration is at a very early stage.

Attention is focusing on two areas: the Prince Albert and Whitehill formations in the Karoo basin.

According to Mining Weekly Online, five companies have applied to Petroleum Agency SA to conduct preliminary shale gas exploration in the Karoo: Bundu; Shell; Anglo American Thermal Coal; a joint venture between Sasol, Chesapeake and Statoil; and Falcon Oil & Gas.

Neither Petroleum Agency SA nor Sasol responded to requests for more information.

An unexpected name in this list is Anglo’s thermal coal division, as Anglo is not known to have an oil and gas strategy. But Ian Hall, regional head of strategy at Anglo American Thermal Coal, says the division already has interests in unconventional gas.

It has been working on a coal bed methane (CBM) project in the Waterberg for some time, is doing preliminary reconnaissance work for CBM potential in Botswana, and has also done some related work in Australia.

Hall says Anglo has been granted a “technical co-operation permit” for an area in the southern Cape, which gives it access to some of the historical data to do a desk-top study.

After 12 months, if it finds sufficiently interesting data, it could apply for an exploration licence in the area, which would involve drilling.

The potential for shale gas could be anything between zero and huge, he says. “At this stage we have no idea of the potential.”

Prof Maarten de Wit of UCT’s department of geological sciences says not enough is known yet about the shale gas potential of the Karoo. “It could be very big, the tests look interesting, but no-one has done the calculations yet,” he says.

Soekor searched the area for oil and gas in the 1960s and 1970s and found nothing, but it was not looking for shale gas, which is held tightly by the minerals in the rock.

De Wit says the depth varies from surface to hundreds of metres , but at greater depths it becomes uneconomic to drill.



One of the major hurdles, and one which De Wit assumes the big exploration companies are aware of, is the lack of water in the Karoo which is essential for hydraulic fracturing.

“Most of the water in that area is brackish, and there is not enough of it,” he says. “Some people are optimistic they can find water reservoirs, but there are some doubts about whether they will be able to tap water resources in such a water-starved country.”

A recent study by Cornell University found that once methane leak effects are included, the life-cycle greenhouse gas footprint of shale gas would be worse than those of coal and fuel oil.

Bobby Peek, director of environmental justice organisation groundWork, says shale gas exploration goes against SA’s promise that it would try to move away from fossil fuels.

“The environmental implications will be similar to other fossil fuel exploration, with all the possibilities for things going wrong and contaminating the environment,” Peek says. “Shale gas will not spill like crude oil, but we don’t yet know the finer details.

“Most important, because fuel is highly sought after, it will have the same implications as other mining activities for moving people off the land and decision- taking behind closed doors.”

## South Africa’s Next Big Event: Shale Gas?

By Toby Shute  
Motley Fool  
July 19, 2010

World Cup fever may be over in South Africa, but the search for shale gas is just getting under way.

Last November, I [noted](#) that **Chesapeake Energy** (NYSE: [CHK](#) ) and **Statoil** (NYSE: [STO](#) ) had paired up with local energy champ **Sasol** (NYSE: [SSL](#) ) to stake some South Cup fever may be over in South Africa, but the search for shale gas is just getting under way.

Last November, I [noted](#) that **Chesapeake Energy** (NYSE: [CHK](#) ) and **Statoil** (NYSE: [STO](#) ) had paired up with local energy champ **Sasol** (NYSE: [SSL](#) ) to stake some South African turf. Today, Sasol announced that its technical cooperation permit has been granted.

There are a few notable things about this permit. For one, it took around eight months to process. That may sounds like a snail’s pace, but Sasol expected this to take closer to 12 months. Perhaps we can read this quicker-than-expected turnaround time as a sign that South Africa’s Petroleum Agency is making efforts to speed development along.

The second thing that caught my eye was the size of the permit area: roughly 88,000 square kilometers in the Karoo Basin (a major fossil site that spans nearly two-thirds of the entire country). That translates to about 21.7 million acres, and exceeds the size of South Carolina (ranked 40th by area among U.S. states).

If the shale rock in this vast area is indeed found to contain the special sauce necessary to produce commercial volumes of natural gas, Sasol is hardly overstating the case for this being a “game changer” for South Africa. The heavily coal-dependent country (coal powered 85% of its electricity generation in 2007) has been plagued by power outages for years, [cramping the style](#) of miners such as **Gold Fields** (NYSE: [GFI](#) ). Inroads by shale gas in the power-generation mix would be welcome for both supply diversity and environmental reasons.

Before you get too excited, though, there are a few more things to bear in mind. First, **Falcon Oil and Gas** and **Royal Dutch Shell** (NYSE: [RDS-A](#) ) have already reportedly scooped the most desirable acreage in the basin. Second, this is only an early stage exploratory permit, and no drilling is approved. Lastly, even if a huge natural gas play is uncovered over the next few years, there will be major infrastructural, equipment, and manpower hurdles to contend with, from gas pipelines to high-powered rigs and skilled rig hands.

In short, I wouldn’t own any of these stocks for the potential upside from this South Africa shale play. But there’s almost certainly nothing priced into the shares for this potential, either. Consider it a free option on a low-probability, high-impact outcome.

## Large shale gas find in Karoo would be ‘game changer’ – Sasol

Martin Creamer  
Mining Weekly  
July 29, 2010

*Picture by: Duane Daws*

SASOL PETROLEUM INTERNATIONAL  
MD EBBIE HAAN

JOHANNESBURG (mining weekly.com) – A discovery of large recoverable shale gas reserves in South Africa’s Karoo Basin would be a “game changer” in the broader South African energy market context, Sasol Petroleum International MD **Ebbie Haan** said on Monday.



Haan said in a media release that a large discovery would likely constitute a major step to further develop gas transmission and distribution infrastructure in the country.

The release stated that South Africa’s Karoo Basin had unproved shale gas potential and significant exploration efforts were required for quantification.

Petroleum Agency SA technical compliance manager **Stephen Mills** told *Mining Weekly Online* that the area for which Sasol, together with its partners Statoil ASA of Norway and Chesapeake of the US, had been awarded an onshore petroleum technical cooperation permit (TCP) abutted an area in which interest was also being shown in coalbed methane gas.

Mills said that it was possible that a discovery of large recoverable shale gas reserves would be a game changer, as in the US, provided that there was sufficient gas and provided that there was infrastructure.

“That’s possible, because the area that Sasol’s applying for, in the northeast, joins on to the arc of coalbed methane interests, which extends from Virginia and Welkom in the Free State through southern Mpumalanga to northwestern KwaZulu-Natal.

“If all of these stack up nicely, then one can envisage the development of a grid of pipelines, but this is all really very optimistic thinking,” Mills cautioned.

Haan said that large gas discoveries in the Karoo Basin could also help to alleviate South Africa’s power and fuels shortage and assist in creating employment and wealth for the country.

Mills concurred, saying that, although South Africa did not have the well-established gas pipeline infrastructure of the US, it did have a well-developed national electricity grid and gas was a recognised fuel for combined-cycle gas turbine electricity units.

“It would be relatively straight forward to burn the gas, produce electricity and connect that electricity to the grid. But we first have to prove that the gas is there,” Mills added.

In addition, the increase of natural gas in South Africa’s energy portfolio would significantly aid in the reduction of greenhouse gas emissions on a per unit basis, compared to more conventional resources such as coal.

“But we are at the beginning of a journey that requires technical risk reduction, environmental stewardship, stakeholder alignment and, in case of success, significant future capital investment,” Haan added.

South Africa’s domestic resources of hydrocarbons are very limited.

The Sasol/Statoil/Chesapeake TCP covers an area of 88 000km<sup>2</sup>, primarily in the Free State, but also covering areas of the Eastern Cape and KwaZulu-Natal.

A TCP is a permit to do a desktop study and is issued when there was a high degree of uncertainty about the potential of an area being explored.

It does give holders an opportunity to look at the results of previous exploration, while reserving a place for the first right of application for an exploration right and access to the surface.

All three groups have only TCPs at the moment, with 12 months to complete the TCP before applying for exploration rights.

It is conceivable that the first well demonstrating produceable gas could be developed within five years, but even that would be pushing things, *Mining Weekly Online* understands.

The main Karoo Basin is huge and there is only a very thin scatter of boreholes, which were drilled by the former State-owned Soekor.

At the stage that Soekor was drilling, very little attention was paid to the presence of gas and shale would not normally have given rise to a noticeable anomaly in the gas record.

Even if the shale is now found to be suitable for shale gas extraction, that would not have been registered in the old records.

So, in essence, the companies are starting from scratch, which means that the awarding of TCPs is appropriate.

The Sasol/Statoil/Chesapeake bid appears to have been pipped at the post, as the area in South Africa's Karoo Basin of most interest is the area that has now been completely taken up firstly by Falcon Oil & Gas and then by Shell.

Falcon, the first to apply, has got 30 000 km<sup>2</sup>; Shell bid a couple of months later and secured about 100 000 km<sup>2</sup>; and Sasol/Statoil/Chesapeake was a week or two behind Shell, with Anglo American coming in fourth.

When, towards the end of last year, the Sasol consortium made an application for a full exploration right, it was aware that Shell had lodged a prior application ahead of it for much of the area that it was applying for, and that it was likely not to get all it wanted.

In fact, *Mining Weekly Online* understands that, by the time Petroleum Agency SA had processed Shell's application, there was nothing left for Sasol, which is why Sasol is now having to contend with the outer, more distal part of the Karoo Basin.

Falcon got what it asked for; Shell wanted that as well, but was too late, which is why the area that Shell was granted in December has an east-west window cut in it, which is where Falcon's area is.

In a nutshell, the main core has gone to Falcon and Shell; the Sasol/Statoil/Chesapeake consortium is having to be content with the periphery, and what is left for Anglo is only a fraction of what it applied for, and Anglo will probably end up with a TCP for only about 10 000 km<sup>2</sup>.

Anglo apparently applied essentially for the same area as the one for which Sasol/Statoil/Chesapeake has received a TCP, but a couple of days later.

Shell, which *Mining Weekly Online* understands took a shotgun approach and applied for virtually everything, has been doing TCP work for several months, gathering up of old exploration data and identifying rocks.

One of the key factors in the identification of a potential target is to look at a parameter called total organic carbon, by going back to boreholes that the Council for Geoscience may hold and going into the field and negotiate with farmers to take surface samples.

In the US there is a hugely well-developed network of gas pipelines, but it is only recently that shale gas has featured as a result of a technological drilling breakthrough.

The technique of "fracking" was developed, which involves the pumping of liquid into the ground to fracture the shale and to allow gas to escape through what had previously been impervious rock, and



this was combined with horizontal drilling. The technologies together are able to create sufficient fracture to enable gas flow in large volumes.

Commercial viability in the US is enabled by the ease of access to infrastructure, whereas in South Africa it will be a different story, because there is no gas infrastructure and the commercial possibilities still have to be determined.

Also, *Mining Weekly Online* understands that there is unlikely to be a drilling rig in South Africa capable of drilling the kinds of holes that are required.

Some of the coalbed methane permits in the area that abuts the Sasol/Statoil/Chesapeake area have already run through their first three-year period and are being renewed for further exploration.

The Sasol/Statoil/Chesapeake permit allows the joint venture partners to evaluate existing and available geological information within the area to determine the potential for shale gas.

The study work will include the sampling and analysis of existing geological cores that were drilled by Soekor in the 1970s and 1980s, during its search for shale oil.

The same shale formations are now being assessed for potential gas production.

If the geological evaluation proves successful, the partners will consider committing to a more extensive exploration programme in the Karoo Basin

Shale gas, which is a clean natural gas produced from shale, has become an increasingly important source of natural gas, not only in the US, but also in Canada and Europe.

Petroleum Agency SA – headed by CEO **Mthozami Xiphu** and entirely separate from PetroSA – is designated by the Mineral and Petroleum Resources Development Act to regulate and promote oil and gas exploration in South Africa.

It is understood that Petroleum Agency SA is also close to issuing a permit to BHP Billiton for exploration offshore of South Africa's West Coast, where it owns the lead percentage interest in the rights to explore block 3A/4A, in which Sasol and South Africa's State-owned PetroSA also own percentage interests. The water depth of block 3A/4A, where gas is the likely target, is typically 100 m.

BHP Billiton also has the lead percentage of the block 3B/4B rights, together with US company Global Offshore Oil Exploration South Africa. The water depth of this block, where oil is the likely target, is 1 500 m to 2 000 m. BHP Billiton will almost certainly act as operator in both blocks.

Petroleum Agency SA has some 30 issued exploration rights for coal-bed methane gas onshore rights, which are considerably smaller in area than the offshore rights.

The two groups currently dominating the coal-bed methane rights process are Highland Exploration & Production, a subsidiary of Molopo Energy, of Australia, and NT Energy Africa, in association with South Africa's State-owned Central Energy Fund (CEF).

Highland Exploration has eight exploration rights in the Virginia/Welkom area of the Free State province, and two in the Evander area of Mpumalanga province.

The Virginia/Welkom gas is not fully defined and may be below coal in the gold-bearing reef.

The NT Energy Africa/CEF combination has rights in Mpumalanga and KwaZulu-Natal provinces and in the Soutspansberg and Musina areas of Limpopo province, besides rights in the Virginia/Welkom area.

BEE company Budimo is consolidating four coalbed methane rights into two, and other rights holders include a faith-based organisation searching for oil in Lydenburg, and the JSE-listed Coal of Africa, which has acquired coal-bed methane rights in conjunction with its coal rights.

The southern part of South Africa is the area of pursuit of shale gas, which, like coalbed methane, is one of a number of 'unconventional' sources of natural gas.

## Sasol, Statoil, Chesapeake Team for Karoo Shale Gas Hunt

July 20, 2010  
Petroleum Africa

South African petrochemicals giant, Sasol Ltd., will be exploring for shale gas in the Karoo Basin with Norwegian firm Statoil and US firm Chesapeake Energy Corp. The deal is the latest in a series of deals over the past year to explore South Africa's shale gas potential.



Sasol, in a statement, said that the joint venture was awarded a permit to explore for shale gas in Free State, Eastern Cape and KwaZulu-Natal provinces.

“The permit awards the applicants the exclusive right to study the prospectivity for shale gas in the Karoo Basin for a period of up to 12 months but does not include any surface activity or drilling,” the Sasol statement read.

The joint venture partners plan to evaluate existing and available geological information within the area to determine the potential for gas, according to Sasol. If the geological evaluation proves successful, the partners would consider committing to a more extensive exploration program.

“Large gas discoveries in the Karoo Basis could also help alleviate South Africa's power and fuels shortages and assist in creating employment and wealth for the country,” Sasol estimates.

Last year Falcon Oil and Gas was awarded a Technical Evaluation Permit for the Karoo Basin. Falcon's award was followed by the news that Shell would also be studying the potential of the Karoo Basin.

## **Sasol leads Karoo shale gas mission**

21 July 2010  
SouthAfrica.info

South African petrochemicals giant Sasol, Norway's Statoil and US firm Chesapeake Energy Corporation have been awarded a permit to prospect for shale gas – a potentially “game-changing” source of clean natural gas – in the country's Karoo Basin region.

The 12-month technical cooperation permit, which does not allow for any surface activity or drilling, covers an area of approximately 88 000 square kilometres, located primarily in the Free State but also covering areas in South Africa's Eastern Cape and KwaZulu-Natal provinces.

The joint venture partners plan to evaluate existing and available geological information within the area to determine the potential for extracting shale gas.

The study work will include the sampling and analysis of existing geological cores that were drilled by former state company Soekor while searching for shale oil in the 1970s and 1980s. The same shale formations are now being assessed for potential gas production.

### **Technology advancement**

This concept follows recent global developments in shale gas, where technology advancement in drilling and extraction technologies has allowed for economic development of significant shale gas resources.

If the geological evaluation proves successful, Sasol says the partners will consider committing to a more extensive exploration programme in the Karoo Basin.

South Africa's Karoo Basin has unproved shale gas potential, and significant exploration efforts are required to assess and quantify this prospective resource.

“A discovery of large recoverable shale gas reserves in the Karoo Basin will be a game changer in the broader South African energy market context and will likely constitute a major step to further develop gas transmission and distribution infrastructure in the country”, Ebbie Haan, MD of Sasol Petroleum International, a wholly-owned oil and gas subsidiary of Sasol, said in a statement this week.

### **Energy security, job creation**

Large gas discoveries in the Karoo Basin could also help alleviate South Africa's power and fuels shortage and assist in creating employment and wealth for the country.

In addition, Sasol says the increase of natural gas in South Africa's energy portfolio would significantly aid in the reduction of greenhouse gas emissions on a per unit basis compared to more conventional resources such as coal.

“But we are at the beginning of a journey that requires technical risk reduction, environmental stewardship, stakeholder alignment and, in case of success, significant future capital investment,” Haan said.

Shale gas is clean natural gas produced from shale, a type of sedimentary rock consisting mainly of clay and some organic matter.

It has become an increasingly important source of natural gas in the United States over the past decade, and interest has spread to potential gas shale formations in Canada and Europe, and now also in South Africa.

## Fracking may ignite Karoo water conflict

Bianca Capazorio  
Business Report  
September 5, 2010

*Shale gas is natural gas stored in rocks that are rich in organic material such as dark colored shale*

A battle is brewing between local people and major energy companies looking to exploit possible sources of shale gas in the Karoo.



And at the heart of the conflict will be the one thing that is really scarce in the Karoo – water.

Five companies have recently been given the go-ahead to search for shale gas – trapped deep in the shale rock making up the Karoo landscape. Among them is Sasol, which has partnered with Statoil and American energy company Chesapeake, Shell, Anglo American, Falcon Gas and Oil and Bundu Gas and Oil, which is owned by an Australian holding company.

Bundu and Sasol executives have both said that if enough gas were found in the area, it would be “game-changing” for the industry.

And while most of these permits are technical co-operation permits (TCPs) and only allow for desktop studies, locals are worried about a controversial process called hydraulic fracturing, or “fracking”, in which vast amounts of water, mixed with sand and chemicals, are pumped into the ground to fracture the rock and release the gas.

The process would require millions of litres of water (up to 20 million litres for each production test well drilled) from the already sparse Karoo. And communities in the US where the procedure is



becoming increasingly common, have cried foul after water became contaminated, apparently as a result of fracking. The US government has ordered an investigation into hydraulic fracturing.

Professor Maarten de Wit, of the department of geology at the University of Cape Town, said the interest in the Karoo as a source for shale gas had started about two years when Shell applied for rights to prospect for gas across large tracts of the Karoo. This made other companies sit up and take notice.

De Wit said that while fracking was water intensive, non-potable water sources could be considered.

“There should be very strict environmental rules in place before mining of shale gas is given the go ahead; one thing that is worth noting is that they need not necessarily have to use potable water; brackish water (as there is in some parts of the Karoo) might well do. But it’s very early days in this new field of shale gas exploration, let alone exploitation,” De Wit said.

A press release issued by Sasol in July quoted executive Ebbie Haan as saying “a discovery of large recoverable shale gas reserves in the Karoo Basin will be a game-changer in the broader SA energy market context and will likely constitute a major step to further develop gas transmission and distribution infrastructure in the country”.

Bundu, whose application for an exploration right has been accepted by the Petroleum Agency of South Africa, was one of the first to apply for rights.

Their application covers over 300 000 hectares of the Karoo.

Paul Bilston of Sunset Energy, the Australian company which owns Bundu, said they had withdrawn their first application, and the second had been denied by the Petroleum Association of SA in May, based on environmental grounds.

Bundu submitted a third application that took account of environmental objections. “We have done this to the best of our ability, firstly by removing gazetted game reserves from the application area, and secondly we will be reviewing and increasing the funding required as a bond to cover rehabilitation liabilities.”

But at a meeting this week, three private game reserves heard that they would be included in the new, larger area.

Bundu will need to submit an environmental management plan before being given exploration rights, then it will take around three years before any drilling takes place.

Graaff Reinet attorney Derek Light , who is representing some 100 landowners and farmers in the area in the Bundu issue, said Bundu’s campaign has been characterised by secrecy.

At a meeting held in Pearston on Thursday, locals were given a map detailing the area for the first time. Light said it was also the first time Bundu admitted that “fracking” would be used.

Locals were not happy with the way in which the meeting was conducted, saying little dialogue had occurred.

Light said they had also been told they had only a few days in which to make submissions.

“It’s difficult to make a meaningful contribution in that amount of time. This is not a game. This is 950 000 acres of ground. This is a big deal,” Light said.

Iain Buchanan of the Mount Camdeboo Game Reserve in the Eastern Cape said that while he understood the need to create jobs in the area, his biggest concern was water.

“Water is something we crave in the Karoo so if this could affect our water, there is just no way we could condone it.”

But Bilston said: “Given the modest scope of our initial exploration we do not expect to impact significantly on the Karoo?”

“In terms of water, it is a key issue, and while we are confident of being able to obtain the water to carry out our exploration programme, we will need to look at how water for this is sourced and reused as part of any larger programme.”

## **Sasol Says It Won’t Make Karoo Shale-Gas Commitment Before 2020**

Carli Lorens (Johannesburg)  
September 8, 2010  
Bloomberg

[Sasol Ltd.](#), studying shale gas in South Africa’s Karoo region together with [Chesapeake Energy Corp.](#) and [Statoil ASA](#), said it won’t commit to large-scale production before 2020 and probably “closer to 2030.”

A shale gas plant would cost “multiple billion dollars” if it proved viable, Liesl Marriott, manager of unconventional resources at Johannesburg-based Sasol, said at a conference in the city today. Gas from the plant could be used to produce electricity and motor fuels, she said.

Sasol uses proprietary [Fischer-Tropsch](#) technology to convert coal and gas into fuels including gasoline, diesel and jet fuel in South Africa and Qatar. Recent shale gas extraction technological developments and related global gas prices “present a significant opportunity for the expansion of our gas-to-liquids,” Sasol said in June.

[Exxon Mobil Corp.](#), Mitsubishi Corp., Reliance Industries Ltd. and Sumitomo Corp. are expanding into shale gas as conventional energy reserves decline. Shale gas is natural gas produced from shale, a type of sedimentary rock. In the U.S., shale gas accounts for a tenth of gas supplies from nothing about ten years ago, Marriott said.

[Sasol](#) and its partners were permitted this year to undertake a 12-month “desktop study,” which doesn’t allow drilling, over an area of about 88,000 square kilometers (55,000 square miles). Sasol may apply for an exploration license depending on the results, according to Marriott. Exploration could then take between three and eight years, she said.

Water availability and access to land will be among the main challenges, Marriott said. The large [Karoo](#) region between Johannesburg and Cape Town is largely dry, sparsely populated scrubland. [Royal Dutch Shell Plc](#) also acquired an early stage right to study shale gas reserves in the Karoo region.

Shale-gas reserves have been discovered in the U.S. during the past five years, according to Chesapeake. Reserves in the country are now estimated to contain more than two quadrillion cubic feet of natural gas, more than doubling the country’s previous estimates of natural gas reserves, according to the company’s [website](#).



# Shell talks up SA shale gas prospects

Matthew Hill  
Mining Weekly  
September 13, 2010

**Picture by:** Reuters  
Shell Peter Voser



MONTREAL (miningweekly.com) - Energy giant Shell is confident of finding shale gas in South Africa, CEO **Peter Voser** said on Monday.

The company has been granted permits to explore for the fuel by Petroleum Agency SA, along with oil and gas company Falcon. Sasol and Anglo American have also applied for exploration permits.

“We are convinced and positive that there is a high probability of shale gas [in South Africa],” Voser told a media briefing at the World Energy Congress in Montreal.

“We are now starting the work and trying to build the first wells and then we are in a position to give you regular insight.”

He said it was too early to tell what the potential of shale gas was in the region, or how long production would take to develop.

Last week, Sasol Petroleum International manager for unconventional resources Liesl Marriott said the South African company would only see production of shale gas “closer to 2030 than 2020”, if reserves were proven.

In July, Sasol Petroleum International MD **Ebbie Haan** said the discovery of large recoverable shale gas reserves in South Africa’s Karoo Basin would be a “game changer” in the broader South African energy market context.

Shale gas is extracted by a process called fracking, which uses hydraulic power to penetrate the rocks that host the fuel source.

Voser said a “revolution” was under way in the natural gas industry because of the emergence of shale gas.

He predicted that global liquefied natural gas supply would grow by 6% to 8% yearly.

Demand for natural gas could rise by 25% by 2020, and nearly 50% by 2030, Voser said.

“That would represent double the growth of oil during the same period in the International Energy Agency’s reference case.”



Voser said the Chinese government wanted to more than double the share of natural gas in the country's energy mix to up to 10% by 2020.

“As a result, China's annual gas demand could reach a level comparable to half of the current gas demand of the USA,” he added.

The Middle East and North Africa's demand for natural gas would approach that of Europe by 2020, according to Voser's forecast.

## Fracking up the Karoo

Andreas Spath  
September 15, 2010

[Farmers in the Karoo](#) are increasingly worried about a massive search for shale gas on their land and if developments in the USA, a global leader in the exploitation of this form of natural gas, are anything to go by we are in for an environmental mess that will affect more than just a few back-of-beyond sheep farmers.

Shale gas is trapped in countless tiny bubbles in certain layers of the sedimentary rock shale. It was previously considered to be too expensive to exploit commercially, but advances in horizontal drilling techniques and a controversial process called hydraulic fracturing or “fracking” have led to a worldwide rush to identify shale gas reserves. Fracking involves injecting pressurised water mixed with sand and a cocktail of chemicals into boreholes to crack open the impermeable shale and allow the gas to escape to the surface.

I have [raised concerns](#) about shale gas exploration and fracking in South Africa previously. Now things are hotting up. Government has granted permits to five major companies and consortia to evaluate the country's shale gas reserves, which are unproven but potentially substantial. Between them, Royal Dutch Shell, Falcon Oil & Gas, Anglo American, Bundu Gas and Oil and a joint venture between Sasol, Statoil of Norway and Chesapeake Energy of the USA are assessing a huge area extending from Worcester to Port Elizabeth and from the Free State to KwaZulu-Natal. While their permits do not allow drilling, if they are successful, widespread fracking is sure to follow.

Supporters of the industry say it will create jobs and alleviate energy shortages, but the Karoo farmers are particularly worried about the large quantities of water - as much as 20 million litres for a single well - required for the fracking process. They should also be apprehensive about possible contamination of their groundwater by methane gas and the chemicals used during fracking, among them several known carcinogens and endocrine disrupters.

Environmental organisations have collected extensive evidence for fracking-related groundwater contamination in several US states. A [2008 study](#) conducted in Colorado, for instance, found that methane contamination of drinking water wells rose in tandem with increased gas shale drilling.

In June, a shale gas well blowout in Pennsylvania spewed toxic fracking water and gas for nearly 16 hours. Regulators in the state have repeatedly penalized shale gas companies for contaminating private drinking water wells and recently quarantined 28 cows that came into contact with fracking

wastewater.

Scientists from the US Environmental Protection Agency have identified methane, 2-butoxyethanol phosphate, benzene and other toxic chemicals known to be used in fracking in private boreholes located near shale gas wells and the US Congress has recently instructed the agency to investigate the potential impact of fracking on drinking water quality, human health and the environment. The New York State Senate has already instituted a moratorium on shale gas development to protect New York City's drinking water supply in the Catskill Mountains and the Delaware River adjacent to a major shale gas area.

Disposal of the toxic wastewater which returns to the surface presents another headache. A [damning Vanity Fair article](#) reports that "in Avella, Pennsylvania, a wastewater impoundment caught fire and exploded on George Zimmerman's 480-acre property, producing a 200-foot-high conflagration that burned for six hours".

Shale gas supporters claim that it could provide a low-carbon bridge to a renewable energy future, but while gas-fired power stations emit only about half the greenhouse gasses produced by coal-fired equivalents, shale gas may be no more climate friendly than other fossil fuels. Taking into account leakages of methane, a potent greenhouse gas, during drilling, storage and transportation, a [preliminary study](#) by Professor Robert Howarth of Cornell University in the USA suggests that shale gas is likely to be "far less attractive than oil and not significantly better than coal in terms of the consequences for global warming."

Instead of being a clean power panacea, shale gas is just another fossil fuel dead end. Rather than wasting precious time, money and opportunities by handing out exploration permits that threaten our scarce water resources and increase our already oversized carbon footprint, government should use our taxes to move us towards truly eco-friendly, renewable energy solutions.

- *Andreas manages Lobby Books, the independent book shop at Idasa's Cape Town [Democracy Centre](#).*

# South Africa Targets Shale Gas to Reduce Oil Imports

Carli Lorens  
Bloomberg  
September 23, 2010

South Africa's petroleum regulator said [Falcon Oil & Gas Ltd.](#) and Bundu Gas and Oil Exploration Ltd. have applied for shale gas exploration permits as the nation looks to reduce its dependence on petroleum imports.

"We're certainly going to have significant exploration in the next three years or so," said [Mthozami Xiphu](#), chief executive officer of Petroleum Agency SA, by phone from Cape Town yesterday. "In the next five, six years, we do expect the beginnings of significant production."

[Royal Dutch Shell Plc](#) is studying data from an area of almost 200,000 square-kilometers (78,000 square-miles), while a group including Chesapeake Energy Corp., [Statoil ASA](#) and Sasol Ltd. has been granted a technical cooperation permit over about 88,000 square kilometers in the scarcely populated, arid [Karoo region](#) in the centre of South Africa.

Falcon, based in Denver, applied for exploration rights there after undertaking initial studies, Xiphu said. [Anglo American Plc](#), which owns stakes in the world's largest diamond and platinum producers, has applied for a technical cooperation permit over an area thought to contain shale gas, the company said in an e-mailed response to questions today.

The U.S. last year overtook Russia as the world's largest producer of natural gas as shale-gas output rose to 10 percent of total supplies from 2 percent in 1990, in what BP Plc's Chief Executive Officer [Tony Hayward](#) called a "quiet revolution."

## ***Dwindling Reserves***

[Exxon Mobil Corp.](#), Mitsubishi Corp., Reliance Industries Ltd. and Sumitomo Corp. are expanding into shale gas as conventional energy reserves decline.

Technological advances have made the production of shale gas economically viable, a development that allowed the U.S. to reduce its dependence on imported liquefied natural gas, South Africa's [Petroleum Agency](#) said in an e-mailed statement.

While drilling by former state-owned oil and gas company Soekor proved the presence of shale gas in the Karoo, the Petroleum Agency doesn't know how much South Africa has, Xiphu said. Shale gas is natural gas produced from shale, a type of sedimentary rock.

Finding significant reserves would change South Africa's energy profile, he said. "We are by far a net importer of energy resources in South Africa. We produce hardly 40 percent of the hydrocarbons we need."

## ***Opposition From Farmers***

Shale gas could also be a solution for PetroSA, South Africa's oil and gas company, which is looking for an energy source to replace the dwindling natural-gas reserves it taps from below the ocean floor on the west coast, Xiphu said. While PetroSA hasn't applied for rights to explore for shale gas, companies that obtain production permits have to give PetroSA a 10 percent interest in their projects, Xiphu said.

Water access will be a challenge in the Karoo as the area has limited resources, while producers may also encounter opposition from the many farmers in the area, Xiphu said.

While the Chesapeake-Statoil-Sasol group has been granted a technical cooperation permit, it has yet to be issued, Xiphu said.

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## **Shell plans shale gas search in Karoo**

**Oil major Royal Dutch Shell plans to explore for shale gas in South Africa's Karoo basin, it said in an advertisement in the *Sunday Times***

January 17, 2011  
Reuters

The company said it had applied to Petroleum Agency South Africa for exploration rights in the south-western Karoo basin to assess viable unconventional gas resources.

Precise sites within the proposed 90 000 square kilometre exploration area had not yet been identified, the company said.

Shale gas is a natural gas produced from shale, a type of sedimentary rock consisting of clay and some organic matter.

Shell said it would, from next week, hold meetings to solicit views from the public and compile an environmental assessment of the project.

A number of local and foreign firms such as BHP Billiton and Sasol have shown interest in gas exploration in South Africa.

If successfully developed, shale gas could become a viable alternative for South Africa's power generation, which now relies on coal for 95% of supply. It could also help reduce the country's carbon

footprint.

In the United States and some other countries, environmentalists have raised concern that the methods used to extract shale gas could lead to contamination of water supplies.

## **Advasol (Pty) Limited to explore for gas from Struisbaai to Mossel Bay**

January 26, 2011  
South Cape Net

Journalist Heather Dugmore is up in arms about Shell's bid to start hydraulic fracturing ("fracking") over 30000 square kilometres in the Karoo in the hunt for natural gas reserves. Here's her article "Will Shell Frack up the Karoo?" which ran widely in the press this week:



Farmers, communities, environmental organisations, geologists and water specialists are up in arms about global energy and petrochemical company Shell's application to explore for shale gas over 30 000 square kilometres in the water-stressed Karoo.

The proposed exploration method, called hydraulic fracturing or 'fracking' involves drilling boreholes 4-5 kilometres deep, followed by the introduction of a mixture of chemicals, sand and millions of litres of water into the boreholes under enormous pressure to fracture the geological structures and force the free-flow of shale gas, also called 'natural gas'.

This process determines whether viable amounts of shale gas exist for future exploitation based on the same method.

"Fracking has been described as 'planting chemical bombs underground' says Environmental Consultant and farmer, Fritz Bekker who is spearheading an opposition group of farmers and non-government organisations against another application by a company called Advasol (Pty) Limited to explore for gas from Struisbaai to Mossel Bay, extending 20 kilometres down the southern Cape coast.

"With an approved exploration right, an applicant such as Shell may drill as many exploration boreholes as it can afford, which may be hundreds or even thousands depending on the area's geology. Each borehole may be subjected to the fracking process," continues Bekker.

"It is important to note that the most significant adverse environmental impacts of earth gas exploration may already occur during the exploration phase.



“Fracking has been condemned in many countries in the world and despite assurances from companies using this method that they will prevent any leakages, I need to warn farmers, landowners and communities in the Karoo that it poses a significant threat of chemical and gas contamination to the region’s scarce water sources. Both the surface and ground water is highly vulnerable to contamination once pressurized shale gas is liberated through the drilling and fracking process.

“The long-term effects of toxic chemicals used in the fracking process are only now becoming apparent in countries where it has been used. The chemicals used during fracking in America have been positively linked to cancer, Parkinson’s, Alzheimer’s, diabetes, asthma, learning disorders and endocrine disrupting effects.”

“If they drill they will also need large quantities of water and storage space for vast volumes of flammable, potentially toxic drilling mud in dams close to each drilling site.”

Shell’s background document states that they are investigating a number of potential water sources to support the water-intensive fracking process, including “sea water, surface water and deep saline aquifers”. What they fail to say is that millions upon millions of litres of water are required for the process, which the Karoo does not have, and that as Bekker says: “It takes one litre of hydrocarbons such as shale gas to pollute one million litres of water.

Shell has appointed Golder Associates (Golder) to compile the Environmental Management Plan and to undertake the public consultation process. Shell’s application to explore for shale gas has been submitted to the Petroleum Agency South Africa (PASA), which administers applications as a designated agent of the Minister of Energy. Golder’s background information document states: “PASA is expected to make a decision during 2011 whether to award the initial three year exploration rights.”

Brent Baxter, Business Unit Leader, Environmental Services at Golder explains that “once a company lodges an application for an exploration right under the Mineral and Petroleum Resources Development Act they have 120 days to submit an Environmental Management Programme (EMP) in support of the exploration rights application. This is a legislated timeframe. Shell thus needs to submit an EMP, in support of each of the three exploration rights applications that they have lodged in the Karoo, by 18 April 2011.”

To compile the research required for the EMP, the background document says: “a number of technical studies will be undertaken as part of the EMP process. Desktop studies will cover the larger application area and some fieldwork will be undertaken in selected areas to support the findings of the desktop studies.”

The mention of “some fieldwork” is alarming. “The EMP by its nature must include specialist studies by geologists, ecologists, as well as specialist groundwater and surface water studies. Without these studies they cannot responsibly comment on the potential impact of gas exploration or mining required in the EMP,” Fritz Bekker explains. The applicant will not be able to budget for the management or mitigation of adverse environmental impacts that they have not identified properly during this phase of the application.

Specialist environmental surveys such as botanical, hydrological and ground water investigations should be planned to take cognizance of seasonal variance, which is now not possible because of Shell’s haste to obtain approval.

Baxter responds that “fieldwork to inform the EMP will be conducted by specialists between mid January and early February 2011 after which the draft EMP will be compiled. This fieldwork will of necessity be broad-based seeking to characterise the broad environment within which the proposed project takes place and seeking to verify information available in public datasets, such as national groundwater database information.”

This means they are giving themselves two to three weeks of fieldwork to inform an EMP of this magnitude. Baxter says the period cannot be extended because of the 18 April deadline to submit to PASA.

It begs the question whether an environmental management plan can ethically be presented without an indepth assessment of the potential impact on the environment.

Baxter reassures that an Environmental Impact Assessment will be conducted “for any activities which are listed under the NEMA, before exploration activities commence”.

One would expect so, but it still does not address the potential fracture in the EMP process. Asked why Golder and Shell did not rather apply for the period granted for the submission of the EMP to be extended, Baxter said this was not possible.

The first of several meetings to be hosted by Shell and Golder is to take place in the Karoo town of Hofmeyr on Monday 24.

Many farmers, communities and interested and affected organisations have not been informed about the meetings, nor about the application. Those who are aware of it are trying to spread the word as widely as possible, which is what Golder should be doing. However many interested and affected parties attend, it promises to be a heated exchange.

Asked how they had advertised the meetings, Golder’s Public Participation Officer, Toni Pietersen, replied that they placed adverts in national and community newspapers. She said that it is unfortunate that they were placed approximately one week before the meetings were scheduled to begin; explaining that the Christmas period had hampered the timing. She adds that they had sent emails and posted the background documents to as many landowners, communities, farmers and affected organisations as they could locate.

Their distribution process appears to be lacking since not even the President of Agri Eastern Cape, Ernest Pringle, who farms in the affected area, received contact or background information from them. Neither did the Chair of the Rooihogte Farmer’s Association in the Middelburg district, Ed Kingwill, nor did the Regional Chief Director for the Department of Water Affairs in the Eastern Cape, nor the Nama Karoo Foundation, the conservation agency working to protect and preserve the natural and cultural heritage of the Karoo, based in Richmond and Graaff-Reinet in the Karoo.

All received the information by chance via associates.

“I have seen a documentary on frack mining and after I watched it I thought thank god I will never have to deal with this in the Karoo. So I thought until I received word about Shell’s application two days ago,” says the Nama Karoo Foundation’s Marina Beal.

“Water, much of which is ancient water dating back millions of years, is the most precious commodity in the Karoo. This is a semi-desert area and it is a well-known fact how scarce water is in the Karoo, many parts of which are only now emerging from one of the worst droughts in decades. The potential for contamination of water through fracking is significant and potentially environmentally devastating.”

Geohydrologist, Ahee Coetsee, who farms in the Middelburg district comments:

“My initial reaction is that we all have to be extremely careful because despite assurances from mining companies that they follow ethical and green environmental procedures, we only need to look at the coal fields and acid mine drainage to know that while we might have excellent environmental laws, the enforcement of them and technical know-how is lacking.

“We simply do not understand enough about the aquifer systems in the Karoo, which is why various studies are being done, such as by the Water Research Commission to look at the dolerite ring aquifer systems of the Karoo, from the surface to a depth of 3-500 metres.

“There are many and varied aquifer systems in the Karoo, some dating back 300 million years and older. If Shell is planning to drill down to 4 kilometres and more, and if the boreholes constructed are not 100%, there can be cross contamination between aquifer systems.

“If they do not comprehensively research and understand the hydro-geology of the exploration area, then they will need to be investigated from a technical and legal point of view.”

Professor Bruce Rubidge, Director of the Bernard Price Institute for Palaeontological Research at Wits University elaborates that when Shell talks about drilling down 4-5 kilometres in the Karoo, they are talking about accessing the Ecca group of rocks dated at approximately 270-million years: a time when the Karoo was an ancient marine environment.

The Karoo is globally renowned for its fantastic wealth of fossil material, and Rubidge, who is a son of the Karoo, says “I care greatly for the Karoo and I would hate to see a big petroleum industry set up there. It would destroy the character of the Karoo.”

Shell justifies the application in its background document by referring to shale gas as “the cleanest of the fossil fuels” and stating that: “South Africa is faced with the challenge of being able to meet future energy demands of an expanding economy. Developing a natural gas energy supply to help meet this growing demand would be of considerable value to South Africa.”

What they fail to state is that the carbon footprint becomes outsize if they start calculating the process of extraction of shale gas through hydraulic fracturing, the process of accessing water from an as yet unidentified source, including possibly transporting in sea water, transporting the gas to market and the potential environmental degradation in this pristine part of the world.

As Africa’s highest emitter of carbon, the government has committed to transform to a low carbon economy with a focus on renewable energy programmes, notably solar and wind. The Karoo is high on sun for solar power plants but extremely low on water.



## Richemont's Rupert Opposes Shell's Gas Plans in Karoo, Star Says

Nasreen Seria (Johannesburg)  
January 30, 2011  
Bloomberg

Cie. Financiere Richemont SA Chairman Johann Rupert is opposed to a plan by [Royal Dutch Shell Plc](#) to explore for gas in South Africa's Karoo region until further environmental studies are conducted, the [Star](#) reported, citing Rupert.

Shell must do further tests on the possible impact of its exploration on the water systems, geology and environment, Rupert told a public meeting in the Karoo town of Graaff-Reinet on Jan. 28, the Johannesburg-based newspaper said. Rupert, who owns farms in the area, said Shell could risk "ecological damage" that could be worse than BP Plc's oil spill in the Gulf of Mexico, the Star reported.

Shell, [Europe's](#) largest oil company, secured a permit to explore for shale gas over 185,000 square kilometers (71,000 square miles) in the Karoo Basin in December 2009. Dennis Matsane, a spokesman for Shell in [South Africa](#), wasn't immediately available to comment when called by Bloomberg News.

# Princess joins gas fight

## ***Karoo locals take on Shell over exploration***

Nashira Davids  
January 31, 2011  
Times Live

**Unlike some of the Dutch royal family, Princess Irene of the Netherlands does not own a stake in the oil giant Shell and she has joined forces with South Africans to fight the company's potentially harmful exploration for shale gas in the Karoo.**



Shell has applied to the Petroleum Agency of SA for permission to explore about 90000km<sup>2</sup> of the Karoo - most of the Karoo basin and sections of Western Cape, Eastern Cape and Northern Cape - using the hydraulic fracturing technique.

This involves deep drilling until shale rock is struck. Water, chemicals and sand are blasted into the holes, fracturing the shale and releasing from it natural gas.

The process, it is said, could be harmful to the environment and pollute underground water.

The princess owns the Boplaas Nature Reserve, in the Karoo. Wayne Maspero, manager of the reserve, said she has told him of her concern about Shell's plans.

She asked Maspero to represent her at a meeting of Karoo residents, including business mogul Johann Rupert, at which the exploration will be discussed, on Friday.

"She is strongly opposed to Shell drilling," Maspero said.

"It is not just about her piece of land. Everybody will be affected by the water and air pollution.

"She is also concerned about drying out boreholes to supply enough water for the drilling. The Karoo is one of the last places in the world with clean water and air," said Maspero.

The princess visits the reserve about four times a year.

Rupert, Princess Irene and about 200 residents have appointed a team of lawyers to challenge Shell.

One of the lawyers, Derek Light, said "objective, reliable" sources confirmed that the drilling might contaminate the underground water.

Phaldie Kalam, vice-president for communications for Shell in Africa, said the company was talking to people in the affected areas.



“We will address all concerns in the environmental management plan, which will be compiled after the first round of consultations which will end next week,” he said.

## **Gas exploration in the Karoo: DA wants moratorium on “fracking”**

**Gareth Morgan,  
Shadow Minister of Water and Environmental Affairs  
1 February 2011**

The proposal by Shell to explore for gas over 90 000 square kilometres of the South Western Karoo Basin is wholly premature, and should not be entertained by Petroleum Agency South Africa (PASA). The Democratic Alliance (DA) is principally concerned about the process of hydraulic fracturing, also known as “fracking”, which uses immense amounts of water, and has the potential to contaminate surrounding bodies of water with pollutants. The process is highly controversial and has been banned in several areas in the USA. The precautionary principle has to apply when considering any proposal that involves fracking, and for the moment we simply do not know enough about the deep geology of the Karoo, nor is it evident how the already water-stressed Karoo could provide the water for this thirsty activity. The rural livelihoods of people in certain parts of the Karoo could be made entirely unsustainable.

The DA believes that there should be a moratorium on any exploration or mining activity that involves “fracking”. For this reason I have today written to the CEO of PASA, Mthozami Xiphu, asking him not to consider this application, or indeed any further applications, until a considerable peer-reviewed study into the geology of the Karoo Basin, and an independent assessment of available water resources, has been undertaken. In addition, it would be prudent to wait for the outcome of the two-year study commissioned by the Environmental Protection Agency in the USA, commissioned at the behest of the US Congress in 2010, into the relationship between fracking and the quality of drinking water.

Shell is currently consulting with Interested and Affected Parties, of which I am one, and is compiling an Environmental Management Plan. After this, PASA will consider whether to grant an exploration right for three years, which can be extended for up to six more years thereafter.

It is important to note that there are no government guidelines or policies on “fracking”. This was confirmed by the Minister of Mineral Resources in reply to a DA parliamentary question last year. The Mineral and Petroleum Resource Development Act provides in general terms for an applicant to demonstrate its technical ability to conduct exploration in line with best industry practice. PASA is tasked with ensuring that operators have the required means, skills and understanding of any exploration activity. These provisions set off a number of alarm bells. PASA has no experience of regulating “fracking” nor does it have more than a handful of environmental compliance officers. It cannot possibly at this stage leave it to Shell, or any other applicant, to demonstrate its technical abilities, when the Agency itself has no record of ever having regulated this activity.

When one considers that each fracking event uses at least 15 million litres of water; that each well can be fracked several times; and that over the course of nine years hundreds of wells could be drilled, one gets a sense of how massive the Shell proposal is. If approved it would change the landscape of the Karoo forever. On the issue of water, both in terms of use and the possible contamination of water, I addressed correspondence to the Minister of Water and Environmental

Affairs on 25 January 2011, asking her to familiarise herself with Shell's proposal. The Department of Water's coordination with the Department of Mineral Resources over recent years has been pathetic to say the least, and on so many occasions in recent times, mining rights have been approved without due consideration of their impact on water resources. For this reason it is incumbent on the Minister of Water and Environmental Affairs to use all opportunities available to her through cooperative governance structures to engage with PASA on this application. The Minister, who is the custodian of water in South Africa, would equally do well to advocate the precautionary principle.

**Note to editors:** Gareth Morgan MP will be attending the consultation meeting with Shell this evening in Edgemead at 17:00.

## **Put Karoo fracking on hold, says DA**

**Oil giant Shell's application for a licence to explore for gas in the Karoo should be put on hold, the DA said.**

February 1, 2011  
Times Live

The party warned of the risk of the prospecting contaminating water.

"The proposal by Shell to explore for gas over 90000km<sup>2</sup> of the southwestern Karoo Basin is premature and should not be entertained by the Petroleum Agency of SA," DA water and environmental affairs spokesman Gareth Morgan said.

The DA was concerned about the use of hydraulic fracturing ("fracking") in the prospecting because it consumed immense quantities of water and had the potential to pollute aquifers.

"The process is highly controversial and has been banned in several areas in the US," said Morgan. "The precautionary principle has to apply when considering any proposal that involves hydraulic fracturing.

"For the moment, we simply do not know enough about the deep geology of the Karoo, nor is it evident how the already water-stressed Karoo could provide the water for this thirsty activity."

"The DA believes that there should be a moratorium on [this]."

Shell's Phaldie Kalam said the group was identifying concerns, and assessments of the effects of the explorations on the soil, surface water and groundwater, and of social considerations, would be made.

# South Africa farmers oppose Shell's shale gas plans

February 3, 2011

Wendell Roelf

Reuters

CAPE TOWN, Feb 3 (Reuters) - Royal Dutch Shell ([RDSa.L](#)) is facing opposition to its plans to seek shale gas in South Africa's semi-desert Karoo region, as farmers fear methods used to extract it will contaminate water and harm the environment.

The outcome of whether Shell is allowed to proceed could affect prospects for other oil and gas companies in the Karoo, which may hold substantial deposits of gas in shale.

This gas can now be exploited due to new techniques and could bring a much needed fresh source of energy to Africa's largest economy, which is heavily reliant on coal.

Petrochemicals group Sasol ([SOLJ.J](#)), Anglo American ([AAL.L](#)), Falcon Oil and Gas ([FO.V](#)), and Bundu Gas and Oil Exploration, are among those eyeing shale gas in the region.

Public concern focuses on the extraction method known as hydraulic fracturing or fracking, in which drillers blast millions of litres of water, sand and chemicals at high pressure in underground rock formations to create cracks for gas and oil to escape easier.

"We are very concerned about the environmental impact, especially because fracking is not regulated in South Africa," Derek Light, a lawyer representing a number of Karoo land owners and interested parties told Reuters on Thursday.

He said farmers were worried about the sensitivity of the underground water systems upon which the Karoo is totally dependent, should contamination occur.

According to findings from a U.S. Congressional probe released on Monday, several energy companies there may have violated environmental rules by injecting diesel into the ground without permits as part of the controversial drilling technique.

"We've got some serious concerns about fracking, it is as yet an unproven technology with unacceptable risks for fresh water abstraction and pollution," said Mark Botha, head of conservation at environmental group WWF South Africa.

Oil major Shell, which has held public consultations as part of its environmental impact assessment, said in January it had applied to Petroleum Agency South Africa for exploration rights in the Karoo.



“Fracking is the best method to extract gas that is trapped in shale,” Phaldie Kalam, vice president communications for Shell Africa told Reuters.

He said Shell noted the public’s concerns and would incorporate that into an environmental management plan currently under design, the final version to be handed in by end-April.

Minister of Mineral Resources Susan Shabangu on Tuesday placed an indefinite moratorium on the processing of all new exploration and production rights in the Karoo, although this would not affect those applications already in the pipeline.

## **South Africa’s “Game Changer” Karoo Shale Gas Prospects Face Environmental Interrogation**

February 4, 2011

Marketwire

Researched by Industrial Info Resources (Sugar Land, Texas)

In 2010, synfuel and chemical major Sasol Limited (NYSE:SSL) (Johannesburg, South Africa) said that the discovery of major shale-gas reserves could be a “game changer” for the South African energy market. Although the country does not have an extensive gas pipeline infrastructure, it does have a well-developed national electricity grid, which could take power from gas-fed, combined-cycle power stations.

Falcon Oil & Gas (OTC:FOLGF) (Denver, Colorado) was the first company to apply for a permit and was allocated 30,000 square kilometers. Royal Dutch Shell (NYSE:RDS-A) (The Hague, Netherlands) was the second to obtain a permit, for an area of 185,000 square kilometers. The permit allows the company the exclusive right to study for 12 months, if there is potential for exploration. The permit precludes any surface activity or drilling. Sasol applied for a permit at the end of 2010 and was shouldered out of the main Karoo area; with partners Statoil ASA (NYSE:STO) (Stavanger, Norway) and Chesapeake Energy (NYSE:CHK) (Oklahoma City, Oklahoma), Sasol was awarded permits in the northeastern part of the region, which is adjacent to a long stretch of coal-bed methane prospects that could, if the shale gas is found in commercial quantities, provide synergies in pipeline construction and end-user distribution. Anglo American (LSE:AAL) (London, England) is one of a number of other companies active in the area, and a new round of alliances may emerge as the first clear indication of shale-gas reserves in the market.

Shell is proposing to explore 90,000 square kilometers of the southwestern Karoo Basin, which has roused the official opposition party, the Democratic Alliance (DA), in South Africa’s parliament to request Pasa to put a hold on exploration until a peer-review study into the geology of the Karoo Basin and an independent assessment of available water resources has been undertaken. At the centre of the request is concern about the oil extraction process technique of “fracking,” which requires large volumes of water to create hydraulic fracturing in the rock to release the gas and, claims the DA, has the potential to contaminate the surrounding water bodies with pollutants. The DA maintains that not enough is known about the deep geology of the Karoo, and questions whether the mainly dry region could provide water in the volumes needed for fracking.

Shell has responded by saying that the company is compiling an environmental management plan, is engaging affected stakeholders in the area, and will conduct specialist studies which will include soil surveys, surface and groundwater surveys and noise, and social and heritage impact assessments. Shell's vice president for communications in Africa, Phaldie Kalam, said: "In the Karoo, we expect that thousands of meters of rock separate the natural gas formations from the shallow groundwater aquifers. The risk of seeping gas into aquifers or to the surface is extremely low."

With high-profile stakeholders such as eco-conscious Johann Rupert, the chairman of global luxury goods company Richemont (XETRA:RITB.DE) (Geneva, Switzerland), family farms, and Princess Irene of the Netherlands, who has a game farm in the area, the focus on the environmental impact of any shale gas projects will be intense and sustained. Missing from the scenario at present is confirmation that there is a large shale-gas source available; this confirmation, if and when it comes, will be the real game changer.

Industrial Info Resources (IIR) is the leading provider of global market intelligence specializing in the industrial process, heavy manufacturing and energy markets. IIR's quality-assurance philosophy, the Living Forward Reporting Principle™, provides up-to-the-minute intelligence on what's happening now, while constantly keeping track of future opportunities.

## Shell's S.Africa shale gas plan stirs controversy

Justine Gerardy  
February 7, 2011  
AFP

CAPE TOWN — Energy giant Royal Dutch Shell is targeting potential untapped shale gas reserves in coal-hungry South Africa where landowners - including a Dutch princess - are readying for a showdown.

Shell applied in December to explore 90,000 square kilometres -- twice the size of Denmark -- for gas deposits in the clay-like shale rock of the arid central Karoo.



"The shale gas potential is quite high, because there is a high volume of shale and therefore the potential for gas development is very big," said Jenny Marot of the state's Petroleum Agency SA (PASA).

But more than 200 people want the application dropped, including landowner Dutch Princess Irene, due to environmental concerns and the use of hydraulic fracturing or "fracking" to release viable deposits if discovered.



The Anglo-Dutch giant, whose 2010 net profits nearly doubled to \$18.6 billion, is one of several companies interested in the Karoo where gas finds in the 1960s were technologically and economically unviable to exploit.

South Africa's petro-chemical heavyweight Sasol is in early studies in a joint venture, while American firm Falcon Oil&Gas, and Bundu Gas and Oil are also eyeing additional chunks of the Karoo.

"We have always known that there was gas trapped in shale but it was a whole lot more expensive to extract when you had potential reserves elsewhere of conventional gas," said Shell Africa communications vice president Phaldie Kalam.

"We're now moving from easy to tight gas. It's effectively a sign of the times; as it becomes more economically viable, and the prices are a whole lot better for the commodity, its worth actually using the different techniques and going further and deeper."

But locals fear "fracking", in which water, sand and chemicals are blasted deep underground to force rock cracks and free the trapped gas, will pollute underground water which the barren Karoo is almost entirely dependent upon.

The process is also water intense, a scarce commodity in the inland region.

"Our biggest concern is water and the risk of contamination of that water," said Derek Light, a Karoo attorney who represents 200 people including farmers against Shell and smaller groups against Falcon and Bundu.

"The mineral resources of this country must be exploited for the benefit of our people and at the same token, you need foreign investment. But all we see at the moment is a threat to our people."

With shale gas tipped to make up a fifth of the US gas supply by 2020, potential harmful effects of fracking on drinking water is subject to a study by the country's Environmental Protection Agency.

Shell, which will submit an environmental management plan to PASA in April, says its track record shows safe use of the technology and that opposing views will be taken into future thinking.

The area's potential will only be known once exploration starts but, if viable, the Karoo will have a major impact on energy supply with early conservative estimates above five trillion cubic feet of gas, said PASA chief executive Mthozami Xiphu.

"It is potentially much higher than that. If you compare with Mossgas, that's more than five times what is being produced at Mossgas" gas fields off the southern Cape coast.

South Africa relies heavily on coal for 95 percent of its electricity and the government plans to increase gas consumption from three percent to 10 percent within a decade.

But WWF South Africa head Morne du Plessis questioned the pursuit of more fossil fuels.

"We're sitting with massive opportunities for renewable energy production above the ground," he said.

# **‘Fracking’ fiasco exposes SA’s fractured planning system**

Doreen Atkinson  
February 8, 2011  
Business Day

DURING the past two weeks, a latent issue has finally erupted, which reflects profound fault lines in SA’s development planning system.

Civil society opinion has come out in force against allocating rights to mining companies to undertake “fracking” (hydraulic fracturing), for the purposes of shale gas mining, in the Karoo. Fears abound of the toxic consequences of fracking for the underground water supply of the Karoo. An unprecedented wave of public opinion may now have put at least a tentative hold on the allocation of rights. This must be an embarrassment for the government.

In this standoff between oil companies and Karoo opinion makers, the most high-profile target has been Shell, which is making a bid for an exploration licence in the Karoo. Shell, unlike other oil companies chasing these licences, has been fairly conscientious in creating opportunities for public participation; it employed a professional company to undertake a series of public meetings.

But Shell’s bona fides have been questioned because of its shortsighted stand in the heritage town of Graaff-Reinet, where it conspicuously failed to honour its commitments to the citizens in the matter of locating a petroport in a sensitive heritage area. A rolling wave of protest against Shell in Graaff-Reinet has been now been publicly bolstered by Johann Rupert of Richemont and Princess Irene of the Netherlands.

First lesson: local citizens can mobilise sufficient political muscle to tackle large corporations, particularly if companies have a poor track record of responsiveness to the public good. Civil society has institutional memory, political connections and a surprising array of technical and organisational skills. The poor environmental record of mining in Mpumalanga, and the paltry supervision by the government, may well incline any rational member of civil society not to sup with that particular devil. But the second lesson follows hard on the heels of the first — that successful citizen mobilisation often depends on a fortuitous combination of local skilled people and key public figures. Without this, it may fail.

This brings us to the nub of the problem in SA — that there are very few effective opportunities created by the state to engage with issues that are obviously critical to the public good. This is despite impressive legislation on municipal integrated development plans and provincial growth and development strategies, all of which are meant to include an intelligent scan of new developmental challenges, as well as significant public participation.

In the fracking debacle, the state has been conspicuous by its absence. The entire debate has been driven by a spontaneous groundswell of civil society action. There has been virtually no response by municipalities, provincial governments or national government (although Water Affairs Minister Edna Molewa belatedly spoke out against fracking). Why did the Department of Mineral Resources not consult provinces or municipalities beforehand? Was there consultation with the Department of Water

Affairs, or the Department of Environmental Affairs, or the Department of Tourism? Or if such consultations took place beforehand (which is unlikely), why was civil society not invited?

The same questions can be asked about the mining of uranium in the Karoo — there has been little state-sponsored consultation within its own ranks, let alone with civil society or development experts. In fact, municipalities and even provincial governments are often the last to know what is going on in their own jurisdictions.

But the problem goes further. There is no institutional mechanism with which developmental questions that transcend provincial boundaries can be addressed. Provinces are locked into their own turf-based developmental efforts, so no coherent regional perspective can be devised. Provincial plans remain just that — fragmented spatial plans based on artificial political boundaries.

In this environment, it is easy for a national government department to ride roughshod over provincial, municipal or civil society concerns. This is a major failure of the role of the government as the guardian of the public good.

The fracking issue does not concern only the critical question of preserving the quality and availability of underground water in an arid area. Any mining venture involves questions of employment, migration, urbanisation in new areas, infrastructure, housing and pressure on other natural resources and economic sectors, such as environment-based tourism. There should be a real and informed debate about the relative importance and long-term sustainability of different sectors, such as mining, agriculture and tourism, within a specific region. Choosing mining may well make other sectors unsustainable. Tough choices may need to be made.

This does not mean one has to adopt a knee-jerk rejection of all mining activity. There are numerous legitimate and competing viewpoints. So who should decide what course to take?

There is currently no institutional space — particularly across provincial boundaries — in which such debates can take place. There is also a failure of government as the guarantor of public debate, participation and accountability. Civil society is forced to conduct the fight by itself, taking on big multinationals, which appear to have the implicit support of national government departments.

In the case of the Karoo, sufficient civil society resources exist to take on this fight. What happens in areas that are more impoverished? What chance do social groups stand against the evident complicity between oil companies and the state?

The tragedy is not simply the inherent unfairness in the stacking of the dice. It goes much further — that possible win-win strategies do not get identified, because there is no structured regional public space in which different points of view can be soberly researched and debated. Ultimately, the whole country is the poorer, because optimal decisions are not taken.

Therefore, the third lesson is that the president's new National Planning Commission should recognise regional challenges, to provide the resources for regional and interprovincial research and planning systems, and to invite informed citizen's groups to participate. The Karoo shale gas controversy has highlighted a critical shortcoming of our planning system. The real action is happening somewhere else entirely — and with zero accountability or participation. The much-vaunted provincial and

municipal planning systems cannot deal with regional issues, and consequently they are being neatly side-stepped by corporate interests and national government departments.

- Atkinson is with the University of the Free State and is a trustee of the Karoo Development Foundation.

## **Fracas over proposed shale mining in the Karoo grows**

February 8, 2011

Legalbrief Environmental

Issue No: 0198

The residents of Graaff-Reinet are preparing for a bitter legal battle with Dutch petroleum giant Shell over the company's plans to drill for shale gas in the area, a move they fear could spell 'the end of the Karoo'.

The Herald notes that in their corner they have two heavyweights in billionaire businessman Johann Rupert, whose father Dr Anton Rupert was born and raised in the town, and reclusive Dutch Princess Irene who owns a farm in the Sneeuberg mountains outside Graaff-Reinet. The recent appointment of Graaff-Reinet lawyer Derek Light by hundreds of locals - including Rupert and Princess Irene - is the first salvo in what promises to be an intense and prolonged legal war to stop Shell's plans to explore more than 90 000km<sup>2</sup> of the Karoo by drilling up to 5km into the earth's surface. Should Shell not address the community's concerns, a class action could be filed against the oil giant. In addition, Light said since Shell's application deadline was 18 April it would be impossible for the company to do a thorough Environmental Management Plan (EMP) for a project of this magnitude in 120 days. Minister of Mineral Resources Susan Shabangu has placed an indefinite moratorium on the processing of all new exploration and production rights in the Karoo, although this would not affect those applications already in the pipeline, said a report on the Moneyweb site.

[Full report in The Herald \(subscription needed\)](#)

[Full report on the Moneyweb site](#)

[Podcast interview with Johann Rupert](#)

The application should be put on hold, the DA said last week. A report in The Citizen quotes DA Water and Environmental Affairs spokesperson Gareth Morgan who said: 'The proposal by Shell to explore for gas over 90 000km<sup>2</sup> of the south-western Karoo Basin is wholly premature and should not be entertained by Petroleum Agency SA.' The DA was particularly concerned about a process of hydraulic fracturing, also known as 'fracking', which used immense amounts of water and had the potential to contaminate surrounding bodies of water with pollutants. 'The process is highly controversial and has been banned in several areas in the US,' said Morgan.

[Full report in The Citizen](#)

Meanwhile, Shell says that all concerns raised over the envisaged shale gas exploration activities in SA's Karoo basin would be taken 'very seriously' and would be integrated into the EMP. An

Engineering News report notes that Shell communications vice-president Phaldie Kalam said two of the most common concerns raised after the first week of consultations included the security of the area's underground water source and the protection of shallow fresh water aquifers. Kalam emphasised that Shell was looking for innovative ideas to reduce the amount of fresh water used in processes such as fracturing.

[Full Engineering News report](#)

Water Affairs Minister Edna Molewa has expressed doubt about Shell's proposed gas exploration plan for the Karoo, according to Rapport. Molewa admitted in Parliament the proposed fracking technique was problematic and highlighted the dangers. She said more research was needed on the issue.

[Full report in Rapport](#)

As controversy rages over Royal Dutch Shell's plans to explore for shale gas in the Karoo, more companies are queuing up for their own exploration rights. According to a Business Day report Shell secured a permit last year to explore for shale gas over 185 000 km<sup>2</sup> in the Karoo. And, the Petroleum Association of SA last year awarded a technical co-operation permit to a joint venture made up of Sasol, Statoil and Chesapeake Energy. The permit gives them the exclusive right to study whether the natural gas could be explored in the Karoo Basin for a period of up to 12 months, but does not include surface activity or drilling. This means that there could be more friction between the companies and communities.

[Full Business Day report](#)

In more natural gas exploration news, alternative energy company Advasol has dropped its controversial application for natural gas exploration rights at nine sites in the southern Cape. The Cape Argus notes that the application, which covered numerous farms and offshore areas in the Struisbaai, De Hoop, Cape Infanta, Stilbaai and Mossel Bay districts, attracted widespread criticism, including from landowners and conservation groups. Advasol director Anton van Wyk said the company was also involved in several other energy projects, including harnessing potential gas reserves in Mozambique, and establishing solar energy parks in the Northern Cape. Because these projects were gaining momentum, the company had decided to withdraw its application for an exploration licence on the southern Cape coast.

[Full Cape Argus report \(subscription needed\)](#)



# Oil giant Shell's shale gas plans stir S.African controversy

Energy Daily  
February 8, 2011

Energy giant [Royal Dutch Shell](#) is targeting potential untapped shale gas reserves in coal-hungry South Africa where landowners - including a Dutch princess - are readying for a showdown.

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"The shale gas potential is quite high, because there is a high volume of shale and therefore the potential for gas development is very big," said Jenny Marot of the state's [Petroleum](#) Agency SA (PASA).

But more than 200 people want the application dropped, including landowner Dutch Princess Irene, due to [environmental concerns](#) and the use of [hydraulic](#) fracturing or "fracking" to release viable deposits if discovered.

The Anglo-Dutch giant, whose 2010 [net profits](#) nearly doubled to \$18.6 billion, is one of several companies interested in the Karoo where gas finds in the 1960s were technologically and economically unviable to exploit.

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February 8, 2011  
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In the fracking debacle, the state has been conspicuous by its absence. The entire debate has been driven by a spontaneous groundswell of civil society action. There has been virtually no response by municipalities, provincial governments or national government (although Water Affairs Minister Edna Molewa belatedly spoke out against fracking). Why did the Department of Mineral Resources not consult provinces or municipalities beforehand? Was there consultation with the Department of Water Affairs, or the Department of Environmental Affairs, or the Department of Tourism? Or if such consultations took place beforehand (which is unlikely), why was civil society not invited?

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In this environment, it is easy for a national government department to ride roughshod over provincial, municipal or civil society concerns. This is a major failure of the role of the government as the guardian of the public good.

The fracking issue does not concern only the critical question of preserving the quality and availability of underground water in an arid area. Any mining venture involves questions of employment, migration, urbanisation in new areas, infrastructure, housing and pressure on other natural resources and economic sectors, such as environment-based tourism. There should be a real and informed debate about the relative importance and long-term sustainability of different sectors, such as mining, agriculture and tourism, within a specific region. Choosing mining may well make other sectors unsustainable. Tough choices may need to be made.

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There is currently no institutional space — particularly across provincial boundaries — in which such debates can take place. There is also a failure of government as the guarantor of public debate, participation and accountability. Civil society is forced to conduct the fight by itself, taking on big multinationals, which appear to have the implicit support of national government departments.

In the case of the Karoo, sufficient civil society resources exist to take on this fight. What happens in areas that are more impoverished? What chance do social groups stand against the evident complicity between oil companies and the state?

The tragedy is not simply the inherent unfairness in the stacking of the dice. It goes much further — that possible win-win strategies do not get identified, because there is no structured regional public space in which different points of view can be soberly researched and debated. Ultimately, the whole country is the poorer, because optimal decisions are not taken.

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- Atkinson is with the University of the Free State and is a trustee of the Karoo Development Foundation.

# Strife looms as Rupert fights Karoo gas fracking

Pretoria News  
February 10, 2011

*Johann Rupert.*  
*Pic: Leon Nicholas*



In her book *The Plains of Camdeboo*, Eve Palmer recalls the search for oil in the late 1960s on her family farm Cranemere in the Karoo, and the prayer it elicited: “Lord, I know we need oil, but let it be somewhere else!”

Her plea has relevance yet, although the search for fossil fuels in the Karoo now centres on extracting gas from shale rock, and the area under surveillance spans five provinces and borders a little mountain kingdom. This vast territory is the Karoo Basin, whose lower layers comprise the shale that gas producers are keen to explore as extraction costs have dropped.

The newfound economic feasibility of “fracking” (hydraulic fracturing, which uses high-pressure injection of chemicals, sand and vast quantities of water to force the free-flow of gas from shale) has cut the price of natural gas relative to oil, triggering substantial interest in the Karoo from gas producers and, in turn, a vehement response from landowners and environmentalists.

In Graaff-Reinet, tobacco tycoon Johann Rupert last week vowed to take on oil multinational Shell in his opposition to shale gas development.

Shell is just one of five would-be gas producers. First off the mark in March 2009 was Denver-based Falcon Oil & Gas with an application to the Petroleum Agency SA (Pasa) for a technical co-operation permit for a 30,000km<sup>2</sup> block straddling the Eastern Cape, Northern Cape and Western Cape. It has since applied for an exploration right.

Next was Shell, with its eye on three blocks, each of 30 000km<sup>2</sup> near Falcon’s territory.

It is unclear why Shell submitted separate applications for the adjacent blocks, but a rejection in one area, say on environmental grounds, might leave the company with options in others, rather than send it back to the drawing board.

Sasol, which recently bought into a shale gas field in Canada, was third in line to submit an application together with US-based Chesapeake Energy and Norway’s Statoil, for a technical co-operation permit over territory that hugs Lesotho’s borders.

Sasol beat Anglo Coal to parts of this land by a few months (the agency operates on a first-come first-served basis), but Pasa is due to take a decision on Anglo Coal’s application for a technical co-operation permit over the non-overlapping portions.

Lastly there is Bundu Gas & Oil Exploration, whose application for a right to explore for gas on 100km<sup>2</sup> around Pearston is due to be finalised in the coming months.

There are many reasons why land users don't want shale gas producers in their territory, but the most convincing argument has to be water. Not only is the resource scarce, there are fears of cross-contamination of underground aquifers from chemicals used in fracking.

Pasa technical compliance manager Steve Mills acknowledges fracking is a source of concern with instances of aquifer pollution.

“But they are very few and far between...our environmental compliance team is not going to allow uncontrolled and unsupervised use of this technology.”

That's probably not going to convince opponents of shale gas mining. In the case of Shell, they are concerned that the kind of specialist studies required for an environmental management plan can't be completed satisfactorily within 120 days of lodging the application for an exploration right (as the law requires). They also allege Shell's public participation process began with serious communications flaws.

With Rupert's purse and persona opposing it, Shell may have a tough time ahead.

But what of the area's less resourced communities? Will they become the “somewhere else” that Palmer referred to? - Ingi Salgado

## Govt aware of shale gas problems

February 24, 2011  
Business Report

*The Minister of Energy Dipuo Peters.  
Picture: Christiaan Louw*

The need for South Africa to explore for gas is also motivated by its interest in reducing greenhouse gas emissions, Energy Minister Dipuo Peters said on Thursday.

Responding to questions during a media briefing at Parliament about the outcry over shale gas exploration in the Karoo using the fracking method, Peters said that while South Africa knew it had potential for gas, “we're also alive to the environmental challenges that the process would generate”.

That was why the government would ensure that any development was subjected to environmental impact assessment.





“And I believe that the shale gas exploration would allow us as South Africans to know whether we do have enough gas reserves to use them for power generation or for any other energy need that we have in South Africa.”

Peters said she would advise and request the environmental groups to understand that the need for South Africa to explore for gas was also informed by its interest to reduce greenhouse gas emissions.

“Because if we don’t use that gas for whatever purposes that we would want to use it for, it will be released into the atmosphere and it will also create another particular challenge.”

It was important to engage the environmental groups and appeal to them to understand that South Africa needed to develop and create the necessary jobs.

“But, we are alive to the need for us to reduce our greenhouse gas emissions, but also to make sure that we adhere to the National Environmental Management Act (Nema),” Peters said.

The Cape Times reported earlier this week that farmers, landowners and community members in the Karoo were bolstering their opposition to applications by energy companies Shell, Bundu and Falcon to explore for shale gas, a non-renewable form of energy, in 95,000km<sup>2</sup> in the Karoo.

Shell was the largest applicant and had submitted three applications which extended over 90,000km<sup>2</sup>.

The exploration and mining method it intended using was a “highly invasive, water-intensive and potentially toxic process called fracking”, the newspaper reported.

A key collective initiative had been launched in Graaff-Reinet, where attorney Derek Light was spearheading the legal opposition against Shell, Bundu and Falcon on behalf of hundreds of Karoo farmers, landowners and community members.

The paper quoted Light as having said: “The available information on fracking indicates that it is a highly invasive process with a high risk of contamination of the environment and, in particular to underground water and air, it necessitates the use of large volumes of water for the drilling process and substantial quantities of water in the fracking process.

“It also involves the use of sand and highly toxic chemicals.”

Shell and Golder Associates (the company appointed by Shell to conduct its public participation process and compile its Environmental Management Programme) had publicly stated that fracking posed no risk to the environment, the Cape Times reported.

# Fracking War Looms in the Karoo

February 27, 2011  
Times Live

KAROO farmers, environmentalists and landowners have joined forces in an attempt to stop mining exploration companies from prospecting for shale gas and extracting by “fracking”.

Fracking - short for hydraulic fracturing - is the mining process in which drillers blast millions of litres of water, sand and chemicals at high pressure into underground rock formations, creating cracks to allow oil and gas to escape.

Mark and Sarah Tompkins, owners of Samara Private Game Reserve near Graaff Reinet, have been fighting for two years to keep Australian shale gas exploration company Bundu Oil & Gas off their property which they have spent years rehabilitating. and restocking with indigenous species.

Along with Karoo attorney Derek Light and with the support of SANParks, Samara hopes to save the Karoo from the threat of fracking which could contaminate water supplies and upset the region’s delicate ecology.

Bundu Oil & Gas has renewed its application to prospect on 230,000 square km of Karoo excluding Samara.

Light says contamination and strain on water supplies is the biggest threat to the environment. A press release from Samara claims that just 1l of hydrocarbon gas can pollute 1 million litres of water. Fracking, which requires vast amounts of water, is also likely to place great pressure on the region’s water supplies.

## Karoo communities tell shale gas companies to frack off

February 28, 2011  
Golden Trash Awards website

Fossil fuels are the bane of human existence. For centuries we’ve been unable to live without them, with the result that we’re now living in an intensely polluted and suffocating environment. Alternative energy is the new buzzword as we explore everything from sun and wind to water and trash. But alternative energy sources aren’t by definition good. In fact, some sources have the potential to do even more damage than oil or coal.

When shale gas first came to light as a possible energy source it was hailed as the answer to most (but by no means all) of our problems. But now that we know more about it, it seems that it has nasty side-effects for the environment, as well as the people who live close to shale gas sites.

According to [liveeco](#), shale gas is produced from shale rock, which is composed of various clay minerals. The problem with shale gas is the manner in which it's extracted. The process is called hydraulic fracturing or fracking, which basically entails drilling deep holes and then blasting the underlying shale rock with chemicals, water and sand until the surface is fractured and the gas released.

It was quite popular in the US and UK and is about to get a good foothold in South Africa.

The Karoo is full of shale and there are a lot of companies dying to get their hands on it. Way back in July 2010, Sasol called the discovery of shale reserves in the Karoo a "game changer", but it wasn't the only company to think so. It went up against Shell, Anglo-American, Falcon Oil and Gas and Bundu Gas and Oil Exploration for the drilling rights and it lost. The honours went to Royal Dutch Shell, which was awarded a Technical Co-operation Permit for a one-year study to determine the Karoo's full shale gas potential. Following the TCP (which ended in 2010), Shell was awarded another permit to drill for the gas over a significant portion (185000km<sup>2</sup>) of the Karoo. Residents are not happy.

Derek Light is a lawyer in Graaf-Reinet and is vehemently opposed to fracking. He's [reported](#) to have said, "The available information on fracking indicates that it is a highly invasive process with a high risk of contamination of the environment and, in particular to underground water and air, it necessitates the use of large volumes of water for the drilling process and substantial quantities of water in the fracking process. It also involves the use of sand and highly toxic chemicals."

Furthermore, Light says that fracking is not regulated in South Africa and so no one knows about the potential environmental impact. Energy Minister Dipuo Peters would have you believe that she is on top of the matter, as she says that any development will be subject to an environmental impact assessment. Peters also says she has to consider the potential for job creation that fracking would bring.

Perhaps it shouldn't surprise us that Shell, in conjunction with Golder Associates (which compiled Shell's Environmental Management Programme) has stated that fracking poses no risk to the environment. This is at odds with what Oscar-nominated documentary *Gasland* has to say on the matter. According to the documentary, homes near drilling sites tend to have methane gas leak up from their sinks, which results in spontaneous fires.

Then there is the underground water contamination, which has been revealed by numerous studies. The concerns are such that over 160 communities in the US (including New York) have put a halt to fracking while the process is re-examined, and it looks like the UK is on the verge of its own reassessment.

The concern is that South Africa will lag behind these findings and plough ahead anyway. The potential damage that could be done while we wait for solid (unpartisan) information is too scary to contemplate.

# Karoo residents concerned about gas mining

**Karoo residents are calling on the authorities to take note of the latest findings in the US that fracking, a gas-mining technique, could be contaminating drinking water supplies with radioactivity.**

February 28, 2011  
Guy Rogers  
Times Live

*Photograph by: MICK TSIKAS*  
*Credit: REUTERS*

The findings, reported in The New York Times last week, include that waste water produced by fracking wells often absorbs radioactivity from naturally occurring minerals underground like uranium.



This radioactive waste water is discharged to sewage plants that do not have the capacity to remove this contamination. It is then pumped out into waterways from which drinking water is harvested.

Fracking is hydraulic fracturing, a technique in which water mixed with corrosive chemicals is pumped to great depths to fracture shale and release gas bound in fissures in the rock.

Treasure the Karoo Action Group chairman Jonathan Deal said yesterday this had a particular relevance in the Karoo.

“When our government was touting its pebble bed modular reactor two years ago, the stated strategy was that the uranium feedstock necessary would come from the Karoo,” he said. “So we know uranium is down there, and this makes the findings in the US very important.”

Coupled with the known presence of uranium, the dearth of capacity in South Africa to manage waste and to enforce action against polluters meant the issue was of high concern, he said.

The news from the US follows controversial statements last week by Energy Minister Dipuo Peter at a parliamentary press briefing.

“If we don’t use that gas . it will be released into the atmosphere, and it will also create another particular challenge,” he said.

But Richard Worthington, the climate change programme manager for the local office of the World Wide Fund for Nature, said the minister’s argument was flawed.

“It is completely incorrect. [Methane, in the form of Shale Gas] is safeguarded in deep geological formations thousands of metres underground below impermeable layers of rock. There is no way it can escape without human intervention,” he said.

# Karoo gas project uses safe method, says Shell

March 3, 2011  
Gillian Jones  
Mail & Guardian Online

*Shell SA's chairperson Bonang Mohale. (Werner Beukes, SAPA)*

**Shell South Africa's exploration for shale gas in the Karoo will use a safe technique not known to harm the environment, a senior executive said on Thursday.**

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"The oil and gas industry has used this technique safely for more than 60 years to recover natural gas," Graham Tiley, the general manager for new ventures and international exploration at Shell, told media in Johannesburg.

The gas is released by a process commonly known as fracking, or hydraulically fracturing rock, using water pumped deeply underground to release gas.

United States environment agencies "have not found anything untoward with the process of fracking", said Tiley.

The director of the US Environmental Protection Agency "could find no evidence of a link between fracking and water contamination", he said.

Shell had applied to explore three areas making up 90 000 square kilometres in the Karoo for gas deposits in shale rock.

The project was opposed by farmers, community members and landowners in the Karoo, including landowner, Dutch princess Irene, as well as billionaire businessman Johann Rupert. The Democratic Alliance has called for Shell's application to be put on hold.

There are concerns about fracking using large quantities of water and potentially contaminating surrounding bodies of water.

## **'A safe process'**

Fracking is "inherently a very safe process ... if you follow best practice ... [we] see no link to significant danger," said Tiley.

In the initial three years of exploration, Shell would build a maximum of eight wells at each of the three sites.

Fracking would be done during this phase.

“We won’t know if gas can flow until we’ve fracked it,” said Tiley.

Although Shell had found indications that there was natural gas there was still “great uncertainty” about where the gas was, whether it would flow, and whether it could be produced economically.

Shell submitted three exploration right applications to the Petroleum Agency SA (Pasa) in December. The company then had 120 days to submit an environmental management plan to Pasa.

If this was accepted, Shell would be granted exploration rights. This would happen only after public consultations and environmental impact assessments. Exploration would then take place for three years.

The exploration phase could cost hundreds of millions of dollars, as Shell typically spent \$15-million on a well and was planning to drill 24 wells.

### **Significant job creation**

This phase would not produce many jobs, but if successful, there would be more significant job creation once operation activities started, company chairperson Bonang Mohale said.

Natural gas was increasingly important to Shell, and was expected to make up half of its production by 2012.

It offered a stable, alternative power supply, said Mohale.

It could reduce South Africa’s dependence on coal generation and imported energy, while reducing the carbon footprint.

Tiley added that gas was abundant, an acceptable form of energy and affordable.

Unconventional gas had transformed the US, as the country had been able to significantly decrease its oil imports, he said.

There were now a million wells drilled and fracked in North America.

“What is happening globally is people are looking at whether the success story of the US can be repeated elsewhere.”

Shell was taking part in this exploration with projects in Sweden, Germany, Ukraine, China, Australia, and South America.

Shell’s activities would not harm the Square Kilometre Array telescope project, Mohale said.



South Africa and Australia are competing to host the massive billion rand project with a decision to be announced in 2012. The area where fracking was to take place overlapped astronomical sites.

Shell was in regular communication with Science and Technology Minister Naledi Pandor, said Mohale.

“Fracking is a very temporary process and only lasts a number of days or weeks,” said Tiley, who explained that once the drilling was done, all that would be left would be a “Christmas tree” the size of a garden chair.

He said the company would work with the community to find solutions to concerns about “nuisance factors” such as noise or light pollution that could affect the telescope project.

## **Shell project ‘poses no risk to Karoo’**

March 4, 2011

Gillian Jones

Independent Online News

Johannesburg - Shell SA’s exploration for shale gas in the Karoo will use a safe technique not known to harm the environment, a senior executive said on Thursday.

“The oil and gas industry has used this technique safely for more than 60 years to recover natural gas,” Graham Tiley, the general manager for new ventures and international exploration at Shell, told media in Johannesburg.

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# South African minister denies meeting Shell over Karoo gas exploration

March 9, 2011  
Engineering News

Science and Technology Minister **Naledi Pandor** on Tuesday denied ever meeting with Shell South Africa or discussing the international energy group's proposed gas exploration in the Karoo with the company's South African chairperson **Bonang Mohale**.



This comes after media last week quoted Mohale as having said that its shale gas exploration activities would not harm the Square Kilometre Array (SKA) project bid and that Shell was in regular communication with Pandor.



Shell's three parcels application, covering 90,000 square kilometres.

The Department of Science and Technology said in a statement that Pandor had never had any communication from Shell in this regard, and had never met Mohale to discuss the proposed project.

"I am puzzled as to why Mr. Mohale, if the article is correct, would put out such a claim," said Pandor.

The Minister noted that she was intent on ensuring that South Africa won the bid to host the SKA radio telescope, and was not going to entertain any matter that might distract her from achieving that goal.

Mohale last week stressed that the initiative was still in its initial stages and made a commitment to full transparency throughout the process, which started unfolding earlier this year after its submission of three separate exploration-right applications in December.

Shell expects its proposed exploration of shale resources may involve nine years of prospecting and more than \$200-million worth of capital before it will be in a position to determine whether or not commercial gas production would be viable.

The group, which is facing serious opposition to its exploration aspirations, has commissioned Golder Associates to compile a publically-consulted environmental management plan as part of a process to apply for exploration rights on the three properties of 30 000 km<sup>2</sup> each. The sites span a 90 000 km<sup>2</sup> area, incorporating Sutherland in the west and Somerset East in the east.

The exploration phase could entail the drilling of a maximum of 24 wells over the three properties, and Mohale estimated that each well would cost around \$15-million to develop.

## Say ‘No’ to Fracking in the Karoo

### *There is still time to stop Shell*

Greenpeace  
March 9, 2011

It is not too late! Shell is currently applying for exploration licences in the Karoo and has said that it will include public concerns in the environmental management report.

You can express your concerns to the oil companies and the SA authorities. You can urge them not to engage in shale gas exploration in the Karoo.



### *What's the Issue?*

Three oil companies, Royal Dutch Shell, Falcon Oil & Gas, and Bundu Oil & Gas are eyeing the exploration of natural gas trapped in the underground shale formations in the Karoo. Shell recently applied for exploration licences for an area of 90,000 square kilometres – roughly three times the size of Lesotho.

Local communities in the Karoo are angry and concerned. Angry because they have no say about what happens to the minerals below their land. And seriously concerned because of the damaging environmental effects of shale gas exploitation.

## ***What is 'fracking'?***

Hydraulic fracturing, also called “fracking”, is part of the process to exploit shale gas reserves which are ‘locked’ in underground rock formations.

To access these reserves, fluid is pumped down a drilled channel (well) into the gas-bearing rock at very high pressures. This causes the rock to fracture, creating fissures and cracks through which the gas can ‘escape’. The fracturing liquid generally consists of mainly water, mixed with sand and chemicals. Numerous different chemical agents are used, many of which are flagged as dangerous to humans and the environment (carcinogens, acute toxins).

The fracturing of a single well requires a huge volume of water: around 9,000 - 29,000 m<sup>3</sup> (9 -29 million litres). Chemicals make up about 2% of the fracturing liquid, i.e. about 180,000 – 580,000 litres. Only 15 – 80% of the injected fluid is recovered, meaning that the rest remains underground, where it is a source of contamination to water aquifers.

The lifetime of a shale gas extraction well is limited to 5-8 years, as the productivity declines drastically over the first 5 years.

## ***What are the main concerns?***

Shale gas extraction poses a threat to ground and surface water. The fracking process brings a significant risk of contamination of these valuable water resources. This pollution can affect drinking water, as well as rivers and wetlands, threatening human health and the environment.

Secondly, fracking uses huge volumes of water. Given that many parts of South Africa already experienced water shortages, the prospect of further stressing water supplies could pose serious problems at a local and regional level. Can we really afford to waste vast amounts of water in a water scarce area such as the Karoo?

## ***What do we want?***

Shale gas exploitation is invasive and unsustainable. Exploration of shale gas should be put on hold until the environmental impacts can be resolved. Rather than wasting time and money on another potential dead end, while jeopardising our scarce water resources, we should focus on truly clean, renewable energy solutions.

## ***What can you do?***

There is still time to express your concerns about hydraulic fracturing. PASA is the body that has the authority to give the licence for fracking, and the Department of Water and Environmental Affairs (DWEA) is the government department that should oppose the licence on environmental damage grounds.

**You can email them directly and make your opinion heard.** We have prepared two different email texts for you to use as a starting point. Make yourself heard by clicking the link below and sending one to either the DWEA or PASA.

# Karoo fracking: Forewarned is ...

## ***Sutherland fights back: Royal Dutch Shell CEO salary rises to E5.36m in 2010.***

Geraldine Bennett  
MoneyWeb  
March 16, 2011

(In solidarity with the Heartland, part 2)

Coinciding with the start of the second round of public participation meetings in South Africa's Great Karoo, Royal Dutch Shell released its 2010 annual results posting a 63% increase in CEO, Peter Voser's 2010 pay-package. In the next three years the petroleum supermajor plans on spending \$100bn on new projects.

### **The Golder's show**

Just over two hours into the first public meeting in the second round of engagement between fracker's Shell and their consultants, Golder, in Sutherland, Jonathan Deal, spokesperson and national coordinator of TKAG (Treasure the Karoo Action Group) had begun to wonder what part of the proceedings were participatory.

Scheduled for three hours the meeting dragged on.

For the next ten towns along the way, unless Golder and its groupies dramatically change their plans, interested and affected parties (I&APs) spanning the Karoo can anticipate death by power point for 65% of the public "participation" process.

[With one down, and the impression that Golder's are taking strain, a further seven originally would have lain in wait.](#)

According to Deal, an additional three meetings have been added as a result of pressure from I&APs who feel that the original schedule displayed a lack of consideration for distances to be travelled. We are talking over 90 000 square kilometres.

Pressure from Somerset East, Pearston and Calvinia has compelled Golder to double up some days, extending the road show by a further day.

In the meantime Deal believes strongly that there is little time for public engagement after Shell and Golder's paralysing power point presentations.

There are other things that bother Deal too.

According to Deal, Shell's Tony Cortis insinuates that the extension on the banning or moratorium on fracking by French Prime Minister, Francois Fillon, on Monday 13 March, is because "he doesn't understand it".



Then there's the matter of the amount of time allowed for response.

Says Deal, "I&APs get 20 working days when you do the maths. This is a technical document of over 250 pages. If the French prime minister doesn't understand fracking then what's the chance the average Karoo farmer will?"

"Golder had a technical cooperation permit which they applied for a year ago and it is very clear that they have been developing the draft EMP for the last year," says Deal.

For Deal one of the toughest things to hear is that Karoo farmers have become apathetic.

He says, they believe that it's a *fait accompli*, and that "between big business and government, in bed together, there's nothing anyone can do". If this sentiment prevails then we may as well say "Good-bye Great Karoo".

Deal nonetheless commends Golder on its professionalism in the face of such hostility.

"I believe they are doing the best possible job for the company, but deep down inside some of them at senior level are feeling that they do not have the moral high-ground."

Deal says it's like a defence lawyer knowing he's defending a rapist or murderer.

"Reading between the lines; and the body language" he says, "they are taking strain. They are in a very unpopular position. People don't trust their independence or them, and see them as this great conspiracy to ruin their lives."

### **Alarm bells**

Coinciding with the start of this second round of public participation meetings in the Karoo, Royal Dutch Shell (RDS) hosted an investor's conference after releasing its annual report for 2010.

There is every indication that the supermajor is rigorously committed to the pursuit of upstream activities. Upstream includes exploration for new gas and oil resources, with the ultimate intention of exploitation, commonly referred to as "production".

RDS is signalling a serious drive until 2014 with every indication of investing vast sums of money into new projects. It is projecting a 12% increase in output target over the next three years.

For the residents of just over 90 000 square kilometres of the Great Karoo this should sound warning bells.

With concerns that demand will eventually put pressure on supply the petrochemical giant, worth around £56bn, is determined to forge ahead and feed the unquenchable fossil fuel thirst.

Shell has stated that "it expects over \$100bn of net capital investment for 2011-14, some \$25bn-\$27 bn per year ...to underpin the Upstream growth profile, and Shell's Downstream strategy."

Shell shares in London closed down 19 pence, almost 1% off on the day at 2101.00. Although volume traded exceeded 3.3m the price closed static on the previous day.

### **In a nut-Shell**

What Shell is basically saying, and which is relevant to 90 000 square kilometres of the Great Karoo in this controversial shale-gas fracking bid, is that it has been selling assets for the past five years ...and intends to continue to hive off in order to achieve large-scale growth as fossil fuel demand begins to outstrip supply.

This means it has the money and it is focused on exploiting new oil and gas options.

According to Reuters Africa, RDS CEO Peter Voser says ““We may face a situation at one stage where supply cannot meet demand.”

Shell’s focus, aside from offloading select downstream activities to bolster coffers, is on finding more gas and oil to satisfy the increasing demands of fossil fuel reliance.

### **Boardroom activism**

In 2000, internationally renowned environmental activist agency, Greenpeace International, purchased 4 400 shares in Royal Dutch Shell. The intention was to influence fellow shareholders and overall decision, before and during an AGM.

At the time Greenpeace stated its intention was to “... force the company [Shell] to build a large-scale solar panel factory”.

Royal Dutch Shell’s next AGM is on May 17 2011.

*\*Geraldine Bennett, a former high profile television anchor and energy sector executive, keeps an eye on environmental issues for Moneyweb. She can be reached via [editor@moneyweb.co.za](mailto:editor@moneyweb.co.za)*

Disclaimer: Part of Bennett’s fuel is being sponsored by Craig Elstob; accommodation by Peet & Hannah van Heerden; Roland & Lizelle du Toit, and Dr Peter Baker. The TKAG (Treasure the Karoo Action Group) donated R1 000 towards her costs of covering this series.

# S.Africa farmers seek halt on shale gas exploration

March 17, 2011

Reuters

PRETORIA (Reuters) - South African farmers want shale gas exploration and production in the Karoo region to be put on hold until the extraction methods are proven environmentally safe, an industry group said on Thursday.

The government last month placed an indefinite moratorium on the processing of all new exploration and production rights in the Karoo, but this did not affect applications already in the pipeline.

“We are asking the minister to put a moratorium on further exploration and especially production of gas until we can be sure the processes that will be used will be safe on the environment and underground water,” Johannes Moller, president of Agri SA, told reporters.

Public concern focuses on the extraction method known as hydraulic fracturing or fracking, in which drillers blast millions of litres of water, sand and chemicals at high pressure in underground rock formations to create cracks for gas and oil to escape more easily.

Royal Dutch Shell, petrochemicals group Sasol, Anglo American, Falcon Oil and Gas, and Bundu Gas and Oil Exploration, are among those eyeing shale gas in the region.

Shale gas could bring a much needed fresh source of energy to Africa’s largest economy, which is heavily reliant on coal.

“We realize that if the country wants to draw international investment, we must be energy sufficient, but the process that is to be used (in the Karoo) has not been tested to be safe,” Moller said.

He added: “If we cannot negotiate this moratorium with the minister then we will go as far as considering applying for an interdict to stop this process until it is proved safe.”

Farmers were worried about the sensitivity of the underground water systems upon which the Karoo is totally dependent, should contamination occur.

According to findings from a U.S. Congressional probe several energy companies there may have violated environmental rules by injecting diesel into the ground without permits as part of the controversial drilling technique.

James Campos  
Professional Business Network  
March 20, 2011

A group of Karoo residents and farmers intend to oppose Shell South Africa's bid to explore for shale gas in the Karoo, *Beeld* reported on Monday. Derek Light, a lawyer representing about 200 people against gas exploration in the Karoo, on Saturday told a public meeting that the process Shell and its consultants, Golder Associates, had been following was unlawful. He was speaking at a public gathering in Middelburg, in the Eastern Cape, called by Shell to discuss its proposed environmental management plan for exploration of 95 000 square kilometres in the Karoo. After the meeting, farmer's body Agri-SA agreed to work with Light to oppose Shell should the energy minister give the company the go-ahead. **Concerns** Concerns raised at the meeting included lack of public consultation, irregularities in Shell's application to the Petroleum Agency of South Africa, Shell's inability to guarantee it would not destroy underground water sources, piecemeal studies for the environmental management plan, and lack of detail around the chemicals Shell proposed using. "According to law, Shell should have notified people and thoroughly informed them about its gas exploration so that, based on this information, they can comment. That didn't happen," *Beeld* quoted Light as saying. A senior company executive said earlier this month that Shell would use a safe technique not known to harm the environment. It intended releasing the gas by hydraulically fracturing rock, using water pumped deep underground. "The oil and gas industry has used this technique safely for more than 60 years to recover natural gas," general manager for new ventures and international exploration Graham Tiley said. — Sapa

## Karoo residents to block shale-gas bid

March 21, 2011  
Mail & Guardian Online

### **A group of Karoo residents and farmers intend to oppose Shell South Africa's bid to explore for shale gas in the Karoo, *Beeld* reported on Monday.**

Derek Light, a lawyer representing about 200 people against gas exploration in the Karoo, on Saturday told a public meeting that the process Shell and its consultants, Golder Associates, had been following was unlawful.

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underground water sources, piecemeal studies for the environmental management plan, and lack of detail around the chemicals Shell proposed using.

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A senior company executive said earlier this month that Shell would use a safe technique not known to harm the environment. It intended releasing the gas by hydraulically fracturing rock, using water pumped deep underground.

“The oil and gas industry has used this technique safely for more than 60 years to recover natural gas,” general manager for new ventures and international exploration Graham Tiley said. -- Sapa

## **DA: Statement by Gareth Morgan, Democratic Alliance shadow minister of water and environmental affairs, calling for a moratorium on fracking**

March 24, 2011

The process and timing surrounding the current round of applications for gas exploration rights have exposed a number of material issues that reinforce the DA’s call in February for a moratorium on the granting of these rights.

In the first instance, it must be acknowledged that dealing with applications for onshore gas exploration is new to the Petroleum Agency South Africa (PASA), which is the designated authority tasked to make recommendations to the Minister of Mineral Resources on whether particular applications should be granted or not. This small agency, with a miniscule staff and possessing a budget which, by its own admission, will not see it adequately through the next two years, is not in a position to make a considered decision on applications that to date cover a landmass of South Africa in excess of 200 000 square kilometres. For this reason, and others, some of which are mentioned below, the DA will today write to the Minister of Mineral Resources requesting her not to approve any rights at this time.

By the Minister’s own acknowledgement, in a reply to a DA parliamentary question last year, there is no policy on hydraulic fracturing, also referred to as “fracking”, in South Africa. The Mineral and Petroleum Resource Development Act (MPRDA) provides in general terms for an applicant to demonstrate its technical ability to conduct exploration in line with best industry practice. PASA is tasked with ensuring that operators have the required means, skills and understanding of any exploration activity. These provisions set off a number of alarm bells. PASA has no experience of regulating “fracking” nor does it have the environmental compliance officers who are required to monitor the process if deployed.

Fracking is a highly sophisticated process involving millions of litres of water per fracking event and a toxic cocktail of fracking fluids. It has the potential to pollute water courses if mistakes occur, and poses significant challenges for effective waste management. The proposed processes are new to South

Africa, and we cannot afford to rush into approving them. While thousands of wells have been fracked around the world, most notably in the USA, our country would be ill advised not to note the concerns that have been raised elsewhere in the world. Pollution incidents can and do happen. The Minister simply cannot ignore that the Environmental Protection Agency in the USA is currently studying the possible negative relationship between fracking and drinking water quality, after the US Congress mandated it to do so last year. The study is only due for completion in two or three years' time.

But despite the genuine concerns that thousands of stakeholders in South Africa have, and which should be considered by PASA when reviewing the submitted Environmental Management Plans of applicants for exploration rights, PASA already appears biased in favour of the process of "fracking". At a portfolio meeting in Parliament on 16 March 2011, a staff member of PASA attempted to play down the known impacts of "fracking", arguing they could be mitigated. This suggests PASA may already have made up its mind about the suitability of "fracking" before it has even officially begun to apply its mind to submitted environmental management plans. This may be a material defect in the process, and I will be drawing the Minister's attention to the comments made at that meeting. While the process of deciding on onshore applications for gas exploration is new to PASA, it is equally new to the consultants working for applicants and to the interested and affected parties participating in the prescribed processes of public consultation, as mandated by the MPRDA. Applications for gas exploration rights are in practice fundamentally different from applications for prospecting and mining rights. Mining applications are relatively contained in terms of the areas they impact, usually only a handful of portions of land at most, and the consultation can (in most cases) be done within the prescribed time frames. But with gas exploration, the applications cover tens of thousands of square kilometres without any information being provided on the proposed drilling sites. In approving any application PASA becomes the de facto land use arbiter of these extensive areas, with implications for the democratically approved Integrated Development Plans of affected municipalities. In effect, the spatial planning framework for South Africa yet to be released by the National Planning Commission is rendered useless.

Notwithstanding the problems associated with interested and affected parties understanding the proposed fracking processes, the massive extent of land under application and the very narrow time frame for consultation suggests that the process cannot be done fairly and meaningfully. Even the consultants working on the Shell applications have admitted that they feel rushed by the time frames. There is no need to rush the approval of gas exploration rights, and there are many substantial reasons to suggest that the processes currently underway are unfair, flawed, and will have unintended consequences.



# Shell fracking application in Karoo ‘illegal’

**LAWYERS for Karoo residents and landowners, including businessman Johann Rupert and Dutch Princess Irene, say the draft environmental management plan (EMP) submitted as part of petrochemical giant Royal Dutch Shell’s application to explore the Karoo for shale gas does not comply with mining law.**

March 25, 2011

Sue Blaine

Times Live

LAWYERS for Karoo residents and landowners, including businessman Johann Rupert and Dutch Princess Irene, say the draft environmental management plan (EMP) submitted as part of petrochemical giant Royal Dutch Shell’s application to explore the Karoo for shale gas does not comply with mining law.

The Petroleum Agency of SA (Pasa) will use the draft EMP to make recommendations to Mineral Resources Minister Susan Shabangu on whether she should allow Shell exploration rights that will lead to its using the controversial hydraulic fracturing (fracking) technique to determine whether the Karoo’s shale gas reserves are worth exploiting. Ms Shabangu is expected to make a decision in August.

At issue for the thousands of people who have asked Graaff-Reinet lawyer Derek Light to oppose Shell’s application — which covers 90000km<sup>2</sup> of the unique Karoo biome — is that they have been asked to comment on a draft document, and that environmental consulting group Golder Associates is to publish a final EMP only on April 14, a week after the public comment deadline.

This does not comply with the Mineral and Petroleum Resources Development Act, Mr Light said yesterday.

If Pasa did not allow time for comment on the final document, the group, which was joined yesterday by AgriSA, would consider using the legal appeal process, or the high court, he said.

Citizens were entitled to a fair and reasonable administrative process, and that meant they were entitled to information and an opportunity to comment on that information, Mr Light said. The EMP produced was also “worthless” because it did not describe what fracking chemicals, waste disposal methods and other procedures would be used.

“How do you comment on a document you haven’t seen? In our objections (to be submitted by the comment deadline) we will alert Pasa to this and ask that we be allowed to comment on the final document,” said Mr Light.

Shell SA chairman Bonang Mohale said recently the company would defend such actions.

Golder Associates environmental assessment practitioner Brent Baxter said the law required that an EMP be submitted 120 days after an application was accepted. That would be April 14. After that Pasa had 120 days in which to assess the final EMP.

The final EMP would be published on its website and would show where and how the draft had been changed, Dr Baxter said. Citizens could comment directly to Pasa in this time.

Pasa CEO Mthozami Xiphu said the agency would assess Shell's EMP when it was published on April 14.

Fracking was "one technique among others". It was not necessary, as the Democratic Alliance has suggested was prudent, to delay a decision on fracking until it had a hydraulic fracking policy, and until the US Environmental Protection Agency's study on the effects of fracking is published next year, Mr Xiphu said.

He said Pasa could not delay assessing Shell's application until after the US research was published because the law said a decision had to be made within 120 days of filing an EMP.

The Department of Mineral Resources said the minister could not use the pending results of a study in another country as a reason for not making a decision she was legally required to make.

## Shell contacts Karoo farmers over gas-exploration

*Questions are being raised in Dutch parliament about the role played by the Dutch ambassador in Shell Oil Company's filing for gas-exploration in the environmentally-sensitive Karoo in South Africa...*

March 24, 2011  
Space van Adriana

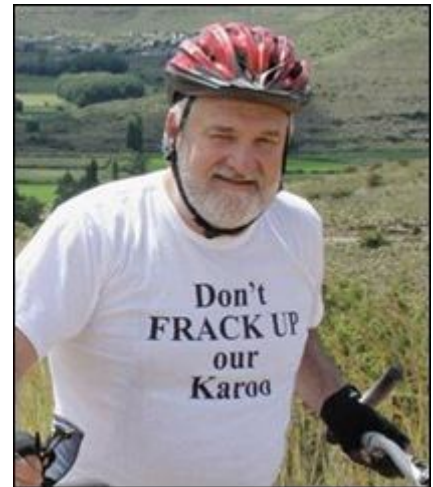
And even though the environmental-management-impact reports are not even ready yet, the multinational Shell Oil company is quietly contacting individual farmers in the environmentally-sensitive dry Karoo region to 'discuss its plans for gas-exploration', opponents to the Shell plans are warning.

Shell applied to the S A staterun petroleum exploration agency to drill for gas in three areas making up a total of 90,000 square kilometres in the underlying shale-rock of the dry Karoo region. The project is vehemently opposed by farmers, community members and landowners in the Karoo, including landowner Dutch princess Irene, right, as well as billionaire businessman Johann Rupert. The Democratic Alliance in [South Africa](#) has called for Shell's application to be put on hold — and probing questions are also being asked in Dutch parliament. <http://internationaal.pvda.nl/nieuws/nieuws/2011/02/Kamervragen+Shell+Z-A.html>



The gas in the underlying shale layers would be released by a process known as fracking – hydraulically cracking open the rock using many millions of liters of water combined with chemicals,; pumped deeply underground to release gas trapped in the underlying shale layers. It would have a horrendous impact on the Karoo’s very scarce fresh water resources underground.

Dutch parliamentarians have also raised ethical concerns: asking for an investigation into the Anglo/Dutch company’s apparent lack of environmental and humanitarian worries, and wanting to know what role was played by the Dutch ambassador in SA to help the company apply for its drilling-permits. Dutch Labour MPs Dijkers and Timmermans also noted that even Dutch Princess Irene had openly opposed the Shell drilling plans, pointing out that “with such drilling huge amounts of water are needed, while the Karoo residents suffer from a chronic shortage of fresh water; and harmful chemicals are used in the process which pollute the already scarce underground water supplies’. They demanded an immediate investigation and a [report](#)-back to Parliament. (Prinses Irene keert zich tegen plan Shell’ – NRC Handelsblad, Monday 31 Jan 2011.)



Yesterday, Sneeuwg-Agricultural Union chairman Douglas Stern said its 48-member union had appointed Graaff-Reinet lawyer Derek Light as their legal counsel after hearing about the plans – and started hearing about Shell’s individual approaches to local farmers. “Initially we thought these one-on-one approaches by Shell to our farmers were just rumours, but then a representative of Golder Associates, Shell’s consultant group, phoned my house and asked my wife Liz to provide them with the contact-information of all the Sneeuwg-farmers. She told them to contact our lawyer, Mr Light. We never heard from them again.’ (Picture left: Karoo anti-fracking campaigner Koos van der Wat, picture by Beeld journalist Marisa Spoormaker).

Light had also stood up in an earlier meeting with about 200 land-owners and warned the farmers that Shell and its consultant-group Golder Associates were ‘carrying out an illegal campaign’, pointing out that there were ‘irregularities’ in Shell’s application for gas-exploration through the government’s agency Petroleum Agency of SA (Pasa); the lack of public-participation in the decision-making process for the environmentally-sensitive region; Shell’s inability to provide guarantees that their precious underground water-resources would not be destroyed by the ‘hydraulic fracking’ process; inadequate environmental-studies and Shell’s vagueness as to the chemicals which would be used during the drilling. Immediately after this meeting the Karoo farmers gathered outside and held an impromptu meeting.

Stern pointed out that until the concept-environmental management plan for gas-exploration in the Karoo has been drawn up, Golder Consultants are not even allowed to speak to the farmers to try and influence them. “But now that Shell is suddenly are faced with skilled opposition, they want to speak to us on a one-on-one basis. They figured they could just place their advertisements, hold an ‘information meeting’ and that they would then have done their part. But we don’t allow ourselves to be steamrollered like this.’

### **No law to regulate hydraulic fracking for gas-exploration:**

The most important danger to the fragile and bone-dry Karoo is that the gas-exploration process’ use of hydraulic fracking (breaking subsurface rocks) requires millions of litres of water to which unknown

chemicals would be added – and that the company would have to drill into the precious underground fresh-water aquifers to reach the underlying slate-layer. An even greater worry to Stern and other Karoo land-owners is that there is no law in South Africa which even regulates hydraulic fracking for gas-exploration.

Stern is particularly concerned about the storage sites where those polluted millions of liters of water, mixed with chemicals after it is pumped from the boreholes. “In the concept-plan there is no clarify as to what is going to be done with the polluted waste-water. How can one provide any kind of reasonable comment on such vague subjects?’ he asked. Other concerns: ‘the hellish traffic which will hit the Karoo’s roads’.

Golder Associates did not comment to Beeld’s request.

Sources:

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## Now Anglo applies to explore for shale gas in Karoo – Petroleum Agency SA

March 26, 2011

Martin Creamer

Mining Weekly

JOHANNESBURG (miningweekly.com) – Diversified miner Anglo American - as well as Shell International - have applied to explore for shale gas in South Africa’s arid Karoo, Petroleum Agency SA frontier geology manager **Jennifer Marot** tells *Mining Weekly Online*.

This follows the news that South Africa’s Sasol has teamed up with Statoil of Norway and Chesapeake of the US to do the same.

“There has been a flurry of interest since the US’s shale gas successes,” Marot tells *Mining Weekly Online*, pointing out that Petroleum Agency SA – headed by CEO **Mthozami Xiphu** – should not be confused with the State-owned PetroSA.

Petroleum Agency SA, she says, is an entirely separate organisation, which is designated by the Mineral and Petroleum Resources Development Act to promote and regulate oil and gas exploration in South Africa.

Marot says that the first application to explore was from the South African company, Bundu Gas & Oil Exploration, which focused on deep resource gas.

The second application was from American shale-gas explorer Falcon Oil and Gas. Shell International was third, the much publicised Sasol/Statoil/Chesapeake partnership fourth and now Anglo Operations has come in fifth.

“The whole of the southern part of the country is now covered with people interested in investigating shale gas,” Marot tells *Mining Weekly Online*.

Shale, which hosts shale gas, has for long been considered too difficult to drill until a recent horizontal-drilling and hydraulic-fracturing breakthrough led to the so-called “shale gale”. In the US, the process of fracturing, or ‘fracking’ as it is called colloquially, has already caused environmental concern with some politicians worried about the possible contamination of ground water.

Last month, the Financial Times of London reported that “the shale gas rush” had made its way over to the UK from the US and IHS Cambridge Energy Research Associates (Cera) chief energy strategist **David Hobbs** says that the “shale gale” has shifted natural gas from a constrained resource to an abundant one with wide-ranging implications for the energy future in North America.

The new techniques are said to have more than doubled North America’s discovered gas resources to 85-trillion cubic feet.

Oil & Gas Eurasia adds that the “shale gale” has the potential to be a “game changer” while IHS Cera chairperson **Daniel Yergin** says that “it’s simply the most significant energy innovation so far this century”.

Shale gas is one of a number of “unconventional” sources of natural gas, like coal-bed methane.

## Shale gas: what the frack is the truth?

Francois Williams  
Fin24  
March 27, 2011

Johannesburg - If shale gas is found in the Karoo and other areas in South Africa, it can change the energy landscape as radically as in the United States, where shale-gas production is expected to produce enough natural gas for the next century.

Because landowners in South Africa do not own the mineral rights beneath their land, as in many cases in the US, farmers in the Karoo will not enjoy much financial benefit from extraction, except possibly better roads and fencing.

There is also a risk that their ground water will be polluted by natural gas and waste water from the drilling process.

Worldwatch, an environmental thinktank in Washington, says unconventional natural gas resources such as shale can make a big contribution to a sustainable-energy future, especially when used in combination with renewable energy sources such as wind or solar power.

Saya Kitasei, a sustainable-energy associate at Worldwatch, believes that in countries such as South Africa which are heavily dependant on coal, natural gas can help reduce carbon-monoxide emissions.

But Worldwatch insists that the environmental risks of shale-gas extraction must be managed more strictly after a number of cases in the US where gas companies were fined for polluting groundwater.

With adequate precautionary measures, Worldwatch believes that horizontal drilling and hydraulic fracturing (fracking) is a safe technology to mine shale gas. The emphasis must be on sinking boreholes and maintaining the integrity of the drilling infrastructure.

According to Kitasei, the movie Gasland (a documentary on the environmental effect of gas mining in the US) and the media have played a role in highlighting the environmental concerns.

She says if the goal is to make shale-gas mining safer, not enough has been done by environmental groups or the gas industry to work together productively towards a safer best practice.

Last year's Deepwater Horizon oil disaster in the Gulf of Mexico revealed that the oil and gas industry did not have environmental risks under control as they would have liked to believe.

On the other hand, Kitasei reckons the way that a movie such as Gasland addresses the issue makes the gas industry mistrust environmental groups, leading it to feel that these groups are ill-informed on the technical and geological aspects of shale-gas mining.

This mutual mistrust is counterproductive. If the industry and environmental groups cannot sit around a table, the status quo will remain, says Kitasei.

In South Africa, international oil giant Shell has received most of the media attention so far. Sasol and other less well-known companies such as Falcon Oil and Bundu Gas also have shale-gas plans, but thus far have managed to stay mostly out of the public eye. This in spite of allegations that Falcon does not go to the same lengths as Shell with its public participation process.

From informal discussions with employees of the large, established energy companies such as Shell or Exxon it seems they think that some of the smaller, lesser-known gas companies in the US tend to take shortcuts.

Chris Tucker, director of Energy in Depth, a group that represents independent gas companies in the US, disagrees and says many independent companies are listed on the New York Stock Exchange. He maintains that these companies are experienced gas operators with reputations to protect.

Tucker says Gasland's criticism of the industry is unfair and uninformed. The spectacular scenes where people in Colorado ignite their tap water have nothing to do with shale gas and fracking, he says.

According to him, investigations have shown that this gas is conventional, natural gas that is found in shallower earth layers and had been there before any fracking and horizontal drilling had been done in shale rock.

Kitasei says authorities in South Africa should regulate the shale-gas industry on three levels, by managing water use, regulating waste water, and managing air quality related to processing and transporting natural gas.

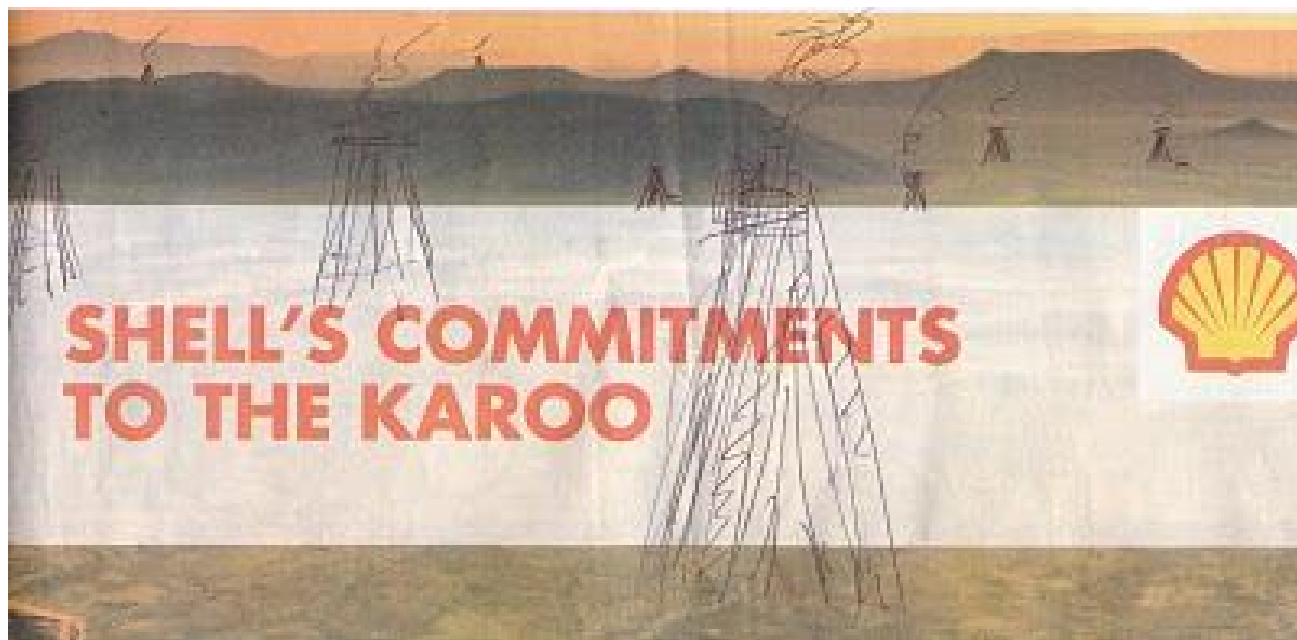
During a visit to Shell's shale-gas activities in Louisiana by Sake24, Shell officials emphasised that they test the water of landowners before sinking any boreholes. Ground water is also tested regularly for the duration of the mining activities, they say.

Graham Tiley, Shell's general manager for new ventures and international exploration, says that although shale-gas development is new, Shell has more than 100 years of experience in oil and gas development of conventional reserves. – Sake24

## TO FRACK OR NOT TO FRACK?

March 30, 2011

Kin Bentley - In Line blog



I couldn't resist doctoring the photograph which Shell has been flooding South African newspapers with in recent months concerning its plans to frack up the Karoo. These full-page ads included a scenic panorama of a section of the Karoo, along with the words, "Shell's commitments to the Karoo", while below was a nicely worded letter from Monang Mohale, who is apparently the country chairman of Shell South Africa. In it, he says, inter alia, that "the Karoo is a special place for South Africans. We must preserve it for our future and our children's future". Then he proceeds to explain how over three years they would drill "up to 24 wells" if granted licences to explore for gas. However, I read elsewhere that if given the go-ahead, the Karoo could be lumbered with literally hundreds, possibly thousands, of wells. So my picture is probably not that far off the mark. There is a growing groundswell of opposition to the "hydraulic fracturing", or fracking, process in the Karoo, for obvious reasons. Not only will it deface this vast, scenic heartland of South Africa, it also stands to use masses of water (in a near-desert environment) and to poison the underground water system. Browse through this blog and you'll see numerous sketches I have done over the years of Karoo scenery. At a time when solar and other renewable energy sources are crying out to be explored and exploited, Shell seems bent on delving for a fossil fuel which will only have very short-term use and benefit, primarily, its shareholders. That the South African government seems happy to go along with this travesty is mind-boggling. One wonders how many more pockets stand to be lined in Frackgate, a worthy successor to Armsgate, Travelgate and numerous other cases of state corruption over the past decade.



# Shale gas could be game changer for African energy

**There is real potential for shale gas in Africa and if it is discovered in substantial quantities it would be a game changer for the energy sector in Africa, Chris Faulkner, CEO of Dallas based exploration company Breitling Oil & Gas, says.**

March 31, 2011

Times Live

Speaking at the Power Generation conference in Sandton, Faulkner said there are two shale gas basins of interest in Africa - in the Ghadames Basin - Berkine Basin - Illizi platform in North Africa - covering Algeria, Libya and Tunisia, and the Karoo Basin in South Africa,

He said the Ghadames basin could be the biggest shale gas basin in the world. It is 109 square kilometres in size. There is active drilling there and the basin has estimated reserves of 35,000 trillion cubic feet. First fracking has taken place and early indications are that it has ten times the amount of reserves than in the US. If the reserves from Algeria hold up, they will be bigger than the US, Faulkner said.

The Karoo basin is 700,000 square kilometres and reserves are estimated at around 3,000-5,000 trillion cubic feet, but Faulkner believes this is an underestimate and the reserves would increase should drilling go ahead.

Early players include some the world's major names in the industry, including Royal Dutch Shell, Chesapeake Energy, Statoil, Sasol, Falcon and Bundu.

He noted that some 25 wells were drilled in the 1960s and all had good gas shows. "This is potentially an SA energy game changer," he said.

At present there is no drilling as there have been objections and public opposition to drilling in this environmentally sensitive region.

Shale gas is a major industry in the US and interest has spread to Canada, Europe, Asia, Australia and Africa. Faulkner estimated that shale gas will provide half of the requirements in the US in next eight years.

The recent development of the Marcellus shale gas fields in the US state of Pennsylvania on the East Coast - is considered to be the second largest gas shelf in the world and has rapidly changed the entire energy make up of the USA. Today one third of the US gas reserves is attributable to shale - and five years ago this was zero.

It now has enough shale gas to last into the next century and recent discoveries in the US and Canada will enable them to export energy to Asia and Europe via liquefied natural gas tankers.

Shale gas has great potential for Africa as it would reduce its dependence on foreign oil imports and coal. It would also close the gap on the 53GW of demand growth that is expected over the next 30 years in South Africa. In addition, shale gas could increase domestic supply generation, reduce energy costs, help in Greenhouse gas reduction and also create jobs.

He said concerns raised that shale gas is water intensive are unfounded. Although large quantities are used in the initial stages during fracking, this is one time usage, and levels being drilled are so deep they are unlikely to affect surface water.

Faulkner said shale gas could be a game changer for the African energy market, but this would take some time - it would be seven to nine years before Africa understands “what it is sitting on top of”. In addition there are regulatory and environmental hurdles that would have to be overcome.

He concluded that African energy faces a grave uncertainty and a potential collapse if the energy mix is not diversified. He believes it would be “foolish” to ignore shale gas in Africa given its energy challenges.

## As shale gas concern rises in SA, Shell offers glimpse into N American operations

Chanel de Bruyn  
April 1, 2011  
Mining Weekly

*Energy companies are showing increased interest in shale gas resources around the world, including in South Africa. However, the opposition is also fierce and appears to be growing. In South Africa, Shell has attracted most of the attention, notwithstanding the fact that others are planning to explore for unconventional gas in the Karoo region. As part of Shell's efforts to deal with the opposition, the energy group recently hosted a group of international media representatives on a tour of one of its shale gas heartlands in North America. Mining Weekly Deputy Editor **Chanel de Bruyn** participated in the tour.*

Operators in the Haynesville shale area of North America, which is located on the border of east Texas and western Louisiana, are rushing to secure leases and keep their foothold in the region.

Global oil and gas producer Shell, which holds an interest in seven onshore unconventional gas plays across North America, from Canada down to Texas and Louisiana, told journalists during a recent site visit to some of its North American operations that there had been a tremendous amount of activity among operators to secure leasehold over the past few years.

Shell and its 50:50 joint venture (JV) partner in the Haynesville shale play, oil and gas exploration and production services company Encana, have signed thousands of leases over the past few years, one of Shell's operations managers, Bruce Palfreyman, says. Operators pay mineral rights owners anything from a few hundred dollars to thousands of dollars as an upfront bonus to secure a three-year lease that will allow them to explore for gas.

Palfreyman says prices vary and depend on what stage of its life cycle a gasfield is in, as well as the expected economic viability of the field. Extensions to the contracts are also common if gas production starts within that three-year timeframe. The mineral rights owners then become entitled to gas production royalties, which range between 18% and 25%.

He notes that shale gas production among all producers in the Haynesville shale area has grown from zero to four-billion cubic feet a day within a two-year period to the end of 2010.

Shell Upstream Americas development VP Paul Goodfellow labels the shale gas expansion as a “revolution” for the energy market. He adds that Shell’s strategy is to secure its position in the top natural gas resource plays in North America before exporting the technology to other regions of the world.

It has already started looking at exploration for shale gas in Europe and in the Karoo region of South Africa, where it has applied for exploration rights on three properties of 30 000 km<sup>2</sup> each and plans to drill 24 wells over the 90 000 km<sup>2</sup>.

As part of its application, the company will submit a final environmental management plan to the Petroleum Agency of South Africa (Pasa) in mid-April.

Early last month, Pasa CEO Mthozami Xiphu said the agency expected to hold up to four onshore licensing rounds for shale gas in the Karoo before the end of 2012. The first licensing round is expected to start by the second half of this year.

He added that a final decision on Shell’s application for an exploration licence in the Karoo was expected before, or during, August this year.

Other companies, such as South African petrochemicals group Sasol and diversified global miner BHP Billiton, have also made a quick entry into the field by securing a foothold in North America’s shale gas resources.

In fact, last month, Sasol concluded a second R7,4-billion agreement with Talisman Energy, of Canada, to acquire a 50% interest in the Cypress A shale gas asset, located in the Montney basin of British Columbia. It also indicated that the two companies might pursue a bigger gas-to-liquids (GTL) development plan than had initially been envisaged, based on the enlarged joint asset base.

Earlier in March, the JSE-listed group concluded a R7,55-billion deal to buy half of Talisman Energy’s Farrell Creek shale gas asset, which is also located in the Montney basin – the deal was initially announced in December.

Sasol, which aims to apply its proprietary GTL technology to exploit what could be a sustained and growing gap between the price of gas and that of other transport fuel products, indicated that it could seek to scale up its GTL aspirations in western Canada.

Following the Farrell Creek purchase, the JV partners confirmed that they would study a 48 000 bbl/d GTL facility based on the gas reserves at Farrell Creek. However, Sasol told Engineering News that, while the base case of 48 000 bbl/d remained, the partners would also assess the option of a 96 000 bbl/d plant.

## FEAR AND LOATHING

However, citizens and environmental groups in many countries are concerned about the possible negative impacts that hydraulic fracturing, or fracking, which is the method used to gain access to the shale gas, can have on the environment.

Operators pump a mixture of water and sand under high pressure into a shale formation. While about 99% of the mixture is made up of water, some of the mixtures also include gelling agents to carry the sand to the bottom of the well to keep the fractures open and allow the gas to flow more freely.

Foremost is a concern over the possible impact that fracking will have on water resources, with some reports claiming that this can negatively impact on underground water aquifers.

The World Wide Fund for Nature (WWF) South Africa states in a position paper on shale gas that fracking poses “extensive” contamination risks, particularly for groundwater.

“Interference with ancient geological formations may not only release methane into aquifers, but also cause new connections between aquifers. It would take many years to develop a reasonable understanding of the consequences of such risks,” the WWF South Africa adds.

Further, the conservation body emphasises that South Africa does not need unconventional gas to meet its growing energy demand, as there are more viable and sustainable energy development options available to it than shale gas.

In addition, it says, harnessing unconventional gas is carbon intensive and the gas is “possibly no better than coal” in terms of greenhouse-gas emissions.

The exploitation of shale gas would present a further barrier to achieving a truly sustainable energy supply and achieving the opportunities and benefits of a transition to renewable energy.

“We believe the possible short-term gains would squander the long-term economic and environmental sustainability of the Karoo and South Africa’s low-carbon economy objectives. We are concerned about localised economic impacts for other sectors, which do not seem to have been considered, including the agriculture and tourism economy of the Karoo and the prospects for winning in our bid for the global Square Kilometre Array (SKA) radio telescope project,” the position paper highlights.

The Department of Science and Technology’s deputy director-general, Val Munsami, recently warned that Shell’s plans to explore for shale gas in the Karoo could potentially impact on South Africa’s chances of being awarded the SKA.

If South Africa won the bid, the SKA would be located in the Northern Cape. A decision on the project is expected to be made early in 2012.

Meanwhile, the Treasure the Karoo Action Group, which represents a number of farmers and other stakeholders in the Karoo region, has also repeatedly voiced its concerns over plans to explore for shale gas.

It notes that not only could fracking impact on the groundwater resources, but that the exploration for shale gas could also negatively impact on the botanical biodiversity in the Karoo.

## **ASSURANCES**

However, Shell is adamant that it can conduct fracking in an environmentally sustainable way, insisting that it takes water management and other environmental concerns into consideration from the start of any exploration operation.

It emphasises that steel casings are inserted into the drill holes up to thousands of metres below water aquifers, which will prevent harmful chemicals used in the fracking process from entering the aquifers.

Further, Goodfellow says that the company is supportive of fully disclosing exactly which chemicals are used in the fracking process, noting that most of these are chemicals that people have around their households.

The US Environmental Protection Agency is also currently reviewing whether fracking has a negative impact on groundwater resources.

Meanwhile, there is also concern about the amount of water that is required to execute fracking jobs, especially in water-scarce areas such as the Karoo.

Palfreyman notes that about 22,7-million litres, or about six-million gallons, of water is needed to complete each fracking job.

He says that Shell will investigate ways of recycling and reusing water in water-scarce areas, although he admits that this is challenging for the operators.

However, in the Haynesville area, where the company is able to buy plenty of runoff water from the surface owners of nearby properties, the used water is trucked to Texas, where it is disposed of in depleted gasfields.

Palfreyman says that this is regulated under federal laws in this region.

Only 15% to 20% of the water that is pumped into the wells in Haynesville is initially recovered after fracking begins, making it uneconomical to recycle. Shell plans to further investigate potential options to recycle the water during this year.

Palfreyman notes that the remainder of the water is recovered over the life cycle of the well, a period of between 25 and 30 years.

Shell has also come under fire for promoting investment in fossil fuels rather than renewable-energy sources, such as wind and solar, with critics saying that these forms of energy are cleaner and safer to access.

Goodfellow defends Shell's position, saying that shale gas provides an immediate next opportunity to move towards a sustainable energy future.

He emphasises investments should still be made in renewable energy but believes that unconventional gas, such as shale gas, could be used to manage the interruptible nature of renewable-energy sources.

He notes shale gas is the cleanest fossil fuel and an efficient form of energy supply. In North America, it is affordable, available and abundant, which means that it can provide energy security as well as create jobs.

Locally, Frost & Sullivan energy and power business unit leader Cornelis van der Waal says that, if, South Africa finds shale gas resources and if it is able to produce this form of energy in an environmentally sustainable manner, it makes sense to pursue this as an energy source.

He emphasises that South Africa has to consider all alternative energy sources, especially given the expected impact of the proposed carbon tax, which will likely result in a 40% increase in electricity costs.

“Certainly, from what we require to drive economic growth and continuously deliver electricity at a fair rate, we need something other than renewables at a baseload level,” he comments.

At present, renewable energy forms cannot be used as baseload power, as these sources cannot be guaranteed to be available on a 24/7 basis.

Further, Van der Waal believes that nuclear energy has a very important role to play in South Africa’s energy future, but he highlights that, given the recent events at the Fukushima Dai-ichi nuclear plant, in Japan, there will be a lot of resistance from the public.

He points out that the current concerns around nuclear power are likely to blow over in time and says it is important to distinguish the events in Japan from those in other regions.

Van der Waal highlights that the Fukushima Daiichi plant is an older, generation one nuclear reactor that is not geared to modern challenges. Newer-generation reactors are far safer and far more controlled, but the need for greater security and control is, nevertheless, always a priority.

In addition, South Africa can consider importing natural gas from its neighbours, Namibia, Angola and Mozambique, but this will have a negative impact on its balance of payments, he says.

Van der Waal adds, however, that the need for shale gas as an energy source can-not be looked at in isolation, as the impact of harvesting this energy source on the communities surrounding these operations and its impact on the environment are equally important.

Meanwhile, Goodfellow emphasises that there are still facts about hydraulic fracturing that have to be communicated to the public before proper debates can be held.

He indicates that, while there is still some opposition to this form of technology in the US, communities closer to Shell’s current operations have started gaining a greater understanding of how the technology works and its potential impacts.

These communities are generally more positive about the oil and gas industry and the value that it can add, he says.

However, many organisations and individuals in South Africa remain opposed to fracking in the Karoo.

Shell believes that it will be able to create many jobs locally, but, in the interim, it is committed to conducting environmental-impact assessments and other independent studies prior to drilling any wells.

## **COST SAVINGS**

Meanwhile, Palfreyman notes that, while natural gas is expected to play a much bigger role in North America's energy future, natural gas prices are still very low.

It costs between \$8-million and \$11-million to drill and fracture one well. Operators in North America are seeking ways to reduce costs, and one of the best ways of achieving this, says Shell, is to reduce the number of days spent on drilling the wells.

Shell has made some progress in shortening the timeframes for drilling these wells. The company has managed, in some cases, to reduce this to an average of 45 days, down from the average of 60 days it took when Shell started exploration work a few years ago.

The average fracking job takes between three and six days to complete.

## **EQUIPMENT**

Shell outsources the hydraulic fracturing jobs in the Haynesville area, as well as other regions in North America, to energy sector products and services provider Halliburton.

The equipment, which is housed in mobile units, includes up to 20 or more high-pressure pumps, machinery that controls the amount of sand that is mixed into the pumping fluid, a blending unit to mix the water, sand and chemicals, and a mobile control centre from where the entire operation is managed and monitored.

Shell South Africa Upstream communications manager Kim Bye Bruun says that, if the company is awarded exploration rights in the Karoo, it will most likely have to import certain technologies and equipment, as well as the expertise of those able to operate the equipment, during the initial exploration stages.

However, the company will make an effort to source ancillary services locally, or through companies with an established South African presence.

“While a number of these jobs will require specialised expertise, it is likely that, over time, if gas is discovered and confidence grows that there are sufficient volumes to develop, there will be further opportunities for local employment, training and services generation,” he adds.



# Fracking ‘will damage roads, water’

**Setting aside the various possible environmental implications, Karoo residents fear that Shell’s shale gas plans will go hand in hand with an invasion of thousands of water trucks and further deterioration of the region’s already vulnerable roads.**

April 4, 2011  
Miriam Mnnak  
Business Week

“Should Shell be given the go-ahead to drill for gas, the company will have to import the water it needs. Shell has clearly stated it will not compete with us residents over local water,” said Jonathan Deal, the co-ordinator of the Treasure the Karoo Action Group (TKAG).

“The problem is that we have no rail network, which means the water has to be imported with trucks,” he explained. “Can you imagine what potentially thousands of water trucks will do to our roads, of which many are already in bad shape? Will Shell come fix them up first? Will they fix them afterwards?”

Hydraulic fracturing, or fracking, which is the method that Shell will use if the authorities approve of its plans to drill 24 exploratory shale gas wells in the Karoo, requires hundreds of thousands of litres of water mixed with sand and chemicals.

According to Shell’s upstream communications manager, Kim Bye Bruun, a single vertical shale gas well will require between 300,000 and 900,000 litres of water. “One horizontal well will use between 1.1 million and six million litres,” he explained. “This is a once-off amount.”

The total number of trucks needed to transport this volume of water will depend on the type of vehicle. Should Shell opt for 20,000-litre trucks, 300 vehicles will be needed for one single six-million-litre horizontal well. This figure increases when smaller trucks are utilised.

“A full logistical assessment of the number and type of trucks required for the exploration phase has been undertaken. Details will be provided in the environmental management plan, which will be submitted to the authorities this month,” Bye Bruun added.

The environmental management plan forms part of Shell’s official application to explore the Karoo for shale gas, which has been submitted to the Petroleum Agency of SA (Pasa).

The action group’s main objection to Shell’s plans remains of an environmental nature.

“A thousand cases of fracking water spills have been recorded in the US alone,” Deal said. “There have been at least seven cases of large-scale drinking water contamination. We do not want that in the Karoo. We already have a water shortage. We do not want our scarce water resources to be threatened by pollution. I have been told by farmers that they are willing to take up arms to protect their land.”

# Mounting objections to Shell fracking

**Setting aside the various possible environmental implications, Karoo residents fear that Shell's shale gas plans will go hand in hand with an invasion of thousands of water trucks and further deterioration of the region's already vulnerable roads.**

I-Net Bridge  
April 4, 2011

*Dead ewe and lamb killed by the drought in central Karoo. 20/06/2008*



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Should Shell opt for 20000-litre trucks, 300 vehicles will be needed for one single six-million-litre horizontal well.

The action group's main objection to Shell's plans remains of an environmental nature.

“A thousand cases of fracking water spills have been recorded in the US alone,” Deal said.

# Fracking plan fatally flawed

Heather Dugmore  
Cape Times  
April 4, 2011

*Attorney Derek Light*  
*Reuters*



Graaff-Reinet: Shell has “completely failed” in its obligation to submit a thorough, legal environmental management plan (EMP), according to Karoo communities that are opposing Shell’s application to frack for shale gas over 90 000km<sup>2</sup> in the Karoo.

“Both Shell and Golder Associates – the environmental consultancy commissioned by Shell to compile its EMP – have risked losing their professional integrity by presenting a fatally flawed document as an environmental management plan,” says Fritz Bekker, the environmental consultant commissioned by Graaff-Reinet attorney Derek Light to formally respond to Shell’s draft EMP on behalf of hundreds of farmers, landowners, community members, businesses and organisations in the Karoo.

Referred to as Interested & Affected Parties (I&APs), the people of the Karoo’s response to the EMP must, by law, be lodged by tomorrow, to the Petroleum Agency of South Africa (Pasa), which administers mining applications as a designated agent of the minister of energy.

I&APs never got to see the final EMP as Shell and Golder did not present it to them in time.

“In my opinion Shell and Golder have not complied with the Mineral and Petroleum Resources Development Act (MPRDA) or with any of regulations of the MPRDA that are required for an exploration right, and which specify what the contents of the EMP should be,” adds Bekker. “In so doing they have attempted to bypass legislation that exists to protect the people of South Africa, as enshrined in Chapter 2 of our constitution.”

The starting point of their non-compliance with the MPRDA is that the definition of “petroleum” in the act does not include shale gas as it refers to “any liquid, solid, hydrocarbon or combustible gas existing in a natural condition in the Earth’s crust”.

“The definition does not include unconventional shale gas that has to be subjected to an artificial fracturing process before becoming a liquid, solid, hydrocarbon or combustible gas,” says Light. “Shale gas fracking therefore does not legally qualify as the subject matter for an exploration right in terms of Section 79 of the MPRDA.”

Other key non-compliance claims include:

- Shell/Golder failed to include financial compensation in their draft EMP for any landowner who suffered loss of income or damage as a result of their exploration activity.
- “Shell/Golder is required by law to consult with affected landowners and to reach agreement as to the impact of the proposed exploration activities, and submit the result of the consultation to Pasa,” continues Light. Shell/Golder failed to comply.
- Shell/Golder also failed to include in their EMP the list of chemical compounds they intended using for fracking. Many of the chemicals used in fracking were known to be toxic and cancer-causing.
- Shell/Golder fail to detail where they would source the 1 million to 6 million litres of water required per frack in the fracking process.

Asked to specify what fieldwork Shell/Golder had undertaken in the Karoo to assess the water systems in order to justify their impact as “low”, Golder’s head of environmental services, Brent Baxter, said that time had not permitted water-specific fieldwork.

The volumes of potentially toxic waste generated in the fracking process, and stored in wastewater treatment dams, is another pressing concern that was not addressed, according to the group.

The impact on roads and the need for the creation of new roads is also understated in their draft EMP, as is the associated carbon footprint and pollution of a process that will require heavy-duty machinery and thousands of trucks.

“The most significant adverse environmental impacts of shale gas fracking may already occur during the exploration phase, yet Shell/Golder clearly attempts to downplay the importance of the granting of an exploration right,” says Light.

“It is also significant that a moratorium has been placed on the use of fracking in Quebec, Canada, as well as in the United Kingdom, France and Germany.”

## **Frack Off Shell, Says Group**

April 5, 2011  
Duncan Alfreds  
News24

Cape Town - An environmental group has slammed oil company Shell’s proposed fracking in the Karoo, saying its plans are devoid of credibility.

In launching its report, A Critical Review of the Application for a Karoo Gas Exploration Right by Shell Exploration Company BV, the Karoo Action Group (KAG) says that they would like to call a permanent halt to the proposed fracking.

“Shell isn’t the only applicant, there are many mining companies greedily eyeing the Karoo. We would like to stop this technology in its entirety in South Africa,” the KAG’s Jonathan Deal told News24.

“This document [their report] lays waste to the draft EMP [Shell’s environmental management plan],”

he added.

The Critical Review report, which was compiled by 22 experts led by Dr Luke Haveman, is mainly concerned with the use of water in the fracking process.

## **Experts**

“A common thread in the report is that there’s not sufficient data to make an assessment on the EMP. We have major concerns about water in a water-stressed area,” said Haveman, who holds a masters degree in marine and environmental law.

He rejected suggestions that Shell’s expert panel was competent to deliver an unbiased evaluation on fracking.

“Our experts are the best in their fields and we would like to sit down with Golder [which compiled Shell’s EMP] and debate the issue with them.”

“It’s not only the issue of experts. There’s the history of what’s happening in the rest of the world,” said Deal.

In December 2010, the state of New York placed a moratorium on hydraulic fracking and Maryland placed a moratorium on drilling in March of the same year.

The Tyndall Report in the UK has noted that “for the application of the precautionary principle in the EU, shale gas extraction in the UK must surely be delayed until clear evidence of its safety can be presented”.

There are also international concerns that fracking may pollute groundwater.

The KAG says that it is prepared to fight any institution or organisation that permits for fracking to continue.

“We’re prepared to go all the way to the Constitutional Court and the ball is really in Pasa’s [Petroleum Agency SA] and the minister’s court at the moment,” said Deal.

# Light's switched on

***The government does not own the mineral rights.***

April 5, 2011  
Geraldine Bennett  
MoneyWeb

*Derek Light in action in Graaff-Reinet*

BEAUFORT-WEST - Derek Light, class action lawyer opposing Shell, Bundu and Falcon shale-gas applications, set the record straight in Beaufort-West on Tuesday March 29, 2011 when he told a gathering of concerned community members that “the mineral rights of South Africa do not *belong* to the government.



“This perception that the government ‘owns’ the mineral rights is incorrectly perpetuated in the media”, he says.

It’s a fine linguistic line, but says Light, “the mineral rights of South Africa belong to South Africans, and are vested in the government only in its capacity as custodian”.

## **All is not lost**

GRAAFF-REINET: During the public meeting in Graaff-Reinet, on March 23 2011, it was noted that some members opposing the application by Royal Dutch Shell’s exploration arm felt “defeated”, believing that the public participation process, hosted by environmental consultants Golder Associates on behalf of Shell; was simply a *charade*.

In some cases interested and affected parties spoke of the process as a *fait accompli*.

“If civil society recognises its constitutionally enshrined right to a healthy environment, and they recognise that they have not lost the mineral rights of the land; then they should recognise too that all is not lost.” It’s all about participation.

Light, representing thousands of Karoo residents: from billionaire’s to Beaufort-West; princess Irene to Prince Albert; has recently been appointed by AgriSA which raises his profile from one client three years ago - to hundreds in a class action a few weeks ago - to thousands with AgriSA’s recent support. South Africans are coming together.

So far, on the Shell application alone, Light says he has spent “at least one hundred hours” combing through the draft EMP. His conclusion is that the contents “are not worth the paper that they are printed on”.

At the meeting in Beaufort-West Light spoke from experience when he said, “It is not the approach of gas companies to inform you of what they are doing”. Light started out with the Bundu application three years ago.

He points out, with disdain, a response from Falcon on the accusation of the superficiality of its EMP.

Falcon by its own admission states “it’s an impossible task to conduct a decent EMP in 120 days”. Falcon’s application is less than a tenth of what Shell is applying for.

Can an environmental management plan (EMP) covering 90 000 square km and prepared in 120 days be considered adequate for civil society, PASA and the minister, in order to reach an “informed decision”?

“SRK, environmental consultants to Falcon, and the Golder/Shell team seem to think not ...but *that* they use to exonerate their superficial treatment of the EMP process.”

With interested and affected parties in the Beaufort-West area only recently roused, there are those who suddenly find that their land is on the pathway of production and they have never received notification.

Light is doing “damage control”. He has asked for an urgent response from the regulator for a 30-day extension for affected parties in Beaufort-West and surrounds. This relates at present to the Falcon application.

The latest news from Light is that the national regulator, PASA, has “declined the request relying on their lack of authority to do so”.

Light has referred the matter to the RMDEC to adjudicate on this further objection to the process.

“There is nothing like adversity to unite people”

There is a rising emotional tide as South Africans begin to unite on fronts not directly affected by Dutch dinosaur, Royal Dutch Shell’s, fracking ambitions. Past antagonisms are forgotten as civil society links hands in solidarity with their Brothers and Sisters of the Great Karoo.

Nova Scotia, Canada, has expressed its solidarity for the Karoo, as it wards off Petroworth’s shale-gas fracking advances. The Karoo-story is gaining global momentum.

Authorities in the USA, Canada and France have suspended fracking.

For South Africans, Light says, “These applications (Shell, Bundu and Falcon) go right to the heart of our fundamental rights”.



The first world enters our sanctity with the singular focus to exploit our mineral wealth ...”at the price of destroying our environment and dividing our people”.

Is it the Dutch East-India Company all over again?

### **Divide and conquer**

Light refers back to the Graaff-Reinet public meeting: “...the worst thing that could have happened that day was the wedge driven into a community by a comment a comrade made stating that the Shell fracking application was being fought between the ‘haves’ and the ‘have-nots’.

“We need jobs”, our belligerent comrade intoned, ...”The People need jobs!”

Up until that moment there had been no hint of racial or community divide. The hall was filled; extra seats called for; with black-skinned people, brown-skinned people and white-skinned people. This is the Rainbow Nation.

*Moneyweb* spoke with a number of emerging farmers and “previously disadvantaged” community members who were entirely opposed to the Shell proposal.

Gladys Rens, who described herself as a “*boer*” and who has farmed with sheep, goats and cattle for around 30 years, said she is opposed to the Shell application. “*Nee, Zuma kannie nog sulke goed toelaat nie*” she said.

The “best thing that happened”, says Light, and that which could be described euphorically by those opposing Shell as the *piece de resistance*, was when the Mayor of Graaff-Reinet’s voice cut through ...

### **Mayoral-mishap**

Mayor Daantjie Japhta of the ANC has served the Camdeboo municipality for ten years. He is also a headmaster and a biology teacher.

At this juncture in the recording, Light reminds the meeting that this is just seven days before the close of public commentary.

Japhta, after introducing himself said:

“You have not yet spoken to me; you have not yet spoken to our council. We were concerned about that after the last public meeting and we wrote you a letter, Golder and Shell, to invite you to talk to us. You haven’t answered our letter, and you haven’t acknowledged receipt of our letter.”

If Golder and Shell missed the mayor of the best service municipality in South Africa for the past three consecutive years, then is it possible they missed many others too. Japhta is larger than life.

In a *Moneyweb* interview with Japhta the next day, he spoke with concern about the fact that this application by Shell has driven a wedge into his community, and that he is not comfortable with the polarisation of his people.

For ten years Japhta and his team have worked hard to build the reputation of Graaff-Reinet as a tourist destination of choice; Japhta in parallel taking up the crusade for South Africa's First People, a minority scarcely noticed except on tourist postcards, and on the brink of Shell genocide. Japhta is of Khoisan ancestry.

**“This is not a game”**

Light says if this wasn't so serious it would be laughable but he cautions civil society to pay attention: “We are dealing with the biggest exploration application in this country's history.”

“It ultimately covers parts of Natal, the whole of the Free State, and,” from his understanding, “portions of the Limpopo”.

“Potentially it will cover every inch of this country.”

The Constitution of South Africa compels us to preserve the environment of this country for future generations and it grants us the fundamental right to a healthy environment.

In a democracy the judiciary stands independent.

What is right is right and the law will back that up.



# Treasure the Karoo pulls apart Shell's environmental plans

Sasha Planting  
MoneyWeb  
April 5, 2011



## ***Presents its case to government.***

The Treasure the Karoo Action Group, which is facilitating civil society's objection to Shell Exploration Company's application to search for shale gas in the Karoo, called on the authorities for an immediate halt to any such plans, not only by Shell but by any other organisation seeking similar authorisation.

This is based on a critical review of Shell's 2 000 page draft environmental management plan (the EMP), which was released for public scrutiny in March.

"This review lays waste to Shell's draft EMP," says Jonathan Deal, national spokesman for the Treasure the Karoo Action Group (TKAG). "I don't think there is a defence [for fracking]."

TKAG is not only looking to halt Shell's application, but all future fracking applications. "There are many mining companies greedily eyeing the Karoo's gas reserves," he says. "If Shell was to step aside, others would fill its shoes. We must stop this technology in its tracks."

The review was compiled by Dr Luke Havemann, of Havemann Inc, a firm of energy attorneys based in Cape Town; Adv Jan Glazewski, professor in the Institute of Marine & Environmental Law, UCT and Susie Brownlie, an environmental consultant.

They obtained specialist input from another 18 experts. These included groundwater and water resource specialists as well as experts in public health, socio-economics, palaeontology, astronomy, biodiversity and energy policy.

Their decision to call for a halt to the application to explore was based on a number of concerns. However, the over arching concern relates to the lack of reliable and sufficient information about fracking internationally, and in Shell's draft environmental management plan (EMP) in particular. "We believe that the document is not lawful, reasonable or procedurally fair," says Havemann. "It is inadequate, making a rational and reasoned decision almost impossible.

## **Key concerns raised**

"We do not have a drop of water to spare in SA, yet Shell's environmental plan is vague about the source of the water," he says. It appears that Shell will need *anything between* 7.2m litres of water and 144m litres of water in its exploration process.

Aside from issues of water scarcity, fracking raises issues of water quality and thus public health. That is because potentially toxic chemicals and other materials are introduced to hold the ‘fractures’ open, potentially contaminating surface water and groundwater.

The document also argues that Shell’s proposal runs counter to a number of provisions held in SA’s environmental legislation, in particular those relating to sustainable development, spelt out in the National Environmental Management Act.

The potential negative effects of fracking on the “sense of place” of the Karoo, with its growing agriculture and tourism sectors, rural livelihoods, and the drive for more equitable development is also noted.

“Fracking, with a view to ultimate shale gas development, may not be the optimal or sustainable land use for the unique Karoo region,” says Deal. “But no comparative evaluation with other land-use options – including alternative energy generation - has been undertaken for the area.”

The review argues that the application also runs counter to the constitution. It lists five areas where constitutional rights may be trodden upon, in particular that which guarantees all South Africans the right to sufficient water. “I never thought that in SA we would have this debate,” says environmental activist and cold water swimmer, Lewis Pugh. “Which is more important - gas or water?”

Some of the arguments contained in TKAG’s review – submitted on Tuesday to the President’s Office at Tuynhuys - go beyond the ambit of what the Department of Energy would consider in an ordinary application for exploration. Deal argues that because fracking is an unprecedented activity in SA and because a policy vacuum exists in relation to the exploitation of shale gas, Shell’s application cannot be considered in a narrow context.

“This is an application that needs to go all the way to the top,” he says. “Shell’s present application for exploration rights should not be considered in isolation but should be seen in the context of the intended outcome, namely future shale gas development, the impact it could have on the environment and on the people who live in that environment.”

SA is not alone in considering these issues. In the US a number of states have placed moratoriums on fracking while the federal government completes its environmental study on the subject. Others have banned it outright. The UK government has recommended further investigation while the Canadian and French governments have also imposed a moratorium on fracking.

Should TGAG not succeed in its bid, it proposes a long-term moratorium be placed on fracking. “We need to investigate all the risks and potential consequences, particularly in the case of water resources and public health,” says Havemann. “There is local and international context for this research.”

# Call to halt Karoo fracking

**The Treasure Karoo Action Group (TKAG), which is campaigning to stop Shell from drilling for shale gas in the Karoo, has called on government to impose an “immediate halt” to the international energy giant’s application for exploration rights.**

April 5, 2011  
Times Live

In a critical review report containing inputs from 22 scientists and academics, the group -- the co-ordinating body for a range of stakeholders opposed to Shell’s plans -- proposed “that the entire application be subject to a moratorium”.

A copy of the report was handed in to President Jacob Zuma’s office at Tuynhuys on Tuesday.

Shell is poised to submit an environmental management plan (EMP), following the exploration application it made, in December last year, to drill 24 boreholes over the next three years in test areas stretching across about 90,000 km<sup>2</sup> of the Karoo.

It is understood the EMP will be submitted on April 14, whereafter government will have 120 days in which to make a decision on the application.

Speaking at a media briefing on Tuesday, TKAG national co-ordinator Jonathan Deal said the review report “lays waste to the draft EMP of Shell”.

He expressed confidence that once government had sight of the document, it would apply the precautionary principle, and hydraulic fracturing, or fracking, as it is known, would not happen in South Africa.

Hydraulic fracturing is a technique for extracting shale gas from deep underground by pumping a pressurised mixture of water, sand and chemicals down drill holes. Shell, controversially, is planning to do this in the Karoo.

According to the executive summary of the report, compiled by specialist energy attorneys Havemann Inc, fracking poses a serious public health threat.

“Apart from the issues of water scarcity, fracking raises serious issues of water quality and thus public health. Potentially toxic chemicals and particulate materials are introduced to hold the fractures open once the initial pressure is released in the borehole.”

Fracking, the report warns, has raised major concerns worldwide, including in France, the United Kingdom and France, the latter having extended a moratorium on shale gas exploration until the release of reports on its social, economic and environmental impacts.

Attorney Luke Havemann told journalists he believed the granting of Shell’s application would be at odds with South Africa’s Constitution and inconsistent with its environmental laws.

He said the TKAG was “prepared to take this all the way to the Constitutional Court” if necessary.

The report also calls on government to decline any future fracking applications in the Karoo, “by Shell or any other consortium”.

At least two other companies -- Sasol, and Denver-based Falcon Oil and Gas -- are known to be interested in exploring for shale gas in the region.

The report finds, among other things, that fracking is “inconsistent” with provisions of South Africa’s Constitution, and that there are “uncertainties, unknowns and gaps in information that pose unacceptable risks to water resources in a water-stressed region, and to the health of both communities and eco-systems”.

## Karoo Action Group takes the fight forward

**Karoo residents have taken their fight against corporate oil giant Shell to the country’s highest office.**

April 5, 2011  
Philani Nombembe & Grace Johnson  
Times Live

*Photograph by: MICK TSIKAS*  
*Credit: REUTERS*

Yesterday, a small group of environmental activists from the Karoo Action Group gathered outside parliament to deliver a 100-page report detailing the dangers of fracking - the mining process Shell intends to use to extract natural gas from three areas in the Karoo - to the Presidency at Tuynhuys.



According to the activists, should Shell be granted a licence, the company could start exploration in 18 months.

The activists are opposed to the international exploration company’s application to drill for natural gas in three precincts in the Karoo totalling 90000km<sup>2</sup>.

“Shell has lit a fire in our bellies that no man and woman can extinguish. We will take our fight to their pumps and everywhere else in the world,” environmental campaigner, Lewis Pugh said.

The report, compiled by Havemann specialist energy attorneys, says according to Shell’s exploration proposal, the company will drill eight boreholes in each precinct up to 5km in depth over a three-year period extendable to nine years and will use up to 6million litres of water, a total of 144million litres could be required.

“Apart from issues of water scarcity, fracking raises serious issues of water quality and thus public health. Potential toxic chemicals and particulate materials are introduced to hold the fractures open once the initial pressure is release in the borehole,” warns the report.

## **Call to ban exploration in the Karoo**

Ingi Salgado  
Business Report  
April 6, 2011

Groups opposing shale gas mining bids by Shell and other explorers in the Karoo yesterday asked the government to immediately end these plans and ban any future exploration.

As an alternative, the Karoo Action Group asked President Jacob Zuma to impose a moratorium, pending studies into water impacts, alternative land uses, and a decision on South Africa’s bid to host the Square Kilometre Array telescope.

Citing water as the “Achilles heel” of hydraulic fracturing (fracking) in the Karoo, the Karoo Action Group said in a review handed to the presidency that Shell’s proposed exploration alone would require between 7.2 million and 144 million litres of water.

It said Shell had been “extremely vague” as to where it would source the water in both its draft environmental management plan (EMP) and at public consultation meetings.

The Centre for Environmental Rights (CER) yesterday asked the Petroleum Agency South Africa (Pasa) to extend timeframes in Shell’s application to explore for shale gas in the south-western Karoo basin by at least another 120 days.

The CER plans to convene community workshops in the Karoo in May and June for disadvantaged and vulnerable communities about rights to participate in Shell’s application and environmental rights.

Pasa chief executive Mthozami Xiphu said yesterday that Shell had until April 14 to submit its EMP. Unresolved objections could be taken to the Regional Mining Development and Environmental Committee “for consideration and advice to the minister”. Pasa would consider the CER’s legal arguments for extension and respond within two weeks.

The CER simultaneously called for a strategic environmental assessment of the “flawed environmental management regime” of the Minerals and Petroleum Resources Development Act (MPRDA). Mineral Resources Minister Susan Shabangu is currently overhauling the legislation.

CER executive director Melissa Fourie said that had Shell’s application been brought under the National Environmental Management Act (Nema), rather than “outdated, inappropriate” provisions in the MPRDA, there would have been a comprehensive environmental impact assessment.



“Instead, we now have this rushed, piecemeal application for exploration rights that ignores the integrated approach to sustainable development required by Nema and the constitution, and pretends that exploration is somehow unconnected to large-scale shale gas development in an arid, ecologically sensitive part of the country.”

The review led by the Karoo Action Group said a flawed regulatory environment created an “extremely high risk” of issues falling through the cracks because of the fragmented requirements of the MPRDA and Nema, as well as permits for water, emissions and waste.

It also noted a “probable” conflict of interest for Pasa, which is mandated to both promote and regulate oil and gas exploration. The review, led by three specialists in environmental law and science, with input from another 16 experts, raised concern about a “serious lack of capacity” by the state to monitor and enforce compliance with any conditions of approval for fracking.

It highlighted “sincere and significant concerns” in the US, UK, France and Canada around the environmental and health impacts of fracking.

The review took issue with the failure of Shell’s EMP to identify specific drilling sites.

Jonathan Deal, the national co-ordinator of the Karoo Action Group, took issue with Shell’s focus on “a short-term solution that reflects the attitude of big oil and big business”. Fracking benefited “very few people – after 15 years the resource is exhausted, and they leave an absolute mess behind them”.

## Stop fracking, scientists urge Zuma

**Several South Africans and scientists have called on President Jacob Zuma to stop the use of the gas extraction technique known as hydraulic fracturing.**

April 6, 2011  
Business Day

*British environmental campaigner, Lewis Pugh during a public forum at the Kelvin Grove Club in Newlands, Cape Town surrounding Shell’s plans to extract or frack natural gas from the Karoo Basin.*

*Image: Gallo Images*

South African and foreign scientists contributed to a report that calls on President Jacob Zuma and his government to impose an immediate halt to the proposed use in SA of the gas extraction technique known as hydraulic fracturing (fracking) .



The report was handed to Mr Zuma’s parliamentary office yesterday, as well as to the Petroleum Agency of SA (Pasa) and to Golder Associates. Golder is the environmental consultancy that produced a draft environmental management plan which is part of petrochemical giant Royal Dutch Shell’s application to explore the Karoo for shale gas .

Pasa is the statutory body that is to use the plan to make recommendations to Mineral Resources Minister Susan Shabangu on whether she should allow Shell the exploration rights . Pasa is considering at least two other applications for shale gas exploration in the Karoo.

Ms Shabangu is expected to make a decision in August. Yesterday was the last day for the receipt of public comment on Shell's draft environmental management plan.

The US, UK, Canada and France have all imposed moratoriums on fracking until more is known about its effects on the environment and on communities. The scientific review handed to Mr Zuma's office was compiled by specialist energy lawyer Luke Havemann and included inputs from water, public health, palaeontology, archaeology, biodiversity, ornithology, energy and heritage experts. Also yesterday, the Centre for Environmental Rights , a nongovernmental organisation, wrote to Pasa requesting an extension to the deadline for comments on the draft environmental management plan of at least another 120 days.

During this time the centre would provide information to "disadvantaged and vulnerable communities" in the Karoo about their environmental and participatory rights in Shell's application. The centre would also assess what additional information communities needed to make an informed decision , executive director Melissa Fourie said.

Shell's plan to explore for shale gas in the Karoo was affecting international sentiment towards SA's bid to host the Square Kilometre Array telescope site , scientist Adrian Tiplady has warned. Australia and SA are bidding to host the radio telescope, with a decision due next year. The telescope site will cost €2bn to build, and require €150m-€200m a year for 50 years for maintenance and operations.

Opposition to fracking in the Karoo has been fierce, and backed by influential figures such as businessman Johann Rupert, CEO of Richemont , and Princess Irene of the Netherlands. Lawyers for a group of Karoo residents and landowners that includes these two have already claimed Shell's draft environmental management plan does not comply with the law because Golder Associates is to publish its final plan only next Thursday, more than a week after yesterday's public comment deadline, meaning residents have to comment on a draft.

Shell SA upstream communications manager Kim Bye Bruun said the company respected people's right to oppose its application, and to ask for an extension for comment .

# Shell's South Africa Shale Exploration Plan Should Be Halted, Lawyers Say

Carli Lourens  
Bloomberg  
April 6, 2011

[Royal Dutch Shell Plc \(RDSA\)](#)'s application to start shale-gas exploration in South Africa's Karoo region should be terminated because it lacks sufficient information for regulators to assess it properly, Havemann Inc. attorneys said.

Shell, planning to drill about 24 wells in an area of about 90,000 square kilometers (34,749 square miles), faces opposition to its proposed hydraulic fracturing, known as fracking, in the sheep and game farming region, an arid stretch across northwest South Africa, from the [Treasure the Karoo Action Group](#), which has 3,000 supporters and commissioned Havemann to compile the report.

"Information about the proposed activities is incomplete; information about sources of water is absent; information on chemicals to be used in fracking is missing," the Cape Town-based specialist attorneys' firm said.

The government's capacity to evaluate and enforce compliance by Shell "is in serious doubt," Havemann also said in the report, adding that the Department of Water Affairs "has less than a third of the officials it needs to enforce compliance." Linda Page, a spokeswoman for the department, didn't immediately respond to a message left on her mobile phone.

Shell said last month it expects the national petroleum agency to decide whether to award the three permits it applied for in three different areas by or on Aug. 12. Dennis Matsane, a spokesman for the company in [South Africa](#), didn't immediately respond to a message left on his mobile phone.

Shale formations consist of dense rock that can be broken apart to release trapped oil and gas. Advances in directional drilling and so-called hydraulic fracturing techniques have increased production from shale fields. Hydraulic fracturing injects water, sand and chemicals into the rock to crack it.

# The dirty oil touch

April 7, 2011  
Verashni Pillay  
Mail & Guardian Online

I was fortunate enough to win a writing grant at the age of 23. After paying off my student loans I cast around for an investment. It was a big word and I was a big girl, ready to take on the world. Cue the announcement of a local oil company's BEE shares a while later. I put a rather large sum down.

A few years later, the shares are worth far less than my original investment. And my new-found moral reservations around big oil and the deepening energy crisis we're facing is enough to make me look back and go: *what the hell was I thinking?*

One way or another, big oil companies will [screw you over](#).

But as oil supplies run dry, the trillion-dollar industry has looked for other avenues to exploit. And no, it's nothing as readily available as sunshine or wind. It is natural gas, dubbed "clean" in a classic case of saying what people want to hear and not at all what you mean.

Fracking, or hydraulic fracturing, involves drilling down into the earth and forcing open rock to release gasses trapped inside. Thousands of litres of water are used on a typical well, along with hundreds of different chemicals. Disposing of the waste water after the process, which is highly toxic, is one of the biggest problems.

## It's a gas

I'm ashamed to say I didn't know much about fracking till a politely-worded invitation from Shell to visit their gas operations in the US landed in my inbox, following "much media interest in unconventional gas in South Africa following our license applications in the Karoo".

The global oil giant spearheading the venture is now on a charm offensive.

The big guns at Shell have held press conferences all over the country in a bid to get their Karoo fracking operation off the ground by 2013. They intend exploring three areas making up 90 000km<sup>2</sup> in the Karoo for gas deposits in shale rock, in an area and country where water security is already a great cause for concern. Yet they are unable to guarantee that our water supplies won't be affected. "Never say never," said Graham Tiley, general manager of new venture executions at Shell, at the Johannesburg press conference.

Neither can they disclose the full list of chemicals being pumped at high pressure underground, apparently because it changes from site to site. This obfuscation is reminiscent of the dire recent history of fracking in the US, which has seen ground wells explode, household water supplies infected and endless court cases that deliver very little justice.

In *Gasland*, the Oscar-nominated and Sundance winning documentary on fracking in the US, the disturbing image of tap and river water being set on fire is shown repeatedly. Critics in the industry have slammed the producers of the film, saying that in many cases the water is flammable because of

naturally occurring gas in the area, and has nothing to do with fracking. They're probably right -- for a minority of cases. The rest will have a long, pointless and poverty-inducing battle in court to prove otherwise.

## **Prove it**

While Shell promises "full compensation to any landowner with documented direct negative impact or loss on their land as a result of our activities", [one local commentator](#) points out: "Even if the chemicals found in tap water were identical to the fracking cocktail, how can anyone prove causation between the two without looking underground? And documenting it? It would be like trying to find someone who farted in a crowd, and spending millions of dollars on it."

In direct contrast to Shell's clean and slick PR campaign around fracking is the reality of the operations. Have I seen an actual hydraulic drill? No. The ones Shell is offering to take me to on its media jaunt are "world-class". They are probably a far cry from the hastily thrown together rigs that dominate the American landscape shown in *Gasland*. The narrator notes they look like the first cars made: zero safety mechanisms.

Pits of waste water lie open to the air. Sometimes they're sprayed into the sun, to aid evaporation. Acid rain anyone? Numerous cases are shown of toxic water finding its way into rivers and drinking sources.

In Pennsylvania this time last year one company was banned from the state after an investigation found they had allowed combustible gas to escape into the region's groundwater supplies.

A well blowout in the same state in June 2010 sent more than 132 489 litres of hydraulic fracturing fluids into the air and on to the surrounding landscape in a forested area.

## **Health issues**

Remember, while we don't know exactly what the chemicals being released are, a number have been identified as carcinogens as well as endocrine disruptors, which interrupts hormones and glands in the body that control development, growth, reproduction and behaviour in animals and humans. *Gasland* showed flammable gas bubbling up in rivers, dead birds and rabbits, and several instances of residents near the wells suffering severe health problems including constant headaches, swelling, loss of smell and taste, and body pain.

I won't get to meet any of these people if I go on Shell's PR jaunt. I will meet experts who will discuss air and water quality, wildlife monitoring and mitigation and technology, "including directional drilling to minimise our footprint and catalyst technology to reduce air emissions". And I'm sure safety regulations have now been put in place.

And that's why I'll be sending someone far more informed than I to ask the hard questions. Because the little that I know is not enough, and we definitely don't need anymore hot air on the subject.

But thankfully we have been forewarned. Like my 23-year-old self, the US flirted with big oil's latest venture naively. That experience is invaluable to us and we can't let it go to waste. We must use all the resources we have to understand what is being brought into our country, and stop it if needs be.



## Shale gas stirs ecology fears in South Africa's Karoo

Ruona Agbroko

Reuters

April 8, 2011

JOHANNESBURG (Reuters) - South Africa's Karoo, a vast arid wilderness, may contain gas reserves that could solve the country's energy problems -- but only through an extraction process called fracking that has greens seeing red.

The sprawling and ecologically sensitive region, home to rare species such as the mountain zebra and riverine rabbit, may hold vast deposits of natural gas in shale rock deep underground.

Once unobtainable, such reserves can now be exploited with new techniques and could serve as a badly needed energy source for Africa's largest economy, which is heavily reliant on coal.

Petrochemicals group Sasol, Anglo American and Falcon Oil and Gas are among those eyeing shale gas in the region, although oil giant Royal Dutch Shell is leading the pack with exploration rights to 90,000 sq km (34,750 sq mile).

But farmers and conservationists are opposed to shale gas development in a parched region famed for its succulent lamb, big skies and rare plant and animal life.

Public concern focuses on hydraulic fracturing or "fracking," in which drillers blast millions of liters of [water](#), sand and chemicals at high pressure into underground rock to create cracks for gas and oil to escape.

A local environment group has vowed to take the matter to court if Shell or anyone else gets the green light.

“We will pursue an interdict against the government and or any other applicable party to reverse any decision to award an exploration license,” Jonathan Dean, coordinator of the Treasure the Karoo Group (TKAG), told Reuters.

Environmentalists say natural gas helps reduce carbon emissions as it burns more cleanly than coal or oil.

But the anti-fracking lobby says the technique may well violate parts of South Africa’s constitution that enshrine the rights to water and “ecologically sustainable development.”

Energy attorney Luke Havemann, who compiled a report presented to President Jacob Zuma this week, told Reuters South African legislation “simply does not allow for the advent of fracking.”

## **WATER WARS**

The report said Shell’s 24 proposed exploration boreholes could use up to 144 million liters of water, putting the company in competition with farmers and wildlife in the Karoo.

But the multinational insists it will not be taking other people’s water, even if the exploration leads to more wells being sunk to extract gas on a commercial basis.

“Nobody will go short of fresh water because of our operations, either in the exploration phase, or if there is any further development,” spokesman David Williams said in an e-mailed response to questions.

Shell was developing plans to find its own water and would help meet any community shortages, he added.

The company would also submit an environmental management plan to the government by an agreed April 14 deadline, he added, despite calls for a delay to allow more time for public comments.

Opponents of fracking argue that it produces leftover wastewater containing [cancer](#)-causing substances. Supporters insist the practice is safe, noting that it is done much deeper below ground than most water sources.

The U.S. Environmental Protection Agency (EPA) is currently studying the impacts of fracking on drinking water. Initial results are scheduled for release in 2012.



# Shell, enviro watchdog set to clash over plans to undertake hydraulic fracturing in the Karoo

Jonathan Faurie  
Mining Weekly  
April 8, 2011

*U.S. example. The shale gas operation envisaged in the Karoo will be similar to the Pinedale operation, in Wyoming, U.S.*



Environmental watchdog Treasure the Karoo Action Group (TKAG) and Shell South Africa are set to clash over the oil company's application to the Department of Mineral Resources to embark on a hydraulic fracturing (fracking) programme in the Karoo region of the Northern Cape, Eastern Cape and Western Cape to gain access to onshore gas reserves that can be used as an energy source.

At the heart of the imminent clash is the fracking process, which involves the drilling of deep wells down which a highly pressurised fracturing fluid is pumped. This is then injected into the shale gas formation, unlocking the gas and allowing it to make its way to the surface, where it is then captured. Shell reports that the fluid injected is commonly water and sand.

TKAG national coordinator and spokesperson **Jonathan Deal** says the major opposition point of the group is the "unsustainable nature of the resource".

"Fracking should not be an option while there are viable, sustainable and environment-friendly alternatives to mining and burning shale gas for power. It makes no sense to destroy the economic activity and potential of the Karoo, including tourism revenue, in pursuit of a resource that will last between 5 years and 15 years," says Deal.

He adds that the alternatives do not involve the mining of shale gas, but instead the development of renewable-energy sources, such as wind and solar energy.

Shell new venture exploration manager **Janneke Abels** tells Mining Weekly that Shell is aware of the growing opposition to its proposed operations in the Karoo.

"Shell has heard and respects the stakeholders' concerns, and has offered a series of commitments that it feels will increase trust, allow for more effective dialogue and information sharing and address the most contentious issues. If awarded the exploration licence, before any invasive operations, like drilling, could occur, Shell will have to complete detailed, site-specific environmental-impact assessments (EIAs) that will deal with issues identified in the environmental management plan (EMP) process," says Abels.

Deal reports that approval of Shell's application will set a dangerous precedent.

Shell's application, which they claim is for 24 wells in three precincts of 30 000 km<sup>2</sup> each, would imply that other prospecting companies, which include Falcon Oil & Gas, Bundu Gas and Sasol, could expect a favourable decision on similar applications.

"The enormity of the areas involved, 230 000 km<sup>2</sup>, excluding Sasol's application, and the invasive and destructive nature of hydraulic fracturing would lay waste to the Karoo, initially above ground and then underground too. "Consider the amount of trucks required to drill and frack one well pad. A well pad, typically 0,01 km<sup>2</sup> in size, can have more than eight wells, which means that between 9 000 and 11 000 truck loads will move across the Karoo roads to service one well pad," says Deal.

In response to allegations of the possibility of underground water contamination, Abels reports that Shell does take measures to prevent this.

"The key to ensuring no water contamination occurs is well integrity. Shell has very robust well design standards. The company's wells are lined with multiple strings of casing and are cemented from the surface to below aquifer water levels. Through microseismic technology and other tools, the company knows that the fractures do not grow from the reservoir depth to groundwater depth. "Shell South Africa will share its well design and aquifer protection plans, and will adopt best practices from around the world. Best practices include the use of standards and guidelines around multiple barriers and cement- ing as well as monitoring," says Abels.

He reports that there is no other way to release the natural gas from the shale formations than hydraulic fracturing.

"This is a well-established and key industry technology, which is safely conducted throughout the world in thousands of oil and gas wells every year. Without it, much of the world's oil and gas resources could not be produced. Shell is confident in its ability to responsibly develop shale gas resources, and has a record in North America to prove this," says Abels.

She adds that the company's advanced drilling techniques already limit the number of wells it needs to drill, lowering its impact on the environment. Shell also takes steps to restore the land to match its surroundings once a drilling location is complete.

"An example of this is Pinedale, in the US state of Wyoming, which is a similar natural gas project to that envisaged in the Karoo. Shell worked with the Bureau of Land Management on successful restoration of the natural vegetation," says Abel.

Deal points out that, although Shell is confident that its operations in North America are without blemish, one cannot look past the fact that the potential for significant groundwater contamination is very real. He also fears that the same is in store for the Karoo.

"In the US, nearly nine out of ten onshore wells have been hydraulically fractured and there have been no proven cases of contamination of groundwater sources through hydraulic fracturing. "This has been confirmed by the director of the Environmental Protection Agency (EPA) **Lisa Jackson**, who said that the EPA doesn't have any evidence of chemical contamination of water from fracking chemicals," says Abels.

Another significant concern of the TKAG is that the fracking operations will cause significant job losses within the region.

“Shell does not see how anyone would lose their job because of Shell South Africa’s natural gas exploration plans. On the contrary, the company will aim to maximise the use of local resources whenever technically or economically feasible,” says Abels.

## **Moratorium on Gas Exploration Applications is Required**

April 12, 2011

Stop Fracking the Karoo, blog

These applications have resulted in significant opposition from stakeholders, including likely to be affected land owners in the Karoo, tourism bodies and environmental groups, mainly because of the proposal by the applicants to make use of a controversial technique called hydraulic fracturing, or fracking, to test whether gas will flow. The possible negative effects of fracking have already been well documented by stakeholders in recent weeks. Among other things, fracking is a process involving the use of millions of litres of water per fracking event and a toxic cocktail of fracking fluids. It has the potential to pollute water courses if mistakes occur, and poses significant challenges for effective waste management.

The proposed processes are new to South Africa, and thus as a country we should not rush into approving them. While thousands of wells have been fracked around the world, most notably in the USA, South Africa would be ill-advised not to notice the concerns that have been raised elsewhere in the world. Pollution incidents can and do happen. The Minister simply cannot ignore that the Environmental Protection Agency in the USA is currently studying the possible negative relationship between fracking and drinking water quality, after the US Congress mandated it to do so last year. The study is only due for completion in three years time.

By the Minister’s own acknowledgement, in a reply to a DA parliamentary question last year, there is no policy on fracking in South Africa. The Mineral and Petroleum Resource Development Act (MPRDA) provides in general terms for an applicant to demonstrate its technical ability to conduct exploration in line with best industry practice. The Petroleum Agency South Africa (PASA) is tasked with ensuring that operators have the required means, skills and understanding of any exploration activity. These provisions set off a number of alarm bells.

PASA, which is the designated authority by the Minister of Mineral Resources tasked with making a recommendation to the Minister on whether particular applications should be granted or not, has no experience of regulating fracking. While applicants are at pains to point out that they will report any pollution events if they occur and will remediate affected areas, the Department of Mineral Resources’ record of defending the public interest against mines that deviate from their environmental management plans is exceptionally weak. The Minister refused in a reply to a parliamentary question last year to divulge details of actions taken by her Department against mines with environmental transgressions. So how can the public be assured that our government will monitor and enforce the law if fracking occurs?

Dealing with applications for onshore gas exploration is new to PASA. This small agency, with a miniscule staff and possessing a budget which by its own admission will not see it adequately through the next two years, is not in a position to make a considered decision on applications that to date cover a landmass of South Africa in excess of 200 000 square kilometres.

The procedures around processing gas exploration applications is equally new to the consultants working for applicants and to the interested and affected parties participating in the prescribed processes of public consultation, as mandated by the MPRDA. Applications for gas exploration rights are in practice fundamentally different from applications for prospecting and mining rights.

Mining applications are relatively contained in terms of the areas they impact upon, usually only a handful of portions of land at most, and the consultation can (in most cases) be done within the prescribed time frames. But with gas exploration, as is the current experience, the sizes of applications cover tens of thousands of square kilometres without any information provided at the application stage on the actual proposed drilling sites. In approving any application PASA becomes the de facto land use arbiter of these extensive areas, with implications for the democratically approved Integrated Development Plans of affected municipalities. It further renders useless the spatial planning framework for South Africa yet to be released by the National Planning Commission.

In addition, these exploration rights can have fundamentally negative impacts on the value of land in the exploration areas. Because land owners do not know where the drill sites will be, as these will only be identified after the granting of rights to applicants, thousands of individual land owners will live in constant fear that their land could be the next drilling site. As exploration rights are awarded for three years, with the option to renew for up to a further six years thereafter, land owners could be held in perpetual limbo, affecting their abilities to easily dispose of land or to develop it as they see fit.

Due to the problems associated with interested and affected parties understanding the proposed fracking processes, the massive extent of land under application and the very narrow timeframe for consultation, it is my considered opinion that the processing of these applications cannot be done fairly and meaningfully. By the admission of consultants working on one of the exploration applications, they themselves feel rushed by the timeframes. It seems implausible that the applicants will be able to prove that they have informed all affected parties before the submission of their final Environmental Management Plans (EMPs).

Notwithstanding that many affected parties may be left out of the consultation process for whatever reason, PASA will have to consider the summarised comments of thousands of stakeholders who have commented on the various applications during the drafting of the applicants' EMPs. In my opinion however, PASA has already shown bias towards the process of fracking before the consideration of public comments. At a portfolio meeting in Parliament on 16 March 2011 a staff member of PASA attempted to play down the known impacts of fracking, arguing they could be mitigated. This suggests PASA may already have made up its mind about the suitability of fracking before it has even officially begun to apply its mind to the submitted EMPs which include fracking as a proposed technique. This may be a material defect in the process.

Approving gas exploration rights need not be rushed. There are many substantial reasons to suggest that the current processes are underway are unfair, flawed, and will have unintended consequences if approval of rights are rushed through. The Minister would do well to go back to the drawing board and to learn from the real concerns that South Africans are raising about gas exploration.

# Who wants to frack with SA?

***Shell has faced the flack about proposals to mine for natural gas in the Karoo, but there are others to name and shame, writes Andreas Späth***

April 13, 2011  
Andreas Spath  
Times Live

*UNDER THREAT: Proposals to extract natural gas in the Karoo have many South Africans up in arms because the technology used during the procedure requires many millions of litres of water, and leaves ground water supplies contaminated.*

*Picture: RUVAN BOSHOFF*



**The Read Big: Fracking should not be allowed in South Africa. Ask just about any South African who's heard about it - sheep farmers, rural labourers or even city-slicker geologists like myself - and they'll tell you that fracking is dirty, wasteful of water and a solution to nothing but short-sighted corporate greed. It's a no-brainer: we don't want it.**

Fracking - oil and gas industry slang for "hydraulic fracturing" - is a technology used to extract natural gas trapped as tiny bubbles in underground layers of gas shale. After a well has been drilled into a stratum of gas-bearing rock, large quantities of fracking fluid, consisting of water, sand and a cocktail of chemicals, is pumped into it at high pressure, fracturing the source rock and allowing the gas to escape towards the surface.

Each fracking event requires millions of litres of water, and each well may be fracked several times for gas extraction. Many of the chemicals injected into the ground during the procedure are known environmental and human health hazards, including carcinogens.

In the US, where hundreds of thousands of shale gas wells have been fracked in recent years, numerous instances of ground water contamination have been documented.

At this stage, in my standard explanation of fracking, most people have heard enough.

"They use how much water? And inject what into the ground? In a water-stressed country like South Africa? That's insane."

But it gets worse. To establish and run a well requires hundreds of trips by heavy trucks. An extensive network of drill rigs, gas and condensate tanks, waste water pits, refineries and pipelines would dot and criss-cross the Karoo landscape. And we haven't even started to consider exactly where the water needed is supposed to come from, let alone what's going to happen to the millions of litres of

contaminated waste liquid, and how all of this will be monitored and regulated in our chronically under-capacitated country.

What about claims of new jobs and economic stimulation? Shell has publicly acknowledged that the job creation potential for their proposed fracking operations here is limited, and one of their consultants is on record saying “the Karoo economy will not survive gas mining”.

Need more convincing?

Whatever natural gas resources are discovered in the rocks beneath the Karoo and elsewhere in South Africa will most likely be exploited within a few decades of fracking and contribute substantially to our already enormous national carbon footprint. Shale gas is nowhere near as clean as the industry makes it out to be: a full life cycle analysis by scientists from Cornell University in the US shows greenhouse gas emissions from fracked gas may be as high as twice those of coal.

Who are the people who want to lead us down this environmentally dangerous, short-lived, fossil-fuelled dead-end? It's time to name and shame.

So far, Shell has borne the brunt of popular anger and negative media outpourings, and rightfully so. The multi-national is proposing to explore for shale gas in 90 000km<sup>2</sup> of Karoo. But there are other companies looking to be granted exploration licences, including: a consortium comprising Sasol , Statoil from Norway and the US-based Chesapeake Energy Corporation (parts of Free State, Eastern Cape and KwaZulu-Natal); Falcon Oil & Gas (Karoo); Anglo American (Karoo); Bundu Gas & Oil (Karoo); and CopaNet, Iningi Investments and others (Limpopo).

Other than these companies, the political apparatchiks they have in their pockets and the odd journo they've schmoozed, you'll be hard pressed to find a reasonable South African who, on being presented with the overwhelming evidence against fracking, would be willing to support this technology.

At least that's what I thought until a recent road trip through the Karoo, when some locals told me they were worried that many struggling farmers might find it difficult to resist the lease payments the gas companies will offer them if fracking were to happen.

Which is why those who oppose fracking should do everything to stop government from granting shale gas exploration permits, and pressurise them to create an environment in which farmers can mine an alternative energy source that truly is clean and sustainable, and one with which South Africa is endowed: the sun.

# Shell and other convicted “rapists” at large in SA

April 13, 2011

Bush Babe

Picture your son or niece, wife or friend being gang raped while you stand by helplessly. See the five huge rapists bending over them while they scream and bleed. Do I have your attention?

The outrage about hydraulic fracturing (fracking) in the Karoo is building up a nice head of steam. This is good. It's noble. But please, my innocent poppets, do not imagine for a second that we will escape this rape by signing petitions.

How do you imagine a country with our fantastical levels of corruption and our world-class apathy when it comes to public dissent will manage to slap Zuma and his revolting cadres into line or send huge corporations packing? We can shout. We can stamp and yell. We can sign petitions as we have done for umpteen other causes. Stop crime, stop corruption, fix this, stop that, prevent the other. Think back. How well did any of that work out for us?

We seem to forget that we have an African democracy. Allow me to translate. This means we pack the finest paperwork ever seen in the history of human rights but none of it means a fracking thing. It's paper. Africa laughs at paper. Africa spits on paper. It is meaningless. African democracy works like this: if I have an AK47 and/or 25 billion dollars and if you and your dorky protest buddies have placards and a signed petition, guess who wins the argument and/or the contract? Paper and public protest is meaningless to African politics unless it comes with a side serving of ongoing, violent, civic disobedience. Here endeth the lesson.

Now, about this fracking...In a nutshell, our government has granted permits to five (five!) major companies and consortia to evaluate the country's shale gas reserves. Please understand that this is a fait accompli. When our particular brand of rulership says it is 'considering' something, you can bet the family silver the deals are already struck, money has changed Swiss bank accounts and the wheels have been turning for a long, long time.

The alarm went off too late. The rapists are in the house. Right now they are moving quietly through our country, sliding their hands under the curves of veld; probing deserts and hidden valleys. The violation will come later, once they've sussed out the landscape. The hitmen work for Royal Dutch Shell, Falcon Oil & Gas, Anglo American, Bundu Gas and Oil and a joint venture between Sasol, Statoil of Norway and Chesapeake Energy of the USA – all evildoers of immense proportions.

Shell has a particularly lengthy rap sheet of ecological and human rights abuses. It is truly breathtaking but too long for this column. Please inform yourself by visiting [www.corporatewatch.org](http://www.corporatewatch.org) or simply Google 'shell human rights violations'. And that's just Shell. The others are equally heinous thugs. Be afraid. You can hear their footsteps. Soon the door handle will turn. They are here.

I hope you've grasped the scope of this. These are the big guys. They have resources behind them that we cannot imagine. They are linked to global power brokers that you and I can't conceive of. These are massively powerful corporations that instigate and manage wars over oil and minerals. They practically run countries. You can be sure they are running rings around our shortsighted, blubbery



ANC domestics.

While greenies get their tie-dyes in a twist about the precious Karoo, the same companies are busily assessing geological maps from Worcester to PE, sweeping on through the Eastern Free State and deep into the KZN midlands and further. It's not only the Karoo that's in peril. We're talking about a huge chunk of South Africa while God alone knows what's happening to the rest of Africa.

Plenty has been written and said about the dangers of hydraulic fracturing. Briefly, it uses up millions of litres of water (on average 20 million litres per drilling). As a water-poor nation we cannot afford this. Worse, the process itself requires huge quantities of over 200 different horrifying chemicals such as benzene, formaldehyde, various acids and pesticides all of which leach into and poison groundwater, river systems and dams.

These chemicals are recognized carcinogens and endocrine disrupters. In real terms, this means you and me and some of our friends and someone's baby will get pancreatic cancer or be born with terrible defects. Endocrine disrupters cause defects in reproductive systems and growth development. Think fish without fins, birds hatching with no eyes, children born sterile or with mental and physical defects, as well as many variations of neurological and immune system defects in humans, domestic livestock and wildlife. These chemicals remain in the soil and water for generations. They find their way into animal and plant tissue, the ocean, rain and the air. Everything we eat and drink will carry these chemicals into our lives. Money, social advantage and living in posh enclaves will not protect any of us from this poison once it gets into the arteries of the country. Every living thing will be affected.

When hydraulic fracturing is over and the gas has been removed (and profits taken offshore); when Shell and the others are long gone, the legacy that remains will be poisoned water and devastated environments. Finally, shale gas is a highly tenuous fossil fuel option. It too will run out and it will do so a lot faster than oil (the productivity of a shale gas extraction well is very limited and declines drastically over the first five years). So this entire holocaust will result in a very confined outcome. Fracking has been used in the US and Canada where widespread public fury has begun to force a halt. Typically, the next obvious step is for the same corporations to buy their way into the backyards of the dumb, greedy third world with a handful of brightly coloured beads.

Here's how our government and the companies they sell us out to will convince us it's okay:

They will tell us how many jobs it will create. They will point to knock-on economic prosperity.

They will prove that their 'natural, clean solution' will alleviate energy shortages.

There will be gigantic hearts and minds campaigns explaining how they plan to protect us and the environment and put everything to rights after the mining.

They will conduct transparent environmental impact studies and invite all manner of public participation. When this time comes, please remember that EIA studies are widely acknowledged to be highly corrupt, even by EIA companies themselves.

The bid-winning company will build clinics and schools. They will plant forests, fix roads, fund cycle races and fly to the rescue of underfunded wildlife foundations.

They will pour money into needy communities. Talented, shiny-eyed kids will be sponsored to learn the cello in Vienna with world famous teachers. Others will be provided with kidney transplants their

families can't afford. South Africa's hearts will melt.

They will schmooze this country into a coma. And then they will frack us over and over till we pray for death.

Get ready.

They are here.

## Fracking also a climate change risk, study says

### DA spokesman alerts Minister to study about hydraulic fracturing gas extraction.

April 14, 2011  
Sue Blaine  
Business Day

*A scene from the Karoo*

THE Democratic Alliance's water and environmental affairs spokesman, Gareth Morgan, has alerted Water and Environmental Affairs Minister Edna Molewa to a peer review study that reveals hydraulic fracturing gas extraction (fracking) releases more methane than previously thought.



Methane is a greenhouse gas considered a greater risk than carbon dioxide (CO<sup>2</sup>) for climate change.

Several oil and gas companies, including multinational Royal Dutch Shell, have applied to explore the Karoo's shale gas beds to see whether SA has exploitable reserves.

The study, by US ecologist Robert Howarth of the US Cornell University, appears in the May issue of Climatic Change Letters, a new section of peer review journal Climatic Change that provides a vehicle for rapid publication. It is also to be published in Climate Change.

According to PhysOrg.com, Prof Howarth said natural gas was mostly methane. ). 2). Even small leaks made a big difference. Prof Howarth He estimated up to 8% of the methane in shale gas leaked into the air during the lifetime of a hydraulic shale gas well — up to twice what escaped from conventional gas production. The study meant “shale gas is worse than conventional gas and is, in fact, worse than coal and worse than oil”, Prof Howarth said.

“We are not advocating for more coal or oil, but rather to move to a truly green, renewable future as quickly as possible. We need to look at the true environmental consequences of shale gas.”

At the 2009 Copenhagen climate change talks SA pledged to reduce greenhouse gas emissions by 34% below expected levels by 2020 and 42% by 2025, subject to financial, technological and other support.

Mr Morgan said the study added weight to the argument for a moratorium on gas exploration rights till more was known about fracking.

Ms Molewa's spokesman, Mandla Mathebula, said the minister welcomed "any piece of information", but would make her own decision.

Mr Morgan said he wrote to Ms Molewa asking her to engage with Mineral Resources Minister Susan Shabangu on the matter.

## Shell submits EMP for its Karoo shale gas project

Loni Prinsloo  
Engineering News  
April 14, 2011

International oil and gas group Shell said that the environmental management plan (EMP) for its proposed Karoo shale gas project would be made available to the public on Thursday evening.

Communications manager **Kim Bruun** said that interested stakeholders would be able to view the document, which was submitted to the Petroleum Agency of South Africa (Pasa) on Tuesday, on the website of independent consultants Golder Associates.

Pasa would now evaluate the document, of about 4 000 pages, as part of the process to consider whether to grant or decline Shell's licence applications, with a conclusion expected in August.

Earlier this month, Pasa also accepted a 104-page written objection against Shell using hydraulic fracturing, or fracking, in its search for shale gas in South Africa from the Treasure the Karoo Action Group.

The document was a critical review of the energy group's draft EMP, stating that the plan contained insufficient information and was vague around issues such as the source of the water that would be required for fracking in the water-stressed region.

It also elaborated on potential damages to people and ecosystems, which could result from possible contamination of surface water and groundwater, given the use of toxic and hazardous chemicals and the fundamental dependence on water for livelihoods.

Fracking involves the injection of a liquid chemical mixture in vast quantities of water into deep boreholes to create pressure to cause fracturing of rocks, which will determine the extent of the shale gas reserves.

But, Bruun said that all 6 300 questions that had been raised by different stakeholders had all been answered in the final EMP.

If Pasa approved the EMP, a separate environmental impact assessment will have to be completed before the first exploration well is drilled.

# Opposition to Shale Gas Exploration in South Africa Remains Strong

April 15, 2011  
IHS - Global Insight

*As Shell has submitted its Environmental Management Plan (EMP) as part of its application for shale gas exploration rights in South Africa, local opposition to its prospective operations has refused to recede and the government may be compelled to make a controversial policy decision.*

## **IHS World Markets Energy Perspective**

**Significance:** Shell is nearing the completion of the application process for shale gas exploration rights in South Africa, while concerns over how shale operations may affect the environment and the nation's bid to construct an important astronomic telescope abound.

**Implications:** Concerns remain that shale gas exploration could harm the environment and put scarce water resources in jeopardy. There are also fears that it could also negatively interfere with the government's plans to become a leading scientific and astronomic destination.

**Outlook:** Due to South Africa's own search for additional gas reserves, the government could decide to lift the ban placed on new applications for shale gas but given the current opposition to shale, it is likely that future operations could be disrupted by protest action, denting company reputations.

Yesterday (14 April), Shell made public its Environmental Management Plan (EMP) for its proposed Karoo shale gas project in South Africa. The Petroleum Agency of South Africa (PASA) will evaluate the 4,000-page document as part of Shell's licence application process, with an outcome expected in August. In contrast, PASA has also accepted a 104-page objection from the "Treasure the Karoo Action Group" against Shell's proposed use of hydraulic fracturing in its search for shale gas in South Africa. The juxtaposed documents presented to the regulator of the South African upstream industry illustrate the rising tensions between local communities, politicians, and energy companies ahead of the next potential shale gale. It has long been known that there are shale gas reserves in South Africa's Karoo region, an arid area spanning the Northern, Western and Eastern Cape provinces that is home to sheep farms and unique fauna and flora. Soekor, the former regime's NOC, first identified the region's shale potential in the 1980s after failed attempts to drill for shale oil. The exploration efforts were, however, abandoned and it was not until the shale gas "revolution" hit North America that interest in the Karoo picked up.

Shell is by no means the only company that will engage in shale gas exploration, however, but has perhaps been singled out by its international prominence. Falcon Oil and Gas was an early entrant, obtaining a technical co-operation permit (TCP) covering 30,000 sq. km on the southern edge of the Karoo Basin. Sunset Energy holds a TCP for 4,600 sq. km to the west of Falcon's area, while a Sasol/Chesapeake/Statoil joint venture holds a TCP area of 88,000 sq. km. Anglo American has applied for a TCP for an application area of 50,000 sq. km. Shell, on the other hand, obtained a TCP

covering the biggest area of all, namely 185,000 sq. km. A TCP is a permit that allows the holder to conduct a desktop study and acquire seismic data on the acreage, but does not include any prospecting and exploration activities. It is valid for one year only, after which the holder has exclusive rights to apply for an exploration licence for that area. Shell has already done so, in fact submitting the EMP is a key part of its exploration application and it is highly probable that the other companies holding TCPs will follow suit. The government is also planning to hold four licensing rounds before the end of 2012 which will pertain to onshore oil and gas exploration, and is highly likely to include licences for shale gas (see **South Africa: 9 March 2011: South Africa to Hold Up to Four Onshore Licensing Rounds Before End of 2012**).

## **The Environment and Shale Gas**

Shale gas exploration requires a procedure called hydraulic fracturing (commonly referred to as “fracking”). The process involves pumping millions of litres of water mixed with a cocktail of chemicals into wells under high pressure. This causes the rocks to break apart, thereby releasing the trapped gas to the surface. This procedure often has to be repeated more than once. According to its application, Shell’s proposed exploration will apparently entail drilling 8 boreholes in each precinct (24 in total) up to a depth of 5 km, over a three-year period, which could be extended to nine years. It appears that each well will need between 0.3 million and 6 million litres of water, which implies that Shell’s exploration programme alone would require between 7.2 million and 144 million litres of water. The crux of the widespread opposition to shale gas exploration arises from the fact that the Karoo is a semi-desert area, and not only are natural water sources scarce, but the region is also prone to drought. Thus far, none of the companies have managed to come forward with a viable solution of acquiring sufficient water and how it will be transported to the exploration sites. The second issue is that the chemicals used, which could include known carcinogens, may filter through to the groundwater and underground reservoirs, contaminating a valuable resource for the region’s many cattle farms. Although Shell has indicated that it will not be using harmful chemicals and that it would take precautions to prevent water contamination, recent events relating to coalbed methane extraction illustrate how chemical contamination can never be entirely prevented. For instance, Ophir Energy had to halt operations in the Surat Basin in Queensland, Australia after traces of benzene, toluene, ethylbenzene, and xylenes were found in water samples. It was later discovered to have come from the gasoline used during the extraction process (see **Australia: 20 October 2010: Origin Energy Halts Fracking Operations in Australia After Discovering BTEX Chemical Traces**). These environmental concerns have become widespread, not only from local communities but also from the political opposition. Consequently, the government placed a ban on all new applications for exploration rights for shale gas (see **South Africa: 11 February 2011: Government Places Ban on Awarding New Exploration Rights for South African Shale Gas**).

## **The Telescope and Shale Gas**

In addition to environmental matters there is another concern, which although not often publicly discussed, is one that will provide a regulatory and legislative challenge to the South African government. South Africa has long been competing with Australia to win the bid to construct the world’s most powerful astronomic radio telescope. The telescope, the Square Kilometre Array (SKA) needs to be located in a very remote area where there is little radio frequency interference, and the Karoo is one of the most suitable areas in the world due to its remoteness, low pollution levels, and clear skies. In order to ensure the current competitive advantage that the country holds over Australia, the South African government has declared 12.5 million hectares in the region as an astronomy

advantage area by enacting the Astronomy Geographic Advantage Act (2007). This means that, at least theoretically, shale gas exploration in the Karoo could be illegal if it can be proven that exploration will in any way damage the area's astronomic advantage. The licence for the SKA is due to be awarded in 2012, and if shale gas exploration goes ahead it will significantly dent the country's bid, which, if awarded, could put South Africa on the scientific and astronomic world map. This is perhaps another rationale behind the government's moratorium on new shale gas exploration applications.

## **Outlook and Implications**

Data from the International Energy Agency (IEA) indicate estimates that South Africa may have shale gas reserves of 485 tcf—the highest in Africa and the sixth highest in the world after China, the United States, Mexico and Argentina. These are merely the technically recoverable resources, however, and the exact extent of reserves has never been ascertained. It is widely claimed that the reason that Soekor abandoned its search for shale oil and gas in the Karoo was because of the limited amounts of gas discovered. This may indicate that the search for shale in South Africa may not be as successful as in the United States and elsewhere. South African only produced about 115 bcf of natural gas in 2008 and it currently a net importer of gas. The country's own indigenous gas reserves are nearing depletion and the government is therefore keen to obtain another source of gas. For this reason, the government is likely to push shale gas exploration forward. The chief executive of PASA, Mthozami Xiphu is reported to have indicated that the moratorium is only an “administrative matter”, which will enable PASA to process current applications. Hence, it is very likely that the moratorium will be lifted despite strong opposition and the possible impediments to the SKA telescope bid. Nevertheless, Shell's presence in the Karoo will attract the interest of other international companies, eager to be swept along with the global shale gale. With strong opposition in place before exploration commences, companies such as Shell may find their operations in the Karoo disrupted by possible protest action and their international reputations negatively affected as a long-term consequence.

[You can buy the IHS's report on the Karoo Basin for \$4,360, at <http://maps.ihs.com/basin-monitor-ordering-service/africa/karoo-basin-monitor-report.html>]

## **Farmers say ‘no fracking way’ to Shell**

April 15, 2011  
Fiona Macleod  
Mail & Guardian

Shell's plans to drill wells for natural gas across a large swathe of the Karoo are fatally flawed and should be rejected, according to lawyers representing local landowners.

Derek Light Attorneys criticised Shell's environmental management plan submitted to the Petroleum Agency of South Africa (Pasa) this week, describing it as “a worthless paper exercise” that was misleading, biased, unprocedural and unconstitutional.

The attorneys also represent AgriSA and business tycoon Johann Rupert, who owns a farm in the Karoo. The area is the world's largest mohair producer and has wool, red meat and ecotourism sectors.

Shell Exploration, a subsidiary of Royal Dutch Shell, this week submitted plans to Pasa for wells to be

drilled at various sites in the Karoo Basin using controversial hydraulic fracturing, colloquially known as “fracking”.

“The general perception is put across in the draft environmental management plan that Shell maintains some lofty internationally accepted environmental standard that must surely be good enough for the South African context,” said the lawyers’ critique. “The strategy that Shell knowingly followed by submitting this fatally flawed plan is in fact an attempt to bypass legislation that is in place to protect the people of South Africa.”

Shell’s plan has set the stage for a possible legal battle over its ambitions to drill for natural gas in shale formations that cover about 90% of South Africa. The country has the world’s fifth-largest shale gas reserves and oil giant Shell, which reported profits of \$18,6-billion last year, is one of several companies preparing extraction applications.

#### Well sites inadequate

Fritz Bekker, an environmental practitioner asked by the attorneys to review Shell’s plan, said the impact of fracking could include chemical contamination, gas flaring, explosions and water reduction in an already water stressed environment.

Most of the proposed fracking activities were listed and needed environmental authorisation and impact assessments, but Shell’s consultants, Golder Associates, had attempted to bypass these requirements.

“All risks to the environment and the people of the Karoo must first be investigated in detailed site specific specialist investigations before applications for unfamiliar and invasive exploration technologies should be considered,” Bekker said

Shell’s plan suggested that eight wells would be drilled in each of the three areas it had mapped out for fracking, but no assurance was given that drilling would be confined to this. “It must therefore be assumed that Shell will drill as many wells as it may require ...

“We are of the view that the size of well sites has been understated and that the proposed one hectare exploration well sites provided for [in the plan] will be inadequate,” the review said.

#### ‘Speculative’ plans

Bekker said the 50-odd scientists who worked on the review estimated that each well site would have to include storage bunkers for explosives and hazardous chemicals, drilling tailings and rigs, gas burners, roads and accommodation facilities.

Shell’s application did not include a plan to manage or rehabilitate these and other environmental impacts of fracking, in contravention of the relevant legislation, he said.

The review also criticised the public participation process involved in Shell’s application. Given the unregulated and invasive nature of fracking, landowners should have been notified in writing and given the opportunity to make meaningful input, it said.

Instead, a limited number of landowners were invited to several public meetings hosted by Shell and were given less than a month to comment on “speculative” plans posted on Golder’s website.



“As a consequence hundreds of landowners, perhaps thousands of interested persons, are still unaware of the process and the landowners have been prevented from participating meaningfully in the consultation process.”

‘No adverse impacts’

Bekker told the Mail & Guardian that a fatal flaw in Shell’s application was the assertion by Golder that fracking would cause “no adverse impacts”.

“The National Environmental Management Act specifies that environmental consultants must not be biased.

“Golder Associates played along with Shell’s strategy by conjuring a far-reaching blanket finding that no adverse impact will occur as a result of Shell’s activities on any environmental aspects, socio-economic conditions or cultural heritage resources in the Karoo.

“They have risked tarnishing their professional integrity by presenting this biased document as an environmental management plan and could be charged under the Act.”

Detailed questions about the review, sent by the M&G to both Shell and Golder, were not answered. Pasa and the department of mineral resources have 120 days to decide on Shell’s application.

Life’s not a gas when you live near the wells

The mayor of Dish in Texas, Calvin Tillman, decided to leave town when his sons repeatedly woke up at night with mysterious nosebleeds.

Tillman told the Huffington Post recently he had spent his time in office fighting to regulate natural gas companies that have drilled 60 fracking wells into shale. But when his five-year-old son awoke with a severe nosebleed in the middle of a night filled with strong odours from the wells, he had no choice but to leave.

“He had blood all over his hands, blood on the walls, our house looked somewhat like a murder scene,” he said.

Nosebleeds reported by many residents living near the thousands of wells dotted around the American landscape are just one reason why fracking is under intense government scrutiny in the United States.

A moratorium on the gas-extraction technique has been imposed by at least 160 communities in the US, as well as in the United Kingdom, France, Germany and Canada’s Quebec province.

In February, the New York Times published government documents that showed unacceptably high levels of radiation in drinking water near some wells. The documents revealed that waste water from some wells was being hauled to sewage plants not designed to treat it and then discharged into rivers that supply drinking water.

Gasland, a documentary by Josh Fox exposing the dangers of fracking, which has been shown at various locations in South Africa, was a runner-up in the “best documentary” category at this year’s Oscars.

And in a special report on “The great shale gas rush”, National Geographic reported late last year that

fracking wells had destroyed the Pennsylvanian idyll of a young couple, Chris and Stephanie Hallowich. After settling on 10 acres of long-fallow farmland, the couple found themselves surrounded by an industrial panorama that included four wells, a gas processing plant, a compressor station, buried pipelines, a three-acre plastic-lined holding pond, and a road with truck traffic.

“It’s ruined our lives. That’s what it comes down to,” said Chris Hallowich. “It’s ruined our plans that we had for the kids. It’s ruined what we thought was our perfect 10 acres.”

What is fracking?

Hydraulic fracturing, or fracking, involves injecting huge amounts of water, mixed with sand and chemicals, at high pressure to break up rock formations and release natural gas.

A fracking well can produce millions of litres of waste water, which is often laced with highly corrosive salts, carcinogens such as benzene and radioactive elements including radium, all of which can occur naturally underground. Other carcinogenic [cancer causing] materials can be added to the waste water by the chemicals used in the fracking process.

Shell’s environmental management plan said it would use “green” chemical additives in the Karoo. The critical review responded that this “is misleading as it is unknown what the chemical composition of the fracturing fluids will be”.

“Many of these chemicals are carcinogenic, hormone disruptors, mutagens [gene disruptors] or simply toxic to various organs or to the ecology. Others are secret or proprietary mixtures,” said environmental researcher Glenn Ashton.

In the United States, the Environmental Protection Agency has documented diesel and radioactive material in fracking waste water. It said that it could not be made safe. According to a recent report in the New York Times radioactivity in the waste water in Pennsylvania, which has roughly 71 000 active gas wells, is sometimes hundreds or even thousands of times the maximum federal limit.

# Fracking in the Karoo – who do we believe?

Saliem Fakir  
Engineering News  
April 15, 2011

While Shell is attracting the most negative publicity owing to its application to the Petroleum Agency of South Africa for exploration rights in the Karoo, other companies have also submitted applications, including Anglo Coal and Sasol. The latter is also in partnership with an American and Norwegian firm.

The total area being proposed by Shell for exploration is about 90 000 km<sup>2</sup>. The Karoo's ecosystem is very sensitive. Farmers in the region have long established a very fine balance between their production needs and the ability of the ecosystem to provide the services needed.

Water is clearly the main concern. Water can be abstracted from natural underground aquifers. Many of these aquifers have, to date, been well maintained and provide clean, good-quality potable water. However, the aquifers are also complex systems, and their functioning is not thoroughly understood and, if the ecosystems are disturbed, it is not known how damaging the impacts will be and whether the damage will be permanent or remediable.

The sourcing of water for shale gas extraction is, obviously, a key issue. The concern here is not only about the resultant pollution, but also about the effects of the diversion of water for shale gas extraction. The exact quantities that would be required are not known at this stage, but it is understood millions of litres of water would be needed.

Water scarcity could be exacerbated because of pollution from the use of chemicals during the coblasting of water and chemicals to fracture the shale rock. There is a tendency to keep the exact contents of these chemicals a secret. At one point, Shell suggested the incredulous idea of bringing in seawater. But this was from the company's public relations person, who did not really know what he was talking about. Seawater seeping into aquifers can permanently change the water quality and its fitness for human and animal consumption. Remediation possibilities are slim.

There is a general lack of public knowledge and understanding of shale fracking techniques. How do they work? What is the machinery used? How much water is required? What are the safety issues concerning the leaking of methane gas, and what are the distances gas has to be piped? Many questions remain unanswered. Also, the Karoo is far from the key economic centres, where the gas is mostly likely to be used. The envisaged ventures' economic rationale does not seem too sound.

There are legitimate concerns about the impact of shale gas mining and extraction on areas that have been relatively free from mass outside intrusion. Shale gas extraction could have disruptive effects on community and social relations. The best example of this is provided by the tar sands rush in Canada. Does Shell work with other companies on how it plans to manage the 'rush' and meet housing and other needs? The main concern is that Shell is taking something of a 'shock and awe' approach.

New mining activities can also have other disruptive effects. It is not known how shale gas exploration and extraction will affect the current agriculture and tourism economy of the Karoo. With trucks and

people moving in and out of the area, the aesthetic serenity factors need to be understood. Has Shell considered this? More importantly, the Karoo is potentially the new home of the global Square Kilometre Array (SKA) project. The whole shale gas debate is causing international jitters and could scupper South Africa's bid to host the SKA. Further, concentrating solar power plants have been mooted for that region. They will also need water and large pieces of land.

The development of a stranded gas resource seems to be more energy consuming for the expected energy return. Shale gas is riding on the coat tails of natural gas, seen to be less carbon intensive than coal and oil. This narrative does not quite gel with some expert opinions. Of course, a lot depends on the quantity of the gas, its quality, the energy needed to extract and purify the gas and the distance the gas has to be transported, besides other factors.

The more thinly distributed in the earth's substrata the gas is, the more energy intense the extraction and economic costs will be. This fact alone suggests that large surface areas are required and numerous wells must be drilled for the extraction of gas to be viable (about 3,1 wells per square kilometre). Methane carbon content, if leaked (and does happen during production, transport and use), is the most damaging of greenhouse gases.

If we considered the full life-cycle analysis of natural gas extraction, compared with coal and oil, it is not that favourable. For stranded gas reserves like shale – in remote areas – the picture is even bleaker. Here, the parallels with tar sands cannot be more striking. How does Shell think that gas exploration will help South Africa reduce the carbon intensity of its energy system and meet its international obligations? How does its planned venture fit in with the broader picture of integrated energy planning for South Africa?

## Fracking license depends on water safety

### Department to assess impact saying if fracking “is found to be detrimental” Shell will not get a water license

April 15, 2011

Wyndham Hartley & Sue Blaine  
Business Day

*Susan Shabangu*

IF IT is shown that the fracking method of prospecting for natural gas has a detrimental effect on water quality then a water-use licence for Shell would be refused, Water and Environment Minister Edna Molewa said yesterday.

Energy giant Shell has applied for an exploration licence to drill 24 holes for hydraulic fracturing across the central Karoo.

Seven copies of Shell's final environmental management plan and all the accompanying documentation — 84000 pages in total — were delivered to the Petroleum Agency of SA (Pasa) on Tuesday, two days ahead of yesterday's deadline.



Pasa will use the plan to make recommendations to Mineral Resources Minister Susan Shabangu on allowing Shell exploration rights using the fracking technique to determine whether the Karoo's shale gas beds are worth exploiting. Fracking involves pumping a pressurised mixture of water, sand and chemicals down drill holes.

Ms Shabangu is expected to make a decision in August.

Shell's plan has led to an outcry over potential environmental damage and to the formation of the Treasure the Karoo Action Group, which has promised to fight the matter all the way to the Constitutional Court if necessary.

At a media conference ahead of her budget vote, Ms Molewa would not be drawn on how she would respond as environment minister, as she would be a referee in the process, "so I would rather stay out of it".

She said the Department of Mineral Resources was driving the process and would consider the environmental impact assessment.

Asked to wear her water affairs hat, Ms Molewa said: "We will assess the impact on water quality if we receive an application for a water use licence, and if it is found to be detrimental then obviously it is a no no."

Pasa now has 120 days to peruse the tome comprising about 4000 pages each for the three exploration licences for which Shell has applied, before making a decision, or requesting further information, Shell SA upstream spokesman Kim Bye Bruun said. "We received 6300 questions, which have all been answered," Ms Bye Bruun said.

Graaff-Reinet lawyer Derek Light, who represents Karoo residents and landowners including businessman Johann Rupert and Princess Irene of the Netherlands, said the publication of the environmental plan meant there was no time for public comment.

This meant residents were able to comment only on the draft plan Golder published on its website last month. The public comment deadline was April 5.

This contravened the requirements of the Mineral and Petroleum Resources Development Act, Mr Light said.

# Much ado about fracking?

April 20, 2011  
Andreas Spath  
News24

Ivo Vegter, a regular contributor to the [Daily Maverick](#), thinks that the production of so-called shale gas by a technique called hydraulic fracturing or fracking, isn't nearly as dangerous as I and others make it out to be. A response to some of his comments is in order.

## How much water?

Vegter points out that Shell's proposed fracking operations in the Karoo will use only a small fraction of South Africa's total water consumption - far less than Eskom's share or the 75% used for irrigation - leading him to claim that "Shell will hardly make any impact at all".

These statistics are, however, barely pertinent to the issue at hand. It would have been vastly more instructive if Vegter had attempted to estimate the available water resources in the 90 000km<sup>2</sup> of Karoo comprising Shell's concession and compared that to the amount of water required for fracking. It's of little comfort to a Karoo farmer whose meagre water supplies are threatened by fracking that an irrigation farmer elsewhere in the country has more water at his disposal than he could ever hope for.

Attempting to trivialise the consumption of large quantities of water by pseudo-scientifically quoting irrelevant statistics is an irresponsible ploy, particularly in a region that's already severely water-stressed and will become ever drier as climate change takes its toll.

## Fracking deep?

Vegter's assurances that groundwater contamination will not happen since drinkable water aquifers are shallow and fracking takes place "at depths of 2 500m or more" are no more scientific. While the vertical distance between groundwater and gas shale is indeed one parameter in the equation, what is significantly more important is the composition and structure of the rocks between the two.

The fact is that neither Shell nor anyone else has a sufficiently detailed enough understanding of the hydrogeological conditions in the region to be in a position to guarantee that potable groundwater reservoirs will not be contaminated. Groundwater migration is often very slow and there is simply no way that gas drillers can be certain that the long-lived, harmful chemicals they inject into the ground will not cause long-term groundwater contamination for generation to come.

## No contamination?

Vegter quotes various US officials who are not aware of any cases in which groundwater contamination has been linked to fracking, but neglects to mention any of the [numerous documented instances](#) in which exactly that appears to have happened. With monotonous regularity people from various US states have reported that, after years of good health and clean water, the quality of both deteriorated catastrophically as soon as shale gas production came to their neighbourhood. Can they prove that fracking is to blame? No. Can the gas companies prove that it's not? No. For years, US gas miners, scandalously exempt from the Clean Water and Safe Drinking Water Acts, refused to identify

their fracking chemicals, making any meaningful monitoring of potential contamination virtually impossible.

### **Cleaner?**

Vegter is under the misconception that shale gas is “cleaner than the dirty coal”. While this is indeed the case for conventionally produced natural gas, [research shows](#) that, considering its entire lifecycle, shale gas produced by fracking has a carbon footprint that is comparable to or substantially larger than that of coal.

### **Job creation?**

Quite contrary to Vegter’s imagined “thousands of potential employees”, Shell has publicly acknowledged that the job creation potential of its South African fracking operations is expected to be rather limited and short-lived. One of Shell’s local consultants is on record as stating that “the Karoo economy will not survive gas mining”.

### **Funny?**

In what is presumably an attempt at humour, considering that his own column is entitled “Karoo fracking scandal exposed!”, Vegter bemoans the use of the word “fracking” as “beneath any self-respecting journalist”. The word was coined by the industry itself. It might not be pretty, but it’s fair game.

### **Conspiracy**

Throughout his column Vegter creates the impression that the negative public image of fracking is the outcome of lies peddled by environmentalists. In reality, the growing opposition is driven predominantly by ordinary Karoo inhabitants and farmers who simply don’t want fracking on their land. To refer to these people as “Big Green lobbyists” is laughable. What is big are the enormous resources multinational gas companies can bring to bear in their attempts to ride roughshod over ordinary people’s justified concerns about their health, environment and future.



# Shell, fracking, and job creation

April 20, 2011  
Mike Baillie, bloc  
Mail & Guardian online

The degree to which Shell disgusts me is no secret, and this will not be the first time [I write about the multinational](#). Take the worst aspects of capitalism, the most perverse levels of greed, and the highest disregard for nature: combine them and you have the Shell corporation.

Whereas in the past Shell has cropped up because of its tar sands operations and horror stories in the Niger delta, this time the corp is in the news because of its intention to exploit the Karoo. No doubt you will have heard about [Shell's application to explore for shale gas in South Africa](#), a process that has generated a lot of public concern.

Sadly it seems Shell's application may well be approved. The CEO of Pasa, the agency responsible for making recommendations on whether to approve Shell's application, has said it's "likely" the application would be granted. He's said the role of Pasa is "to see that environmental standards are upheld, but [also] to facilitate business".

Frankly, even a five minute glance at Shell's history will tell you that Shell's definition of "environmental standards" is extremely flexible. Given the corp's track record, you would have to be a complete imbecile to think that Shell gives the slightest about environmental standards — the very fact that they even applied to drill in an area like the Karoo ought to tell you that environmental concerns are not a factor here. It is simply a matter of cold, hard cash.

Shell has spent a good deal on an elaborate story trying to convince us that their application to drill is about creating a brighter future. It's a story of a company concerned about our energy needs, a company that works "[to benefit local communities](#)", and one that's concerned about climate change. The story is that shale gas will be good for us in terms of development, good for the climate, and that fracking is safe for the environment. Like I said: an elaborate story.

Firstly there are many doubts about the environmental safety of fracking. The process involves highly toxic chemicals, some of them even radioactive. It also requires vast amounts of water, which is worrying given the scarcity of water in the Karoo. In addition, hydraulic fracturing is not a small-scale endeavour: it requires multiple sets of wells that have a limited life-span, meaning that new wells are constantly being drilled and ever greater areas are exploited. Now imagine the [footprint created to service these wells](#) — the roads, the trucking, the chemicals storage, the piping ...

But even if the drilling was completely benign, there is still the question of whether shale gas really is a good energy source in terms of the climate. For instance, a [recent peer-review study found](#) that in terms of contributing to climate change "shale gas is worse than conventional gas and is, in fact, worse than coal and worse than oil".

With this in mind, let's look at the final part of the story; how fracking in the Karoo will develop the local community through job creation. It's the argument that most often gets hauled out in defence of these sorts of projects, the *coup de grace* — who could possibly argue with development and job creation?

The assumption is that as a developing country with huge levels of unemployment, we should be jumping at the opportunity to create new markets and employ more people. Don't get me wrong here: I am all for sustainable job creation. But this industry is not the way to do it. Fracking is a huge potential contributor to climate change, and it poses a range of other environmental risks to ecosystems in the Karoo. It was not on a whim that [a moratorium on fracking was imposed in the state of New York](#) in the United States.

If job creation trumps all else, then there are many markets we ought to be OK with, many jobs we should be happy people have regardless of their potential consequences — the narcotics industry is an extreme example. It provides many people with jobs and makes a massive annual turnover. Sure it wrecks lives, and leads to crime and corruption, but it provides jobs, remember. The point is that we are not OK with the narcotics industry and we'd rather people didn't make their living by pushing drugs.

Job creation is not a silver bullet, there are many other aspects that have to be taken into account, and in the case of fracking, those aspects are crucially important. This is not the space we should be creating jobs in. Fossil fuel industries are inherently unsustainable, and so are the jobs they provide. As a country we should be focusing on creating jobs in areas that will really benefit communities — and that necessarily means the environment, too.

Oh, and let's not forget that it's Shell who's applied to drill in the Karoo — that really is the final nail in the coffin. Man, I really loathe that corporation.



# Shell not the only one interested in Karoo Fracking

April 21, 2011  
Geraldine Bennett  
MoneyWeb

## ***Fracking flares.***

### **Bundu beds Chesapeake**

Following on from Cabinet's decision on Thursday to invoke a moratorium on fracking it emerges that Bundu Gas and Oil (Bundu) is one of three current applications in the pipeline to exploit possible natural gas, via hydraulic fracturing, or fracking, in an area covering 100 000 square km of South Africa's lamb, mutton and mohair producing epicentre.

Both Bundu and Falcon Gas and Oil (Falcon) are close to decisions; with Royal Dutch Shell's (Shell) application deposited with PASA (Petroleum Association of South Africa) during this past week.

Bundu, in its application, has placed reliance on the hydraulic fracturing reports submitted by Chesapeake. According to class action lawyer, Derek Light, this leaves him to conclude that should Bundu be given the nod by the SA authorities, Chesapeake will gain the drilling contract.

"Chesapeake drilling reports have been utilised in support of the Bundu application which is currently awaiting approval from PASA. This leaves one to conclude that Chesapeake will most likely be granted the drilling operations, should the Bundu application succeed."

PASA is facing the burden of applications totalling 100 000 square kilometres covering the Eastern, Northern and Western Cape areas, commonly referred to as the Karoo, the heartland of South Africa.

### **Bundu bashing**

If PASA gives the thumbs up to the Bundu application the oil and gas company will start rolling its drill rigs into the Karoo.

In the past week Chesapeake has suffered two environmental accidents.

### **Gas Wednesday**

On Wednesday April 20, Chesapeake lost control of one of its wells near Canton, in Bradford County, resulting in a [gas well blow-out](#). In a report this blow-out "spilled thousands of gallons of chemical-laced water" resulting in the precautionary evacuation of seven families, and the still unconfirmed reports of water contamination to a trout stocked tributary of the Susquehanna River.

In the gas well blow out incident Chesapeake admitted that its equipment had failed "while the well was being fracked".

Although there are no confirmed reports yet as sampling of water is currently being undertaken by state environmental regulators, the US report states that officials have advised a “neighbouring farmer to prevent his cows from drinking surface water”.

Just three days earlier, Chesapeake, suffered a [fire that destroyed ten 18-wheelers](#) at a gas drilling site.

“A line of trucks caught fire at a Chesapeake Energy Corporation drilling site in west Shreveport Friday, sending a dark plume of smoke skyward and calling response from multiple fire departments.”

According to the report the trucks were “carrying hydraulic fracturing fluid, a mixture used in the final stages of the drilling process.”

## Africa imposes “fracking” moratorium in Karoo

April 21, 2011  
Ruona Agbroko  
Reuters

JOHANNESBURG, April 21 (Reuters) - South Africa’s cabinet placed a moratorium on Thursday on oil and gas exploration licenses in the semi-arid Karoo region, where the controversial shale extraction technique of “fracking” might be deployed.

The Karoo is a vast and ecologically sensitive region that is high on the radar screen of conservationists.

“Cabinet has endorsed the decision by the department of minerals to invoke a moratorium on licenses in the Karoo, where fracking is proposed,” the government said in a statement.

Petrochemical group Sasol (SOLJ.J), Anglo American (AAL.L) and Falcon Oil and Gas (FO.V) are among those eyeing shale gas in the region. Royal Dutch Shell (RDSa.L) is leading the pack with exploration rights to 90,000 sq km (34,750 sq miles).

“We have noted the South African cabinet’s endorsement of the decision of the department of minerals, and we will seek clarity from the department on the full implications,” a Shell spokesperson told Reuters.

Karoo farmers and conservationists are concerned about the possible impact of hydraulic fracturing or “fracking,” in which drillers blast millions of litres of water, sand and chemicals at high pressure into underground rock to create cracks for gas and oil to escape.

“The department made a decision a while back, and cabinet has endorsed the decision,” cabinet spokesperson Jimmy Manyi said.

He told Reuters the department of minerals and resources (DMR) would lead a task team to explore the implications of fracking, which would include the departments of trade and industry as well as science and technology.

“The multi-departmental task team is going to make sure that all angles are covered in terms of government getting proper information about the implication of fracking,” he said.

Manyi did not give a timeline for when the research would be concluded but said the moratorium would remain in place until “there is conclusive evidence that there will be no unintended consequences on the environment”.

Applications already submitted will have to wait.

“There will be nothing that will be approved until the research is carried out, concluded and pronounced on,” Manyi said.

The Karoo region, home to rare species such as the mountain zebra and riverine rabbit, may hold vast deposits of natural gas in shale rock deep underground.

Once unobtainable, such reserves can now be exploited with fracking and could serve as a badly needed energy source for Africa’s largest economy, which relies heavily on coal.

The U.S. Environmental Protection Agency (EPA) is also currently studying the impacts of fracking on drinking water. Initial results are scheduled for release in 2012.

## **South Africa halts Shell’s Karoo gas plans**

**South Africa’s government has halted plans by the oil firm Shell to extract natural gas from the Karoo desert by using a method known as “fracking”.**

April 21, 2011  
BBC News

The process involves pumping pressurised water, sand and chemicals into the ground to extract the gas.

The cabinet decided to stop the development until the ecological consequences have been studied.

Experts have also warned it could put an end to South Africa’s bid to host the world’s biggest radio telescope.

The Square Kilometre Array telescope, a multi-million dollar project which could begin construction in 2016, requires an absence of radio interference, which the fracking may cause.

Several government departments will lead the research into whether the semi-arid Karoo region could be damaged by fracking.

“Cabinet has made it very clear that clean environment together with all the ecological aspects will not be compromised,” said government spokesperson Jimmy Manyi in a statement.

Shell told the BBC it was going to ask the government to clarify its statement.

## **South Africa Endorses Plans For Karoo Gas-Drill Freeze, Ending Shell Hopes**

April 21, 2011

Robert Brand

Bloomberg

South Africa’s Cabinet endorsed the Department of Mineral Resources’ decision to declare a moratorium on natural-gas drilling in the Karoo region, halting plans by [Royal Dutch Shell Plc \(RDSA\)](#), [Europe](#)’s largest oil company.

The department will lead an investigation into the implications of hydraulic fracturing, or fracking, that will include assessing the environmental effects, government spokesman Jimmy Manyi told reporters in Pretoria today.

“Cabinet has made it very clear that a clean environment together with all the ecological aspects will not be compromised,” Manyi said. The cabinet is aware of the “urgency that is required in this respect,” he added.

Royal Dutch Shell applied for permission to drill about 24 wells in an area of about 90,000 square kilometers (34,749 square miles). The company faces opposition in the sheep- and game-farming region, an arid stretch across northwest [South Africa](#), from the Treasure the Karoo Action Group, which fears environmental damage.

Shell would seek clarity from the minerals department on the “full implications” of the moratorium, the company said in an e-mailed statement.

“Shell will support local research efforts into hydraulic fracturing as this will provide clarity and an improved understanding of the technology,” the company said. “Shell is fully committed to support the development of best-in-class regulatory standards for hydraulic fracturing in South Africa.”



# Cabinet endorses fracking moratorium

April 21, 2011

Fin24

Cape Town - The cabinet has endorsed the decision by the mineral resources department to invoke a moratorium on licences in the Karoo Basin where “fracking” is proposed.

“Fracking” is hydraulic fracturing, a technique for extracting shale gas from deep underground by pumping a pressurised mixture of water, sand and chemicals down drill holes.

The department would lead a multi-disciplinary team, including the trade and industry and science and technology departments, to research the full implications of the proposed fracking, government spokesperson [Jimmy Manyi](#) told a media briefing following cabinet’s regular fortnightly meeting.

“Cabinet has made it very clear that (a) clean environment together with all the ecological aspects will not be compromised,” he said.

On Wednesday, it emerged that there was little chance that oil giant Shell’s plans to prospect for shale gas in the Karoo using the “fracking” method would have an impact on South Africa’s bid to host the square kilometre array (SKA) radio telescope.

In written reply to a question in the National Council of Provinces, Science and Technology Minister [Naledi Pandor](#) said an application for prospecting had no impact on South Africa’s bid to host the SKA.

“An application can only have impact if granted,” she said.

“If the Shell application is granted, and if Shell uses communication systems with frequency ranges that interfere with radio telescope operations, the prospecting will affect radio astronomy.”

However, the South African SKA project office (SASPO) had proactively met with Shell and Golder Associates to indicate communications restrictions.

“All operations in the Karoo will be comprehensively addressed through regulations under the Astronomy Geographic Advantage Act 2007, which are expected to be finalised in the 2012/13 financial year, following consideration of the outcomes of the public consultations on the astronomy regulations,” Pandor said.

The act gives the sole right to regulate the zone in which the SKA will operate to the minister of science and technology.

South Africa and Australia were shortlisted in 2006 as locations for the SKA project.

The SKA will cost about €2bn to build, and require between €150m and €200m a year, for 50 years, to maintain and operate.

An announcement on who has won the bid will be made early next year.



The endorsement was welcomed by the Treasure Karoo Action Group (TKAG).

“Cabinet clearly realised what other countries have realised - the issue of fracking is too complex to be decided on by one single authority or one single department.”

A multi-disciplinary team should look at an issue of this magnitude.

“From our side, we will now make sure we cooperate with and give all the assistance we can to government as they make sure that every aspect of the environmental impact assessment is taken care of,” TKAG said.

## Fracas brews over fracking

April 21, 2011  
MmegiOnline

**Environmentalists and miners locked horns in South Africa this past week over plans by Shell to drill wells in the Karoo to commercially capture shale gas by means of fracking, a process the “greens” say releases harmful underground chemicals into water sources. With Botswana blessed with 196 trillion cubic feet of coal-bed methane (CBM), Mmegi Staff Writer MBONGENI MGUNI can reveal that the fracas has reached local shores**

As the South African CBM industry creaks under the strain of a dispute over fracking, local eyes are increasingly considering the future of the 196 trillion cubic feet (Tcf) of gas bound in rocks in the country’s east. Fracking is a gas mining technique in which water mixed with corrosive chemicals is pumped down to great depths below the surface to fracture rocks and release gas bound in fissures in the rock.

Some studies link fracking with the contamination of water sources by chemicals and substances such as radioactivity, chromium-6 and diesel fuel. Local observers noted with caution last week as South African environmentalists and farmers dismissed Shell’s environmental management plan, saying it did not address the rising concerns over fracking. Tongue in cheek headlines like “No Fracking Way” and “What The Frack!” have underlined the rising emotions in South Africa and the battle that awaits CBM developers in the region.

In the US, Canada and other Western nations, communities, environmentalists and other interest groups have dragged would-be CBM developers to court, demanding cessation of fracking. First to raise the alarm locally has been the Botswana Power Corporation (BPC), which is due to become the first consumer of CBM, requiring the gas to economically run the 90-megawatt power station in Orapa. While BPC hoped to convert the Orapa station from diesel to CBM by next year, the fracking debate has only added to the existing complexities of pioneering commercial gas production in Botswana.

“We want to go out to tender for the supply of CBM to run the Orapa plant,” said BPC CEO Jacob Raleru recently. “There are issues causing concern with the Karoo development because the exploration here is using the same method of fracking.

“There is concern about the disturbance this underground fracking causes to get to the gas. We will be looking at it very closely, but we want to support development of CBM in the country.”

Other BPC executives explained the position the power utility has found itself in with regard to fracking. The much-debated relationship between power generation and the environment has reared its head again, they said, stressing the irony of a supposedly “clean” resource like CBM finding itself as maligned as coal.

“We need power and CBM as a country and as BPC,” one executive said. “Our concern extends as far as we are a client of those developers, who will supply us with the gas. We believe according to the laws of the country, the issues around CBM extraction will have been identified in the environmental impact assessment and their mitigation planned for.

“The environmental plans are done before any project can take off and any issues identified are mitigated and an environmental management plan is approved before any work can begin. For us, we need power as a country to run the economy. It’s up to the CBM developers to look at different technologies of extracting.”

However, the Department of Environmental Affairs (DEA) is only now awakening to the latest concerns. Fracking is not expected to enhance the department’s image among developers, who have long accused it of unnecessarily planting obstacles in the way of well-intentioned developments. Although DEA director, Steve Monna, was unavailable at press time, another official hinted that the environmental watchdog was keeping an ear to the ground. Helping issues at present is that none of the CBM prospecting licence holders has advanced to the stage of conducting an environmental impact assessment.

“None of the players have advanced past exploration,” said a senior DEA official. “However, when they come to the point where they want to move to the next phase, we will insist on detailed environmental assessments. Issues must be identified and mitigated. Let’s wait until the companies decide they want to move forward on their projects.

“Also, remember that the EIA process is highly consultative. Stakeholders, including the community, will be involved in this open process. It will be very interesting to see this unfold. At the DEA, we will not rely on our own scope, but experiences from elsewhere will be taken on board. Let’s wait until more details on this issue are made available.”

The DEA and BPC could have little time to wait until fracking emerges as an environmental issue because certain CBM explorers have signalled their intentions to move towards commercial production soon.

# Shell's Karoo shale plays blocked

**South Africa's government has thrown cold water on Shell's shale gas plans in the country after it blocked the award of fracking licences in the Karoo region.**

April 21, 2011  
Eoin O'Cinneide  
Upstream Online

Thursday's move by the cabinet puts a further dent in the UK supermajor's hydraulic fracking plans after the country's Department of Mineral Resources had earlier blocked operations.

A spokesperson for Shell told Upstream that the company has noted the cabinet's endorsement of the department's decision and it is in the process of seeking clarification from the department on the issue.

Late last year Shell submitted three exploration licence applications in the desert region, each of which involved areas of around 30,000 square kilometers. The three areas are in the Western, Eastern and Northern Cape provinces.

Thursday's decision by cabinet came after environmental watchdog Treasure the Karoo Action Group had earlier protested about the award of any such licences in the region.

"In the interests of the entire Karoo community and their neighbours and the citizens of South Africa, we call on all the current applicants to withdraw their applications for licences to pursue shale gas mining in the Karoo," the group wrote in late February.

"We moreover call on the Minister of Water and Tourism Affairs, and other ministries including Public Works and Tourism, to become urgently and publicly involved in this issue of critical environmental importance, on the basis that the effect of fracking has the potential to permanently damage the Karoo environment and its valuable and growing tourism industry."

On Thursday the South African government also ordered the creation of a task team to investigate the implications of fracking in the region. Shell has previously pointed out that, as part of its licence applications, the Petroleum Agency South Africa required it to prepare an environmental management plan.

Before Thursday's moratorium the major had said: "If these licences are granted, Shell will continue to engage closely with local communities, conduct exhaustive environmental studies and apply for regulatory permits to allow us to move forward with operational activities in the Karoo."

# Environmentalists, farmers rejoice as Cabinet puts brakes on Karoo fracking

**Following an avalanche of complaints and a formal objection, Cabinet endorsed the department of minerals and energy's decision to hit the freeze button on licenses for fracking in the Karoo. Can you hear the cheers?**

April 21, 2011  
Sipho Hlongwane  
The Daily Maverick

*Photo by Daily Maverick*

Government spokesman Jimmy Manyi announced on Thursday the moratorium on hydraulic fracturing, or fracking, in the Karoo had been endorsed.



“Cabinet has endorsed the decision by the department of minerals to invoke a moratorium on licenses in the Karoo where fracking is proposed. The department of minerals will lead a multidisciplinary team including the departments of trade & industry, science and technology, among others, to fully research the full implications of the proposed fracking.

“Cabinet has made it very clear that clean environment together with all the ecological aspects will not be compromised,” the statement said.

Several companies, including Royal Dutch Shell are currently trying to obtain exploratory licenses from Petroleum Agency South Africa for a large area which includes the Karoo. The process of fracking releases unconventional gas from shale rock formations underground and involves pumping massive amounts of water, sand and chemicals under pressure into the earth. The shale rock is fractured, releasing the gas which is pumped up to the surface.

According to Luke Havemann, an attorney specialising in energy issues, the moratorium came in part because of a formal objection compiled with the help of 22 scientists and lodged with the government by his firm on behalf of the Treasure the Karoo Action Group. “I believe [the moratorium] was in part due to our objection,” Havemann said.

“The implication of this is the handbrake on fracking has been pulled up. It means all the companies that were waiting to be granted licenses will have to wait until the government has concluded its

research into fracking. The government has basically said we need to halt this until we know what we are dealing with,” he said.

It is not clear how long the government’s study into fracking will take. According to Havemann, it may be a while. “There is a lot we don’t know about fracking. That is why countries like France and South Africa have hit the pause button on fracking. They simply don’t know enough,” Havemann said.

The underground aquifers in the Karoo have yet to be properly mapped, said Havemann. And that is just one of the objections were tabled in the critical review compiled by the Havemann team. The document also says the environmental management plan submitted by Shell fell short of the requirements under the relevant legislation. “When considered in the context of South Africa’s environmental legislative framework, the draft EMP demonstrates significant non-compliance with the national environmental management principles for sustainable development set out in the National Environment Management Act of 1998.”

The critical review called for “an immediate end” to current and future fracking licences, as well as applications that have already been filed by various energy companies. As an alternative, it also called for the entire application process be put on hold pending a report by the national planning commission on land use in the areas under question, a comprehensive study of why other countries have frozen fracking, a new “strategic environmental management plan”, the outcomes of South Africa’s bid to host the Square Kilometre Array and other considerations.

Jonathan Deal of the TKAG said they were delighted with government’s decision. “It emphasises the fact they are taking note of what is happening all around the world with regards to fracking,” he said.

“The moratorium is a first step towards a ban. The government announced it is going to undertake a strategic environmental assessment plan with various stakeholders around the country and the next step for us is to ensure we get representation along with other NGOs.

“There is no legislation in South Africa specific to the technology of fracking and we do not have the monitoring and enforcement power to monitor what may become thousands of wells in South Africa,” Deal said.

One of the biggest concerns with fracking is the possibility of borehole water contamination by the chemicals pumped into the ground during fracking. In March, Graham Tiley, general manager of New Venture Executions at Shell, said the company could not guarantee there would be no contamination. He also refused to rule out the possibility that contamination would happen.

The moratorium will come as a blow to Shell, which was hoping to hurry everything along and obtain a full fracking license by 2013. The study of underground aquifers alone could take years, according to some experts.

What will be an even bigger blow to Shell’s plans is that there was a major accident at a fracking station in Pennsylvania on Tuesday night, putting paid to Shell’s claim that the process is environmentally harmless. A fracking station suffered a blow-back, according to [WNEP](#) and fracking fluid had spilled out of the containment tanks. WNEP said, “The well blew near the surface, spilling thousands and thousands of gallons of frack fluid over containment walls, through fields, personal property and farms, even where cattle continue to graze.”

According to the [Huffington Post](#), the fracking fluid spilled into a nearby stream. No injuries have been reported so far. The well is owned by Chesapeake Energy.

One thing is certain: Royal Dutch Shell and others will have to halt what looked to many like an inevitability. We somehow can't see many tears shed for them and their lost profits.

## Cabinet supports fracking moratorium: Geraldine Bennett (Moneyweb) & Dr Luke Havemann (Havemann Inc)

April 21, 2011  
MoneyWeb

***They really are celebrating in the Karoo tonight.***

- [DOWNLOAD THIS INTERVIEW](#)

**ALEC HOGG:** Well, in the mining world at the moment the big news, as far the Karoo is concerned, is that there certainly won't be any of the so-called fracking in the near future. Our Geraldine Bennett has been on the case. She's been in the Karoo, running around to various meetings. This is a huge setback, Geraldine, for the global multinational Shell.

**GERALDINE BENNETT:** Well, it's not just Shell. Hi, Alec. There's also the Bundu [Oil & Gas] application and the Falcon [Oil] application. Whether it's a setback or not – I'm sure they are probably not happy about it, but I think it is the right thing for a government which is a democratic government to consider, when you think that pretty much everywhere else in the world or many places in the world they've applied moratoria on fracking because of a pretty bad environmental history. It's the right step by the South African government, and at least it's not based on the results of the Environmental Protection Agency of the United States. It looks to us at this stage that the Government of South Africa is considering its own investigation into the consequences of fracking or hydraulic fracturing.

**ALEC HOGG:** When the ball got rolling by Johann Rupert, South Africa's most powerful businessman, because he's got big farming interests in Graaff Reinet, he told me all he was calling for was: let's just have a bit of patience, let's have a look at what the real impact is. And I guess now the Department of Mineral Resources has said there's a moratorium, Cabinet supports it, it's going to happen.

**GERALDINE BENNETT:** Well, yes, and when Johann Rupert lent his name to the fight I do believe in that moment it took off. Derek Light – who is the class-action lawyer who's [action has] gone from a few people to a few hundred people to a few thousand people in a matter of months – said that before Johann Rupert lent his voice to the cause he'd had something like 36 seconds on SABC over the last

three years. And you can testify to this – there's been a tremendous surge in publicity and media attention since Johann Rupert came on board.

**ALEC HOGG:** And all the hard work that you've been doing as well, Geraldine. The people that you met in the Karoo no doubt are celebrating. Have you engaged with any of them since this decision?

**GERALDINE BENNETT:** Well, all I can say is that emails flooded my inbox this afternoon from about 12 o'clock, when this announcement was made public. I have not spoken to anybody in particular, but certainly some people have sent emails. Many people are thanking God because the Karoo is a very God-fearing area and a lot of prayer was sent up as well for this. So I know there is celebration, I know there's a relief. We don't yet know exactly the contents of the moratorium, but I am certain that the South African government has done the right thing.

**ALEC HOGG:** Geraldine Bennett is *Moneyweb's* go-to person when it comes to environmental issues, and she's been digging around in the Karoo. But from a legal perspective, and that's really where a lot of the work has been done, Dr Luke Havemann joins us now. He's the author in fact of the written objection by the Treasure the Karoo Action Group to Shell's application for an exploration licence.

Luke, how long did it take you to research and put this written objection together?

**LUKE HAVEMANN:** Alec, we had, essentially from the moment I got the call, about 12 days in which to put that objection together. I had the help, obviously, of certain professionals such as Susie Brownlie, environmental consultant, and Professor Jan Glazewski – and then a whole team of various professionals from various disciplines from palaeontology right through to zoology and ornithology. So it was a team effort and done in a very short space of time.

**ALEC HOGG:** And it certainly has had the desired effect. Were you confident it would win?

**LUKE HAVEMANN:** Well, we were confident in terms of the strength of our argument. We weren't sure how it would be interpreted. We weren't sure if the government would listen. We called for a moratorium, we called for the matter to be dealt with at the highest echelons of government, and we believed in the strength of our argument. It was just a question of whether or not it would be heard. And we are celebrating.

**ALEC HOGG:** What happens with a moratorium like this – how long does it last?

**LUKE HAVEMANN:** Afrikaans has a saying, "dit hang af". It depends. Each moratorium that we are aware of has different time frames. We are not sure yet. Geraldine said earlier we are looking for more information. Everyone at the moment is asking how long do we have, who is going to be on the task team. A lot more needs fleshing out.

**ALEC HOGG:** But presumably the onus will now be on Shell, almost, to prove its point, or prove that fracking is safe.

**LUKE HAVEMANN:** Well, I think the onus has always been on them, from the outset. I think with the environmental management plans they had to convince the public and the people in the Karoo that what they were going to do was going to be safe, and they just weren't convincing – and thankfully not.



**ALEC HOGG:** Does it apply to everybody who wants to frack? We hear stories – our journalists have been digging up – that Soekor or Mossgas also want to go into the Karoo and apply this very controversial technique.

**LUKE HAVEMANN:** Well, I'm not sure if it extends that far. All we at the moment have is the statement from Cabinet, and it says it invokes a moratorium on licences in the Karoo. It doesn't take it any further than that, so I can't actually comment any more on that particular aspect.

**ALEC HOGG:** Dr Luke Havemann of Havemann Incorporated – and they really are celebrating in the Graaff Reinet area tonight.

## Shell takes gung-ho stance on Karoo fracking outrage

April 22, 2011  
Sipho Hlongwane  
The Daily Maverick

**Royal Dutch Shell, a global corporation the size of a small nation, is facing a growing outcry against its plans to conduct hydraulic fracturing in the Karoo. Still, it took on a "frack now, deal with any fallout as it happens" stance at a press conference on Thursday. And although compensation promises were made, it is nothing you can take to the bank.**



Royal Dutch Shell went to some effort to make the [process of hydraulic fracturing](#) seem rather harmless to a roomful of journalists, with a friendly PowerPoint presentation, full of bullet points and video that explained the process. The process of fracking has received an avalanche of bad press in the US, leading to precautionary banning in some states, and now Shell wants to take the controversial process of mining unconventional gas to the Karoo.

Bonang Mohale, chairman of Shell Oil Product Africa, and Graham Tiley, general manager of New Venture Executions at Shell are hosting press conferences in Cape Town, Port Elizabeth and Johannesburg in an effort to allay fears about the process.

At the Johannesburg presentation on Thursday, they did not allay the biggest of the concerns. Could Shell categorically state that the chemicals pumped into the ground as part of the fracking process would not make it into the groundwater aquifers? Mohale said the shale levels they intended to frack

were typically 2,500m to 4,000m underground. Groundwater aquifers are typically no less than 500m deep. The massive amount of rock between the two levels would act as a natural barrier, Mohale said. “But ‘categorically’ is a difficult word”, he said “Never say never,” Tiley added.

Shell promised to “commit to disclosing the fracturing fluids at each drilling station”. But they would not say at the press conference what the chemicals pumped into the ground were, with Tiley saying that the exact cocktail was different at each location. According to their presentation, some of the chemicals were reducers, biocides, corrosion inhibitors, scale inhibitors, surfactants and breakers, which certainly made you, and all the Karoo farmers, feel good by now.

The community shouldn’t worry about water either, Mohale assured us. Shell would “engage” with the community to determine which water sources they would use. Water is the biggest waste product in the process, he said, but more than 50% of it is recycled and maybe could even be purified for human and animal use. “We promise not to compete with the people of the Karoo for their water needs,” Mogale said, a statement of painful ambiguity; it would remain to be seen who would define already thirsty Karoo’s people’s water needs.

Mohale was at pains to stress that the entire process was still in its relative infancy. Shell’s application for a licence was accepted by the Petroleum Agency South Africa on 14 December last year. As part of the licence application, an environmental management plan (now available on the website of Shell’s partner [Golder Associates](#), according to Tiley) has to be submitted, and a draft was ready as of 2 March. Pasa will study the EMP, and will make a decision on granting Shell exploration rights on 12 August. “If everything goes according to plan, [exploration] drilling should start in the latter part of 2012, with fracturing starting in 2013,” Tiley said.

Shell intends to sink 24 wells in an exploration area which stretches from Sutherland to Somerset East, at a typical cost of \$15 million each.

Of course, we should not worry about what impact the fracking process would have on the [Square Kilometre Array](#) project, especially after Mogale assured us the drilling process, where presumably the greatest amount of disruption would occur, would only take weeks. But Shell would keep up a dialogue with “all affected and interested parties”, including the SKA project.

Shell would commit to “full compensation to any landowner with documented direct negative impact or loss on their land as a result of our activities”. It is a canny wording from Shell, because in America, the country where fracking has come under the greatest controversy, the main negative impact has been contaminated water. Even if the chemicals found in tap water were identical to the fracking cocktail, how can anyone prove causation between the two without looking underground? And documenting it? It would be like trying to find someone who farted in a crowd, and spending millions of dollars on it.

To hear Shell tell it, South Africa desperately needs fracking. Not only are we in danger of rolling blackouts, the situation in the Middle East makes the immediate future of oil very uncertain. Besides, the process could make us competitive in the foreign direct investment market. Furthermore, the process could create local jobs, according to Mohale, who, predictably, wouldn’t commit to any figures, vaguely stating that Shell wants to hire locals for the periphery functions, like hydrology and road-building.

Mogale did stop short of promising unicorns and eternal rainbows, rather disappointingly.

And if you, as a Karoo landowner, are still unhappy, then go ahead, sue Shell. The exact quote by Mohale, in an answer to a question about why a member of the Dutch royal family (and a Royal Dutch Shell shareholder) was complaining about the fracking process, was, “The sister to the princess of the Netherlands has a democratic right to say ‘no drilling in my back yard’.”

We expected Shell to take on a patronisingly bullish tone on the issue of fracking, and they did not disappoint. We would not have put it past a vastly rich oil company to confidently welcome lawsuits, and they did not disappoint in this area either. Despite their “trust us” tone (maybe even because of it), Shell have only served to heighten the worries of just how little there is in this for locals, and just how shatteringly expensive the fracking will turn out to be for the Karoo and South Africa.

## Royal Dutch Shell really wants to frack up the Karoo

April 22, 2011  
Sipho Hlongwane  
The Daily Maverick

**Several oil companies hope to prospect the Karoo for natural gas using suspect methodologies which have farmers and townsfolk alike up in arms. The latest**

**developments suggest the department of minerals is willing to put the prospecting process on hold - a concession that is nowhere near enough to placate the growing numbers of people opposed to Karoo fracking.**



Royal Dutch Shell is seeking to prospect a total area of almost 100,000km<sup>2</sup> made up of three segments of about 30,000km<sup>2</sup> of the in the ancient Karoo Basin in a bid to locate and extract shale gas via a method known as hydraulic fracturing, or fracking. Other companies are also seeking to prospect massive swathes of Eastern Cape, Western Cape, Free State and KwaZulu-Natal. Sasol wants to prospect more than 80,000km<sup>2</sup>, mostly in Free State. Anglo American, Falcon Oil and Gas, and Bundu Gas and Oil Exploration have applied for prospecting rights to the Petroleum Agency South Africa.

Farmers and townsfolk in the affected areas, along with scientists involved in astronomically sensitive sites in Sutherland and Carnarvon (where SA is competing against Australian scientists for the SKA large-array radio telescope contract) and high-profile land owners like Johan Rupert are [opposed to the fracking](#). Although the Dutch royal family is a major shareholder in Shell, Princess Irene of the Netherlands, a prominent landowner near Nieu Bethesda in the heartland of the Karoo, has publicly voiced her vehement opposition to the Dutch company's plans.

Reuters reported on 1 February that an indefinite moratorium had been called on all new exploration and production rights in the Karoo, but those applications already in the pipeline would not be affected.

There are numerous concerns about the proposed drillings, chief among them being that fracking has caused great environmental damage in countries where it's [been tried before](#). The process, which seeks to release unconventional gas from shale rock formations deep underground, involves pumping millions of litres of water, sand and chemicals under pressure into the earth. The shale rock is fractured, releasing the gas for pumping to the surface. Companies are lax to release their chemical recipes, but farmers in the US where fracking has been happening for years, found chemicals that are carcinogenic, endocrine disrupting and just plain toxic. In a famous documentary made by Josh Fox on [fracking's environmental impact](#), footage of flammable tap water is shown. The companies in the Karoo want to bring that process to South Africa.

Water is scarce in the Karoo, and should fracking ruin the groundwater it would devastate farms. So far, Shell has not convinced the farmers and greater community the process will not harm their livelihoods. The Dutch oil company has delegated local company Golder Associates to compile an environmental management plan. Golder business unit leader for environmental services Brent Baxter explained to Independent Newspapers' [Heather Dugmore](#) that "once a company lodges an application for an exploration right under the Mineral and Petroleum Resources Development Act, they have 120 days to submit an environmental management programme in support of the exploration rights application. This is a legislated timeframe. Shell thus needs to submit an EMP, in support of each of the three exploration rights applications they have lodged in the Karoo by 18 April 2011."

The scope of the study and the timeframe are far too short, according to independent analysts. "The EMP, by its nature, must include studies by geologists, ecologists and specialist ground and surface water studies. Without these they cannot responsibly comment on the potential impact of gas exploration or mining required in the EMP," Fritz Bekker, an environmental consultant and farmer said.

There is simply not enough knowledge about the Karoo's aquifers to say for certain what sort of impact this process would have, say experts. Geohydrologist Ahee Coetsee says, "We simply do not understand enough about the aquifer systems in the Karoo, which is why various studies are being done, such as by the water research commission to look at the dolerite ring aquifer systems of the Karoo, from the surface to a depth of 300m to 500m.

"There are many and varied aquifer systems in the Karoo, some dating back 300 million years and older. If Shell is planning to drill down to 4km and more, and if the boreholes constructed are not 100%, there can be cross contamination between aquifer systems.

"If they do not comprehensively research and understand the hydro-geology of the exploration area, then that will need to be investigated from a technical and legal point of view," Coetsee said.



The process also involves pumping millions of litres of water, a resource the Karoo simply does not have, into the ground. Shell's proposal is to use sea water, brought in from the coast by railway.

Golder has been holding [public meetings](#) with residents the Karoo, where the answer has been a resounding "no" to Shell's plans. The meetings are largely academic, of course. Farmers do not have any rights of the minerals below their soil and, therefore, no say in what happens to them. It's up to Pasa and the department of minerals.

Given Shell's interest in the unconventional Karoo gas, the end of this story is far from close. Watch this space as the great drama of the ancient African land unfolds

## Hydraulic fracturing is safe - Shell SA

April 21, 2011  
Eyewitness News

Shell SA on Thursday said while it supports government's decision to research the effect of fracking in the Karoo, the practice is safe.

Cabinet announced on Thursday that it is endorsing a decision by the Department of Minerals to invoke a moratorium on fracking until the full implications are established.

Hydraulic fracturing is a technique used for extracting shale gas from deep underground by pumping a pressurised mixture of water, sand and chemicals down drill holes.

A multi disciplinary team will now fully research the practice.

Shell Chairman Bonang Mohale said he is not against cabinet's decision but there needs to be more clarity on the moratorium adding experts have shown that the practice is safe.

"And they have said they have not found any evidence of chemical contamination of water from fracking chemicals but this was accentuated by Scott Anderson, who is also the director of Environmental Defense Fund, who said Hydraulic fracturing is a safe technique," said Mohale.

# Activists celebrate freeze on fracking licences

February 22, 2011

Mandy Wiener, Regan Thaw, Rahima Essop

Eye Witness News

Activists protesting against fracking in the Karoo were celebrating on Thursday, after Cabinet announced a moratorium on hydraulic fracturing, or 'fracking', licences.

The announcement, that was also endorsed by the Department of Minerals, will see a freeze on the controversial practice until a full investigation of its potential impact on the environment is concluded.

Cabinet spokesperson Jimmy Manyi said, "This was a vote of confidence on the decision already taken by the Department of Mineral Resources to put a moratorium on all prospecting licences in the Karoo."

Fracking is a technique used for extracting shale gas from deep underground by pumping a pressurised mixture of water, sand and chemicals down drill holes.

A number of organisations have been protesting against Shell's plans and the Treasure the Karoo Action Group recently called on government to impose an immediate halt on the energy giant's application for exploration rights.

The group's Jonathan Deal said, "We're absolutely ecstatic and the phone lines are going absolutely berserk," he said. "All of the NGO's have had a hand in this. Everybody needs to be complimented for this."

The Department of Minerals will now lead a multi-disciplinary team to fully research the practice.

Meanwhile, the Treasure the Karoo Action Group also said a recent natural gas mining incident in the United States proves fracking is not environmentally sound.

Thousands of litres of fracking fluid spilled in Pennsylvania following an accident at a natural gas well.

Meanwhile, Shell South Africa Chairperson Bonang Mohale said, "We actually welcome this and we fully support it because remember, we are committed to supporting the development of... regulatory standards, especially for this process called hydraulic fracturing."

Bonang added that he would like to know whether the moratorium included existing licences.

# Gas Wars: Rise of the Anti-Frackers

April 24, 2011  
Julienne du Toit  
Karoo Space Magazine

South African anti-fracking groups had an extra Easter egg in their baskets this week when the government announced a moratorium on Big Energy plans to prospect for gas in the Karoo, the country's semi-desert heartland.

What? People Power takes on a tag team of fuel giants and local politicians and wins the 1<sup>st</sup> round of the southern African Gas Wars? Can it be?



Damn straight. Life retains its ability to surprise and delight.

I came across an article recently with the headline: “5 Reasons to Be Hopeful We Haven’t Totally Screwed Ourselves and the Planet ... Yet”.

One of the 5 reasons the author Tara Lohan (AlterNet) gave was the rapid rise of anti-fracking groups around the world. She wrote:

“Momentum ignited from the film [Gasland](#) and grassroots activism around the issue has helped to spark a ban on fracking in Pittsburg and a temporary moratorium in New York. Groups like [Food and Water Watch](#), [Democracy for America](#), [Water Defense](#), [Damascus Citizens for Sustainability](#), [Earth Justice](#) and others are putting the heat on the drilling industry and any politicians dumb enough to have their backs.”

## Oil spills, meltdowns and blow-outs

Feeding this environmental uprising was a global energy industry in the throes of an *annus horribilis*, starting with BP's oil spill in the Gulf of Mexico in April 2010. Then early in 2011, Japan's tsunami hit and the Fukushima Daiichi nuclear plant headed for scary meltdown. Every country that had been planning for more nuclear plants (South Africa included) was suddenly forced into rethink mode.



The latest disaster was Chesapeake Energy's fracking well blowout in Bradford County, Pennsylvania, with thousands of gallons of chemical-laced water spewing over agricultural fields and spilling into a nearby stream in late April 2011.



It came three days before the South African cabinet endorsed a moratorium on fracking in the country. There's no doubt it must have caused much agitation in the boardrooms of Royal Dutch Shell (which has been mercilessly vilified in the media for its proposals to frack 90 000 square kilometres of the South African heartland), Sunset Energy, Falcon Oil & Gas, Sasol, Chesapeake Energy, Statoil ASA, Anglo American and others who were lining up to frack the country's deep shale layers.

Shell and other corporates with plans to frack in South Africa must be cursing the timing. If they had unveiled their plans only five years ago, they might have succeeded. Shale gas had a squeaky clean image until the end of 2008, when a worker in Colorado soaked in fracking fluid was taken to hospital and the nurse treating him nearly died of organ failure.

It's gone downhill since then for the frackers. Alongside the shocking documentary *Gasland*, there has been a steady and growing stream of cautionary tales coming out of America – blowouts, leaks, exploding houses, radioactive fracking wastewater released into major rivers, lives ruined, properties turned worthless. Even earthquakes in Arkansas.

Shell executives were made to look like shameless liars every time they said fracking was safe.

### **Treasure the Karoo Action Group**

One of the latest anti-fracking groups is South African. Called Treasure the Karoo Action Group (TKAG), it sprang rapidly out of a Facebook page started at the end of January 2011. By Easter, when the South African cabinet announced it was endorsing the moratorium proposed by the Department of Mineral Resources, there were nearly 7 000 members. And every single one of those members, plus thousands of others, did something to spread the word against fracking.



The effort was fascinating for its sheer democratic voice and scale. Thousands signed petitions. Even though many knew that petitions don't really work, people wanted to sign them anyway. It was like warriors signing up for battle.

The people spoke – and were heard.

In some ways, the central effort among anti-frackers recalls that adage that arose from the political prisoners on Robben Island: *Each one teach one.*

The key to battling against fracking lies in information. Those who are pro-fracking are usually those who don't know enough or who have vested interests. So the most effective means of battle was to inform friends, family and whoever would listen about what fracking could mean to South Africa in general and the Karoo in particular.

Schoolteachers, priests and farmers' wives screened *Gasland* and *Split Estates*. Local environmental groups debated the issue around drinks. Some people drew anti-fracking cartoons. Some posted ideas over the Facebook. Some wrote articles or letters in the newspapers. Some wrote letter after letter to Ministers and Shell executives in The Hague.

Some mobilised whoever they knew in government and sent them information on the risks of fracking. Advertising schools designed anti-fracking logos and t-shirts.

Ordinary people did in-depth research and came to Shell information meetings armed with questions the guys in suits couldn't answer.

### **A triumph for shit-stirring**

Musicians composed anti-fracking songs. Graphic artists created flyers people could hand out. Lawyers got involved. Futurists offered their services. The word 'fracking' became a trending subject on Twitter.

Dozens of existing organisations stepped up to the plate – Earthlife Africa stood side by side with WWF, riverine bunny huggers and birders fought alongside farmworkers and wildlife conservationists. Environmental law became a subject of fascination to rich and poor.

When the 'human polar bear' and environmental campaigner Lewis Pugh made his stirring anti-fracking speech in Cape Town, it was sent and resent around the world, posted and reposted on Facebook.

As writer Rian Malan remarked on Facebook after the moratorium was announced: "This is a triumph for shit-stirring. There is a lesson here for all of us."

### **A fierce love for the Karoo**

But there was another factor that corporates could not have foreseen: people's love for the Karoo.

In the last five to ten years, several books have been written on the Karoo (one was *Timeless Karoo*, written by Jonathan Deal, head of TKAG). The Karoo has ceased to be a hot place that



must be driven through at top speed.

It is now attracting tourists charmed by the authenticity and integrity of the people and their landscapes, the soaring peace, the silence, the far horizons.

This fierce undercurrent of passion for the Karoo must surely have caught Shell off guard. And it showed at the public participation meetings.

Shell executives answering irate questions from the floor seemed bewildered and eventually sullen when confronted with a steadfastly negative reception.

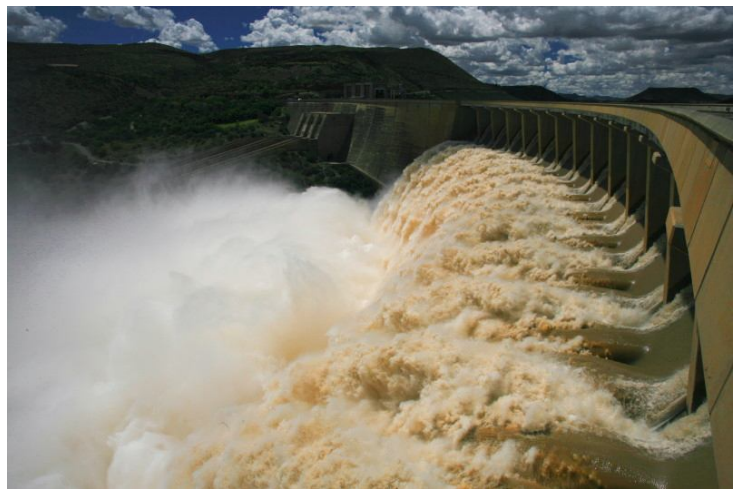
It's entirely possible they thought the Karoo was a large wasteland, and South Africans would be only too delighted to have the place put to good use.

### **The war isn't over**

But there's another cautionary tale in this.

We're still right at the beginning of the battle, which could last for twenty years or more. The South Africa government needs to decide on an energy policy to take the country forward.

Now the anti-frackers have to feed into a whole new stream of thinking around the kinds of energy sources we would be happy to leave to our children.



How can we produce energy that provides most jobs and harms our natural resources the least?

We need alternatives, ones that provide steady power. If not fracking and gas, if not nuclear, if not coal, then what?

# Supporting the Karoo fracking is just plain wrong. Here's why.

**While most understand that progress never really comes without sacrifice and compromise, Ivo Vegter's column has transmogrified the debate over fracking the Karoo into a volcanic furore. With good reason.**

Opinionista  
Donald Paul - blog  
The Daily Maverick



Recently, the righteous voices of reason stepped into the fray regarding the use of hydraulic fracturing technology in prospecting for shale gas in the Karoo. One of the voices is columnist Ivo Vegter, who assumed the role of Devil's advocate. Such a role requires a modicum of intellectual rigour, otherwise you end up playing God's advocate, endorsing that which you supposedly set out to question. It's an easy back-slide and reveals a penchant for controversy over a desire for coherency.

Lewis Pugh, a critic of environmental degradation and a spokesman for Treasure the Karoo Action Group, challenged Shell, and other gas and oil companies, about its plan to frack in the Karoo and in so doing made a speech that was widely reprinted and replayed on various digital channels. For some it was rousing. For others, it was "propaganda" and "alarming". The latter determined that what Pugh was saying was that there would be war over water.

What he said was: "If we damage our limited water supply?and fracking will do just that?we will have conflict again here in South Africa. Look around the world. Wherever you damage the environment you have conflict."

That should set off alarm bells. But by "alarming", the righteous voices of reason make out that Pugh is shouting "fire" in a crowded auditorium. Yet, just a few days ago in Ficksburg, the Meqheleng Concerned Citizens group handed the municipality a list of demands that included "proper water supply, repairs to sewerage drains and waste removal". Their environment had been damaged by untreated sewerage and uncollected waste. Their letter was ignored and so they marched in their thousands to make their voice heard. The tragic result was the shooting to death of Andries Tatane, a concerned citizen, a father and a respected teacher, who wanted water and clean streets for his family.

That is the conflict of which Pugh warns. To think of conflict only in terms of war indicates an intellectual shallowness more common to tabloid headlines?"Vegan Vampire Eats Kirstenbosch Gardens!" or "Fracking Scandal Exposed!"?than a purported "closer inspection" would indicate.

The voices of reason fail to acknowledge the human rights dimension of this debate being more intent on disparaging, but not refuting, the arguments of those opposed to short-term corporate gains at the expense of the future. We are a member of the United Nations and uphold its Universal Declaration of

Human Rights. The World Health Organisation in its document “Water, health and human rights” states: “The content of the right to water may be generally defined as a right to access to water of sufficient cleanliness and in sufficient quantities to meet individual needs... While drinking and cooking water would be protected, water for food production would probably not be covered under the minimum needs in arid areas, as agriculture production requires such high amounts of water that individual household needs must first be ensured. The same goes for water for industrial use: although industry and electricity are important for ensuring an adequate standard of living, these uses must not infringe on the right to household water. For both agriculture and industrial uses, contamination of drinking water must be prevented.”

The proponents of fracking cannot in any way show that fracking will not contaminate the Karoo aquifers. What they do say, repeatedly, is that there is “no known link” between fracking and aquifer and groundwater pollution. And they cite only their own expert testimony.

The level of political naïveté revealed in the statements of the voices of reason when commenting on Pugh’s speech recurs throughout their “close inspection” of the claims of Pugh and others opposed to fracking in the Karoo and elsewhere.

Vegter wrote of Pugh’s speech: “Then he invoked the political tyrants being toppled in north Africa, and deftly juxtaposed ‘corporate tyranny’ as if it’s the same thing.”

That’s a bit embarrassing, really. Like when your partner’s just spent R850 at the hairdresser and you still have to ask: “Really? What’s the difference?” To think that so-called democratic countries such as the US are not dictated to by the corporate tyranny of big business is like still believing Ralph Nader was a Satanist for challenging GM on its car safety.

(For those who don’t remember, Nader took on the automotive giants with his book “Unsafe At Any Speed” (1965) and successfully sued GM and its posse of righteous voices of reason for the subsequent “dirty tricks” campaign they launched to smear his credibility. He won a payout and a public apology from the then CEO of GM.)

That’s the interesting thing about comfort zones and voices of reason. Take cars: most of those reading this column drive a car and some of you may smoke. Cigarette lighters have been a standard feature in cars since the 1920s, but automobile manufacturers were only forced to make safety belts a standard feature in the late 1950s. More people were dying from the effects of cigarette smoking than were dying in car crashes. Doctors, dealing with the trauma of patients involved in car crashes, helped push through seat-belt legislation, despite the assurances of experts saying they were not necessary. Tobacco manufacturers hid behind a fortress of lawyers, corrupt politicians and compromised scientists for more than 40 years to hide the fact that nicotine is addictive and that smoking kills. They also denied the effects of secondary smoke.

The naïveté continues. Vegter cited reams of outdated research regarding “signed statements from state officials representing Ohio, Pennsylvania, New Mexico, Alabama, and Texas, responding to these allegations [water contamination]. As a result of our regulatory review and analysis, the GWPC concluded that state oil and gas regulations are adequately designed to directly protect water resources”.



This is staggeringly naïve and shoddy research. These legislators were making a political argument, not a scientific one?in other words, they were covering their backs. The reason why the US's Environmental Protection Agency is re-opening the debate on the use of hydraulic fracturing?hearings are being conducted as this is being written?is because whistle-blowers within EPA confirmed that political pressure had been brought to bear on the original reports. As Wes Wilson, one of the EPA whistle-blowers, said in a recent interview about that report, five of the seven members of the study's peer review panel were current or former employees of the oil and gas industry.

Numerous complainants petitioned the US government to get the EPA to review the earlier decision on hydraulic fracking. Neil Zusman, from Ithaca, NY, is particularly poignant: "I have read widely on this topic and it is of personal interest to me. I am not a scientist. I observe the events along the historical timeline that include civil rights, anti-war protest, and the environmental movement. I believe they are inextricably linked. I am the son of a Holocaust survivor and a proud American, yet I know the health and democratic dangers faced by a nation whose over-arching motivation involves economic benefits especially in times of economic distress.

"The EPA has failed to act on the evidence of public danger caused by toxic materials released into the water as a result of hydraulic fracturing. This failure first occurred in the 1990s in Alabama, in a case brought by Leaf (Legal Environmental Assistance Foundation). Alabama was the only state to come under the regulations of the UIC programme. Among the stakeholder case studies mentioned in the Appendices of the Draft Study, Alabama is notably absent. This concerns me.

"The legacy that this study follows is onerous: The 11th Circuit Court originally scheduled oral arguments for the Leaf II case for the week of 26 February 2001. This schedule was changed and the oral arguments were conducted on 12 March 2001 in Atlanta. The National Energy Policy Development Group was a group, created by Executive Order on 29 January 2001, that was chaired by Vice President Richard Cheney."

While he was US vice president, Cheney backed a series of measures favouring his former employer, Halliburton, whose hydraulic fracturing technology generated \$1.5 billion a year for the company, "about one-fifth of its energy-related revenue". LA Times' reporters Tom Hamburger and Alan Miller pointed out in 2004: "Halliburton and other oil and gas firms have been fighting efforts to regulate the procedure [fracking] under a statute that protects drinking water supplies. The 2001 national energy policy report, written under the direction of the vice president's office (Cheney), cited the value of hydraulic fracturing, but didn't mention concerns raised by staff members at the Environmental Protection Agency. Since then, the administration has taken steps to keep the practice from being regulated under the Safe Drinking Water Act, which Halliburton has said would hurt its business and add needless costs and bureaucratic delays."

Neil Zusman goes on to say: "Americans were fortunate to have whistle-blowers bring important national health issues to the press. This study you undertake, as other EPA studies in the past, have fallen short of protecting public health. In fact, Congress has recently found that the gas industry has failed to uphold its agreement not to use diesel in wells. Yet, little enforcement of EPA regulations has made Americans more vulnerable to the toxic practice of gas drilling. The states have not shown that they can adequately regulate gas drilling, especially in more populated areas. Federal regulations are clearly needed. Time and time again, as noted by a Pew Research Group report, a wide variety of industries, in seat belts, lead paint, cigarettes and many others, have fought federal regulation only to have history prove that it never hurt their bottom line."

Water is at the heart of this debate?fracking requires large amounts of water?and the voices of reason latch on to it, as they should. Yet, again, the poor writing and shoddy research of the proponents of fracking reveal at best a lack of rigour and at worst obfuscation worthy of Cheney.

One of the objections raised against Pugh was that he quoted the amount of water required for fracking in litres. The figures were given?in litres?to reporters by Kim Bye Braun, media communications manager of Shell. Most of the studies on hydraulic fracturing emanate from the US, which uses gallons (US). The conversion was to litres because SA doesn't use the imperial measure. This is a red herring. But okay, let's talk of 7,000 to 144,000 cubic metres of water. Does it now sound like nothing?

But, let's take these numbers that the voices of reason have supplied and unwind the spin (and here I am indebted to comment from a concerned reader). US reports frequently give the amount of water to a well as between 1 million and 8 million gallons, approximately 4,000m<sup>3</sup> to 30,000m<sup>3</sup>. Shell South Africa says roughly 7,000m<sup>3</sup> to 144,000 m<sup>3</sup>.

The figures given by the oil companies about the amount of water needed for fracking are, however, questionable. Anthony Ingraffea of Cornell University, that hotbed of socialist, bunny-hugger thinkers, says each well will require on average 44,000,000 gallons of water. That's 166,558m<sup>3</sup> of water.

Vegter says the projected use at Medupi is 14million cubic metres which is roughly 100 times as much as will be used in the Karoo. That's true if you are talking about one well. Shell alone plans 24 wells in its exploration phase. Thus, that first fracking phase alone will use the equivalent of 25% of what Medupi will use annually.

If those 24 exploratory sites are developed into production sites, it is possible that there may be as many as eight wells on each site, each one requiring fracking at three- to five-year intervals. This alone would then begin to rival Medupi's water usage. And if you factor in the possibility that each well can use up to 16 multiple horizontal fracture drills fanning out from the vertical shaft, the amount of water to each well increases considerably.

Each of those sites can exploit possibly a maximum of 10km<sup>2</sup>, probably less (in the US they talk about 80 acres?three sites per km<sup>2</sup>) . If only 10% of the 90,000km<sup>2</sup> under consideration in the Shell application is exploited that means something like 9,000 sites, each using 144,000m<sup>3</sup>, the amount of water required will be in the region of 1.296 million cubic metres - let's say a billion cubic metres. The Gariep Dam has a total storage capacity of approximately five billion cubic metres. You're talking about perhaps 10% of the entire country's water supply?that's a lot whether measured in imperial or metric units.

Now, what happens when all this, chemically toxic, filthy, water comes back up out of the ground. What do we do with it then? The voices of reason are as silent as lambs on this.

Vegter's claim that Eskom's Medupi at Lephalale uses vastly more water than fracking ever would is not simply disingenuous, but it is patently false. TKAG is arguing against using the scarce water resources (almost entirely aquifers) upon which the Karoo depends. The comparison is false and as such there is no dichotomy.

Voices of reason always throw up the phrase "false dichotomy" when labelling their objections to a particular point of view. They also begin sentences with the word "indeed"?which is up there with



profile writers who call their subject “insightful” and food writers who describe meals as “wholesome”.

The voices of reason also claim that “Shell has long since agreed to ensure it will not compete with local residents or farmers for water”. Shell may say this, but Shell has not answered the question of what water it will use. Nor has it answered the question of what it will do if its actions do contaminate the Karoo’s aquifers. You can’t flush contamination out of an aquifer without using more water?which the Karoo does not have in the first place.

Recently, 13 groups, including Lawyers for Human Rights, WWF South Africa and the Endangered Wildlife Trust, petitioned the government because the existing rules controlling mining gave “inadequate time to assess the environmental impacts of mines and imposed penalties that are so low as to be no disincentive whatsoever for mining companies”. They cited the Mineral and Petroleum Resources Development Act (MPRDA) which sets a maximum fine of only R500,000 compared with R5 million for similar offences in other environmental legislation.

The Shell EMP (produced by Golder Associates) states: “Shell commits to establishing mutually acceptable protocols for the independent monitoring of the water quality in existing water wells and surface water surrounding Shell’s activities. However, in the highly unlikely event of aquifer pollution, rehabilitation is covered by Shell’s insurance policies, specifically Third Party Liability policies, which includes consequential damage. The financial provision as proposed to PASA will cover any remedial exposure (if any).”

Most of us can’t get any joy out of our small insurance claims. Can you imagine the task of a small farmer in the Karoo trying to take on Shell’s insurance company about his borehole being contaminated? (Perhaps best example is GE and its legendary CEO, Jack Welch’s battle with the New York state over the Hudson River clean-up. General Electric factories discharged hundreds of tons of polychlorinated biphenyl (PCBs) into the river from 1947 to 1977. It took New York state 30 years to get GE to pay for the clean-up, with Jack Welch spearheading the tooth-and-nail fight to avoid the \$500 million cleaning tab, a fraction of GE’s turnover and profits.)

The voices of reason refer to plans of trucking in sea water. By Shell’s own estimates, 300 trucks carrying 20,000 litres each will be needed to bring in that amount of sea water for each fracking site. They propose 24 sites. The dust and damage to the environment from that many vehicles is enormous. And, remember, they may use each site to perform up to 16 “frac stages”.

Expert testimony says that salt water used in hydraulic fracturing can lubricate the rock surrounding it, possibly leading to small earthquakes. This may be happening in Arkansas, “which has experienced a sudden surge in seismic activity, including the biggest earthquake recorded by the state in more than three decades”. According to Fox News?not exactly a hotbed of socialist commentary?90% of the earthquakes recorded in the state since 2009 have occurred within six kilometres of salt water sites associated with fracking operations. Steve Horton, an earthquake specialist at the University of Memphis and hydrologic technician with the US Geological Survey, told Fox “the coincidence is too big to ignore”.

But why should we believe Shell? Or rather, how can we believe Shell?or any other company wanting to frack the Karoo? Shell has a track record of bribery and corruption, especially in Africa. “Africa is to Shell what the Gulf of Mexico is to BP,” says Pugh. “Shell, has a shocking record in Africa. It has

spilt more than 9 million barrels of crude oil into the Niger Delta?almost twice the amount of oil that BP spilt into the Gulf of Mexico. It was found guilty of bribing Nigerian officials?and to make the case go away in the US?it paid an admission of guilt fine of \$48 million. To top it all, Shell stands accused of being complicit in the execution of Nigeria’s leading environmental campaigner, Ken Saro-Wira and eight other activists. If Shell was innocent, why did it pay \$15.5 million to the widows and children to settle the case out of court?”

The worst that the voices of reason can come up with on TKAG is “being emotional”. The stiff-upper-lip-I-won’t-cry attitude is, however, no longer a required attitude as a reflection of honesty in the adult world.

Shell hired Golder Associates, a “global company providing consulting, design, and construction services in earth, environment, and energy” to produce a draft Environmental Management Plan. This document running to more than 250 pages was what farmers and people in the small towns of the Karoo were asked to comment on.

TKAG worked with Havemann Inc., to prepare a response, which was written by Luke Havemann, Havemann Inc, Specialist Energy Attorneys, Cape Town, Jan Glazewski, professor in the Institute of Marine & Environmental Law, University of Cape Town and Susie Brownlie, environmental consultant, De Villiers and Brownlie Associates. They headed up a team of 22 specialists and experts in preparing the study.

Havemann holds a Masters Degree in Marine and Environmental Law from the University of Cape Town and a PhD in the Enviro-Legal Regulation of Oil and Gas from the University of Aberdeen, Scotland. Glazewski holds a BComm LLB from the University of Cape Town, an LLM from the University of London, a Master’s degree in Environmental Studies from the University of Cape Town as well as an LLD by published work from the University of Cape Town. Brownlie holds a BSc Honours in Zoology from the University of Cape Town and a Master degree, with distinction, in Environmental Science from the University of Cape Town.

The voices of reason, not unexpectedly, dismiss their 104-page document. A shallow reading of most documents is often revealed in the responses to that document. First, they look to the Netherlands where fracking has been used for 40 years, citing the Netherlands as a “an extremely densely populated, environmentally conscious and highly regulated society”. What they fail to point out is testimony about the effects of fracking.

As one Dutch commentator said: “In the Netherlands they’ve been extracting gas, oil and salt from subterranean layers for over 40 years. In the area, earthquakes have become common while ground levels are sinking. It is a folly to think you can extract anything from deeper levels without the upper levels, eventually, caving in. Even if those levels are deemed impermeable, they’ll fracture as they come down. The logical consequence is that mainly lighter constituents (water, gas, oil) will rise through those cracks. Go dig?the bill is due only in another 50-100 years.”

While it may be safe to collude with the proponents of hydraulic fracturing when you are sitting on the Cape coast, it is perhaps a bit more acceptable if you speak to the people who are directly affected before declaring them “safe”.

Let's segue to another oil giant: BP, the company responsible for the Gulf of Mexico oil spill. This column is about shale gas, but is also about big corporations and their willingness to cut corners. According to an interview with Jeanne Pascal, who worked in the EPA for 26 years as an environmental lawyer, "BP's flagship \$1 billion Thunder Horse drilling platform in the Gulf of Mexico nearly sank in 2005 after engineers installed ballast valves backward. And a federal lawsuit over safety concerns on another BP rig, Atlantis, was making its way through the courts even as the Deepwater Horizon exploded."

Journalists investigating BP corroborated and expanded on Pascal's concerns and found the company emphasised a "culture of austerity in pursuit of corporate efficiency, lean budgets and shareholder profits". They found that current and former BP workers and executives said the company "repeatedly cut corners, let alarm and safety systems languish and skipped essential maintenance that could have prevented a number of explosions and spills". Apparently, internal BP documents support these claims.

Why should we trust Shell to act differently? Because, according to the righteous voices of reason, Shell et al, really care. To put it in Vegter's words, people aligned with TKAG are the "ecomentalists, with their 4x4s and bicycles and hemp hand bags and enough free time to organise petitions, protests and PR campaigns, might not care." (The "might" is rhetorical.)

Vegter misquotes the Havemann report. "Indeed, the Haveman [sic] report quite openly bemoans the 'real paucity of information' about environmental or health impacts." The extract from which Vegter quotes is actually Havemann quoting from the Tyndall Report produced in the UK about hydraulic fracturing, and it was that report's preamble to why there should be a moratorium on fracking?not enough is known about its deleterious effects.

If Vegter had gone a little further?or a little deeper?he would have also noted the Havemann document states, again quoting the Tyndall Report, "[i]n itself, this lack of information can be seen as a finding, as along with the growing body of evidence for ground and surface water contamination from the US and the requirement for the application of the precautionary principle in the EU, shale gas extraction in the UK must surely be delayed until clear evidence of its safety can be presented." The Tyndall Report goes on to say that, with the considerable uncertainty surrounding the environmental impacts of shale gas extraction, "it seems sensible to wait for the results of the US EPA investigation to bring forward further information".

The earlier decision of the EPA has been successfully challenged and is now under review by the US Science Advisory Board. All fracking activity in New York state and 160 other locations across the US have been suspended pending the SAB report.

One of the favourite arguments of the voices of reason rests on the assurances given by the drilling companies that the casement technology used in fracturing is safe. They cite a report prepared for the US department of energy which states: "Ground water is protected during the shale gas fracturing process by a combination of the casing and cement that is installed when the well is drilled and the thousands of feet of rock between the fracture zone and any fresh or treatable aquifers."

The voices of reason lay this out as if this was a statement of fact when it is description of best practices. The document cited here also carries the disclaimer: "The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof." This document was a position paper, in which it clearly states: "This Shale Gas

Primer was intended to be an accurate depiction of current factors and does not represent the view of any individual state. Knowledge about shale gas development will continue to evolve.”

TKAG and its allies are, however, representing the views of an “individual state”?the Karoo. This region is unique in many ways. Let’s take its geology, which begins with the ancient glacial Dwyka tillite and ends 48 million years later in the middle Beaufort time. The edges on the south, the Outeniqua mountains, and the north, the Swartberg, are hard, quartzitic sandstone of the Table Mountain Group. In between are the Precambrian and younger Jurassic formations, weathered and worn into vast flat plains. Aeons later, Gondwana started its dismemberment and triggered tectonic forces below the mantle of mountains to form the main fault-bounded basins, which today we call the Little Karoo.

The terminology of the geological landscape is as rich as the earth of which it speaks: marine sediments, limestone, greywackes, turbidites, the thick conglomerates of the Kansa Group, all lithified and ancient and filled with stretched pebbles.

Through this runs the country’s most extensive fault system, beginning 100km west of Port Elizabeth and ending in Tulbagh. Not only is the fault system extensive, it is active?as Tulbagh experienced in 1969. And there’s no telling what impact fracking will have.

As Shell states in its 2010 Annual Report, “We [Shell] operate in environments where the most advanced technologies are needed. While these technologies are regarded as safe for the environment with today’s knowledge, there is always the possibility of unknown or unforeseeable environmental impacts.” By its own admission, Shell could face a situation while fracking where the groundwater is contaminated.

Vegter draws a contorted conclusion from the fact that TKAG, through the Havemann-commissioned report, is calling for a stop to fracking, and quotes the report. “The underlying argument of this Critical Review is that an immediate halt should be imposed on Shell’s application for an exploration right as well as on any other application for any other form of permit, right or authorisation that, if successful, may bring the advent of fracking in South Africa a step closer to fruition.”

He then says: “It helps having your conclusions written before you draft the report itself.” It is illogical to use the executive summary of a 104-page document as evidence of bias, it is vaguely paranoid or sensationalist. To go on and label the Havemann document as a sham reveals the shallowness of this argument. In the UK, the Tyndall Report also concluded: “See the evidence given by Prof Anderson where, for example, he stated as follows: ‘What we [the United Kingdom] require, I think, initially would be to learn from history. It seems a reasonable approach to take, yet we have not done that. We have not looked in detail at what has happened in the US. What we know in the US is that some of the states there now have a moratorium on further development pending an inquiry – an independent scientific inquiry. That seems the reasonable route to go. It is hard I would suggest to argue different to that, in the absence of independent scientific inquiry, we will go ahead. It would seem a strange position to hold. I think that we should at least wait to hear back from the EPA in the US. As the previous witnesses (Nigel Smith, geophysicist, British Geological Survey) and Professor Richard Selley (petroleum geologist, Imperial College London) suggested, shale is not necessarily shale. They vary in their petrochemical properties very significantly. I think you would then have to say we needed one in the UK that looked at the types of shale we have here and the differences across

the shale here, and try to draw lessons from the US study once that is published. All these are very good and sound reasons why a prudent nation would not rush ahead with it [it being fracking].”

Significantly, the final question posed by the E&CCC was “[S]hould there be a moratorium on shale gas exploration in the UK until 2013, when the EPA is likely to have its report out?” In response to this question, Anderson answered as follows: “Yes, for environmental reasons, and the moratorium should last for probably another few decades for the climate change best perspective.”

If there was any intelligence behind the voices of reason, the worst that could be said is that they are simply arrogant. Unfortunately, it seems they are simply simple. Put it down to naïveté.

Vegter says “hydraulic fracturing reduces the usual impact of drilling, since multiple horizontal shafts can be drilled from a single vertical well, dramatically reducing the footprint of drilling operations on the surface. By that standard, hydraulic fracturing is the most environmentally friendly means of drilling and is perfectly suited to a relatively unspoilt wilderness such as the Karoo.”

What this really means is that instead of pumping between 144,000m<sup>3</sup> to 167,000m<sup>3</sup> for each fracture (including the horizontal shaft), the oil companies will pump the same or slightly less for each multiple horizontal shaft? what is known as a “frac stage”. This makes it “friendly”? So, from a vertical well? referred to as a “pad”? there could be as much as 16 frac stages. As Cornell University’s Anthony Iggraffea says: “It’s not the number of pads that’s important, it’s the number of frac stages.” He points out that it’s “a chimera to say ‘we’re having fewer pads therefore we’re having less impact’.”

Hate to ask, again, but the voices of reason don’t tackle this, where is the water going to come from for this “environmentally friendly means of drilling” involving multiple frac stages? In addition, this ignores the question of trucking and pipelines and attendant damage. It ignores the dust pollution, the carbon emissions, the construction of roads across pristine land and burial sites of our ancestors. But mainly, it ignores the issues of water. Of course, concern about burial sites, say the voices of reason, is such “charming clean, green waffle”.

Vegter concedes that it “is true that isolated incidents of pollution do occur. Some have been cited above. They do not, however, occur as a result of hydraulic fracturing, but in the normal course of drilling.”

He fails to explain what the difference is between hydraulic fracturing and “the normal course of drilling” during which such “incidents of pollution occur”. The question that should be asked? and not dismissed with basically a meaningless phrase about the “normal course of drilling”? is to what standard should we hold any industry to acceptable risk for its operations (i.e. drilling). No one in their right mind, neither the righteous voices of reason nor the “obstructionism of angry greens”, would demand and expect 100% accountability

Figures gathered in Pennsylvania over a three-year span, show that shale gas drilling averaged a 0.3 error factor. In 2010 there were 1,227 violations? i.e. environmental violations? for 1,386 new wells drilled in Pennsylvania alone. That’s a violation rate of 0.89, almost one a well.

The voices of reason then go on a more risible pursuit: “Why would it ‘destroy the environment’ to permit drilling for shale gas, when drilling for other purposes is celebrated?” Where does TKAG say it celebrates drilling for other purposes? Vegter openly announces that what the TKAG and its supporters

really want, in addition to possible access to vast amounts of moolah that they can extricate from the oil companies or even more vast splorges of wonga to be made from cashing in on renewable energy, is a shift from pursuing short-term fossil fuel to sustainable renewable energy.

How did the voices of reason manage to expose this scandalous plot? At one point, Pugh does say: “Now is the time for change. We cannot drill our way out of the energy crisis. The era of fossil fuels is over. We must invest in renewable energy.” Could that have been the clue? Perhaps, but it’s not a complex sentence structure to grasp.

Ironically, the righteous voices of reason have it right. TKAG and its supporters do want sustainable renewable energy. There, it’s out. Confession. As has been pointed out before, the oil companies want to frack for shale gas for a number of reasons. First, it’s profitable, second, the drilling technology, while relatively young, has proved effective (though not environmentally sound) and finally, especially in the case of Royal Dutch Shell, big oil does not believe in developing renewable energy resources. As the non-executive chairman (and former Nokia CEO) Jorma Ollila stated, “We believe that [renewable energy sources] could provide no more than 30% of global energy by 2050”. And they want to be in the 70% market.

In 2005 Shell spent only 0.87% of its profit on renewable energy, investing an average of \$200 million, just 1.2% of its 2005 total capital investment of \$17.4 billion. Don’t expect Shell to allocate much of its earnings? a whopping \$20.5 billion in 2010? towards renewable energy. More than 75% of capital investment will go to “upstream” projects, such as natural gas. “We think it makes a lot of sense to focus our innovation on natural gas, the cleanest-burning fossil fuel,” says Ollila.

There’s a fundamental short-sightedness in this focus. It is an illusion, and a human rights travesty, to believe we have another 40 years to plunder resources and damage the environment. Apart from the need to start immediately investing heavily in renewable energy, we need to protect what remains of the existing environment. The Karoo is a pristine and fragile ecosphere, dependent almost entirely on groundwater. Contaminate that water table, the Karoo’s life blood, and you will destroy the land and its people. That’s the reality.

And no matter what the righteous voices of reason say about the oil companies providing jobs, they will be short-term. And if the aquifers are contaminated, it will be a death sentence. Of course, the righteous voices of reason do bang on a bit about the “cleanliness” of natural gas. If you believe that, you probably also believe the car guard who says he’ll look after your car.

Cornell University, probably high on the list of those “not-to-be-trusted” institutions of learning as they do have such a plethora of social agitators on staff, will publish research in the next month, however, that concludes natural gas produced from hydraulic fracturing contributes to global warming as much as coal, or even more. Cornell’s Robert Howarth argues that “development of gas from shale rock formations produced through hydraulic fracturing brings far more methane emissions than conventional gas production.”

The voices of reason won’t like that. After all, they do not see those opposed to the short-term gains of hydraulic fracturing of the Karoo as real people concerned about the future of the Earth. No, such people “aren’t harmless greenies, concerned only with pretty pictures of pristine landscapes and protecting endangered fluffy bunnies”. Instead, we are the sort of people who while they “can afford expensive fuel and other such self-indulgent eco-luxury, most of us cannot”.

Should you ever have the chance?and the iron constitution?to watch a stilted documentary called “The Big Picture”, do so. The film, courtesy of the US department of energy and made primarily for the US armed forces, records the detonation of “Shot Priscilla”, a 37 kiloton atomic bomb in the Nevada Desert in 1957 (Hiroshima was a 13 kiloton bomb). In it, you see a military chaplain calming the fears of two soldiers who were part of a contingent exposed to ground zero at a distance of 2,280m.

“Actually,” says the chaplain, “there is no need to be worried, as the army has taken all of the necessary precautions to see that we are perfectly safe here.” After witnessing the blast, the soldiers returned to Camp Desert Rock, “bleeding from the eyes, ears, nose, and mouth”.

The US department of energy has a long history of complicity with big business. From 1951 to 1963, it colluded with the Atomic Energy Commission to pursue a “reckless programme of scientific experimentation” that saw the detonation of 126 atomic bombs in the 3,500km<sup>2</sup> Nevada Test Site. “Each of the pink clouds that drifted across the flat mesas and forbidden valleys of the atomic proving grounds contained levels of radiation comparable to the count released after the explosion in 1986 of the Soviet nuclear reactor at Chernobyl.”

The leaders of the US nuclear weapons industry waged a 30-year battle to cover up this contamination of North America. It was President Jimmy Carter who, in 1978, ordered that the Atomic Energy Commission make its operational records open to the public. It revealed an horrific account of malfeasance and immorality that would make even the most gung-ho corporate shill shudder.

The problem remains one of perception. Do you adopt the myopic it-is-what-it-is view as expressed by the voices of reason or do you have a vision of the future?and by future, we mean 50, 100, 300 years from now? As Pugh says, “We cannot drill our way out of an energy crisis.”

It’s as if the voices of reason heard the parrots shrieking “Be here now, boys!” and took it literally, not comprehending the rich depth and context within which that phrase rests. What they miss is that “Be here now” implies an acknowledgement that we must “be here now” in such a manner that we shall also “be here tomorrow”.

The issues around hydraulic fracturing in the Karoo may be local, but, in environmental terms, the entire Earth is our locale. The voices of reason want to confine the debate to the car you and I drive (reliant on oil), the implied need for SA to be “energy independent” (vis-a-vis that natural gas is our saviour) and that shale gas will warm the homes of the poor. Good points. The real issues, which if dealt with appropriately, will resolve the concerns of the voices of reason are clear.

First is water. To quote Pugh: “We can survive without gas; we cannot live without water.” The death of Andries Tatane is not an isolated incident of police violence?it is a glaring example of the inevitable conflict that results from the environmental degradation of a person’s environment.

Second is the matter of human rights. As the environmentalist and writer Wendell Berry said: “The movement to preserve the environment will be seen to be, as I think it has to be, not a digression from the civil rights and peace movements, but the logical culmination of those movements...”

And finally, it is about developing our renewable energy resources. There is no reason to prospect for shale gas in the Karoo. It will not provide us with cheaper energy?energy prices are set by the energy companies, not by the people who use it. Look at Australia.



According to a report by the Australian Industry Group, Australian gas prices stayed relatively low because the industry was isolated from world gas markets. Once the infrastructure is in place to liquefy gas for export, which is what is planned for SA's shale gas, domestic wholesale prices will converge with global prices. This has already happened in Western Australia and will happen across the continent by 2015. Prices go up.

As history has shown, the cost of all fossil fuels follows an upward trend, and the cost of solar power follows a downward trend. All fossil fuels are dead-end options, finite resources whose end will arrive very quickly.

Vegter describes hydraulic fracturing as "a perfectly ordinary industrial technique that has been in [sic] used safely and successfully around the world for many decades". Golder Associates?the environmental organisation that prepared the EMP for Shell?says, however, that all hydraulic fracturing technology is "considered unconventional" and that it is an "innovative technology". They also state in the EMP that because "hydraulic fracturing is a new technology in South Africa, there is little information available on its potential impacts locally".

Ordinary? Safe?

Frederick Douglas said: "The limits of tyrants are prescribed by the endurance of those whom they oppress." The righteous voices of reason seem prepared to endure the demise of the planet. **DM**

**READ MORE:** [WHO](#), Video of Cornell's [Anthony Ingraffea](#), [One Earth](#), [Scribd](#), [ProPublica](#), [Scientific American](#), [The Hill](#), [BBC](#), [IOL](#), [Geological Society of America](#), [Bloomberg](#), [Business Report](#), [Kathu Gazette](#), [Natural Resources Defense Center](#), [Live Eco](#), [LA Times](#), [Fracking Resource Guide](#), [New York Times](#), [EarthWorks](#), [Journey of the forsaken](#), [Sourcewatch.org](#), [ProPublica](#), [ProPublica](#), [AlterNet](#), [Natural Gas Well Frac Release \(Part 1\)](#), and [Best Online Brokers](#), [Eastern Herald](#), [MoneyWeb](#), [NaturalGas.org](#), [Cleantechies](#), [National Wildlife Federation Action Fund](#), [Department of Water Affairs SA](#), [Sahara Reporters](#), [Sahara Reporters](#), [NBF News](#), [CMap](#), [Wall Street Journal](#), [USAfrica.online](#), [USAfricaonline](#), [Bloomberg Businessweek](#), [Lexology](#), [News Inferno](#), [Amnesty International](#), [Mining Weekly](#), [Engineering News](#), [Martin Rowe](#), [Go Local Jamaica](#).

In addition, there are numerous documents in PDF format:

- The Draft EMP Report from Golder Associates
- The transcripts of town meetings compiled by Golder Associates
- The Royal Dutch Shell AG Report 2010
- The Clean Energy Progress Report 2010 (IEA)
- Karoo Policy Objections prepared by Havemann & Associates
- Summary of fracking reports compiled by the Sierra Club
- Compilation of fracking documents from The Scientific American
- The following books were also consulted:
- American Ground Zero: The Secret Nuclear War by Carol Gallagher
- Geological Journeys by Norman & Whitfeld
- The Story of Earth & Life — A Southern African Perspective by McCarthy & Rubidge
- Various works by Wendell Berry and Edward Abbey.

# Fracking probes to delay licences

April 26, 2011  
Donald Pressly  
Business Report

The Government cannot provide timelines on how long a moratorium on fracking will delay the process of providing exploration licences.

This is according to government spokesman Jimmy Manyi, who told a post-cabinet briefing last week that resolution of the licensing issue remained “urgent”.

He said there would be some delay, however, as two new government departments were now part of a probe into the environmental impact of the proposed fracking operation.

The Science and Technology Department had also voiced concerns that communications systems used by the hydraulic fracturing operation in the Karoo would affect the square kilometre array (SKA) radio telescope.

South Africa and Australia are shortlisted as possible hosts for the radio telescope.

Significantly, the cabinet endorsed the February decision by the Mineral Resources Department to invoke a moratorium on licences in the Karoo where fracking was proposed.

Manyi said the Mineral Resources Department was already involved in determining the impact of the fracking and would now be joined by the departments of trade and industry and science and technology.

The ultimate decision on the licences will be the responsibility of the Mineral Resources Department in consultation with the Petroleum Agency of South Africa (Pasa).

Manyi said that in the meantime the cabinet had made “it very clear” that a clean environment “together with all the ecological aspects” would not be compromised.

Fracking has been opposed by environmental groups and farmers, including Stellenbosch-based billionaire entrepreneur Johann Rupert, on the grounds that it is likely that the process of injecting millions of litres of water deep underground could contaminate natural aquifers higher up.

Until the cabinet decision the pendulum had swung heavily in the direction of support for the procedure by the government with both Pasa representatives and government ministers giving their guarded support.

Leading the support was Pasa’s frontier geology manager Jennifer Marot who told MPs at a briefing of a joint meeting of the mineral resources and energy portfolio committees: “I believe... that it is unlikely that ground water would be contaminated by the fracturing process.”

DA environment spokesman Gareth Morgan, who called for a moratorium over a year ago, said fracking was “a high risk” procedure making use of toxic chemicals and was “by no means foolproof”.

Morgan said that neither the mineral resources nor the water affairs departments had sufficient compliance and enforcement capacity to monitor “and hold exploration rights holders to account”.

Manyi also said that Science and Technology Minister Naledi Pandor had concerns which needed consideration.

Pandor said in reply to a recent parliamentary question that the prospect of fracking would not have an impact on South Africa’s bid to host the SKA. However, she acknowledged that if the application from Royal Dutch Shell for an exploration licence was granted and it used frequency ranges that interfered with the SKA, “the prospecting will affect radio astronomy”.

## **NGO ‘ready to oppose future mining in Karoo’**

April 26, 2011  
Eyewitness News

The Treasure the Karoo Action Group on Tuesday said it would be illogical for government to selectively impose a moratorium on mining in the region.

It has been reported that the temporary ban announced last week only applies to future mining licences and excludes existing ones.

Several communities across the Karoo are opposed to Shell South Africa’s plans to mine for shale gas using hydraulic fracturing, also known as “fracking”.

The group’s Jonathan Deal said he has not ruled out future legal action to prevent mining in the area.

“Ourselves and the other NGOs - some of the other stakeholders involved - are very committed to using any legal remedy available to us to enforce our rights on behalf of all South Africans,” he said.

# Farmers hail Cabinet's fracking moratorium

April 26, 2011  
Mail & Guardian Online

Agri South Africa president Johannes Möller has welcomed Cabinet's endorsement of the mineral resources department's decision to place a moratorium on licences to undertake shale gas development in the Karoo by way of hydraulic fracturing, or "fracking".

"The particular Cabinet decision follows Agri SA's letter to Minister [Susan] Shabangu on 24 March requesting a moratorium on shale gas mining where fracking is proposed, pending the findings of a United States inquiry currently conducted by their Environmental Protection Agency (Usepa) and aimed specifically at fracking," he said.

Agriculture in the Karoo could not afford to be exposed to uncertain shale gas development processes which could affect the economic survival and quality of life of rural communities.

"The availability and quality of subterranean water resources represent the life-artery of the area," Möller said.

He also expressed the hope that government would deal similarly with other areas in South Africa where shale gas development using this method was planned.

"We would like to be included in the multidisciplinary team led by the department of mineral resources, which will undertake research into the implications of fracking.

"Agri SA appreciates Cabinet's commitment to a clean environment whereby ecological aspects will not be compromised," Möller said.

# No ‘fracking confusion’ in SA

April 26, 2011

News24

Cape Town - A lobby group opposed to hydraulic fracturing as a mining technique to extract shale gas has dismissed media reports that oil giant Shell’s “fracking” application for the Karoo basin would continue to be heard.

The Cape Times reported on Tuesday a moratorium announced by Cabinet last week had no impact on existing applications for fracking licenses, and that it only affected new applications.

“It is absurd for anyone to suggest that Cabinet intended anything other than what is clearly described in the press release that was issued last Thursday,” Treasure the Karoo Action Group (TKAG) national co-ordinator Jonathan Deal said in a statement.

Cabinet’s press released said that Cabinet had, “endorsed the decision by the department of mineral [resources] to invoke a moratorium on licenses in the Karoo where fracking is proposed”.

Statements attributed to a departmental spokesperson would serve only to rubbish the clear written directions from Cabinet, as described in their press release, Deal said.

## **Illogical**

Dr Luke Havemann, specialist energy attorney and author of a critical review of the Shell environmental management plan, said it would be illogical for the moratorium to only apply to new applications and for the current applications before the regulator the Petroleum Agency of SA (Pasa) and the department to be considered and possibly approved.

It would be a foolish step to appoint a multi-disciplinary task team to delve into the issue of environmental degradation yet simultaneously allow for hydraulic fracturing to be authorised and undertaken, he said.

“Such an approach would not amount to a risk-averse and cautious approach and as such would constitute a breach of a cardinal principle of our environmental law.

“It follows that the relevant task team must complete a comprehensive assessment of the risks posed by fracking before any decision can be made in relation to any application for authorisation to conduct hydraulic fracturing, and therefore that the intention of Cabinet’s vote is absolutely clear in putting a halt to fracking at this time,” Havemann said.

# Shell to escape fracking moratorium?

April 26, 2011  
Frazana Rasool  
ITWeb

Cabinet has invoked a moratorium on proposed licences for fracking in the Karoo, which could affect SA's bid to host the Square Kilometre Array (SKA) telescope.

Opposition parties are pleased with the decision; however, questions around which applications for fracking are actually affected, remain unanswered.

In its ordinary meeting last week, Cabinet endorsed the decision by the Department of Mineral Resources (DMR) to impose the moratorium.

The Government Communication and Information System (GCIS) says the DMR will lead a multidisciplinary team, including the departments of trade and industry and science and technology, among others, to fully research all the implications of the proposed fracking.

"Cabinet has made it very clear that clean environment, together with all the ecological aspects, will not be compromised," says the GCIS.

The proposed fracking was put forward by oil company Shell to explore for gas in an area of more than 90 000 square kilometres, in the South Western Karoo Basin.

Since this is where the SKA would be hosted, should SA win the bid, such exploration could threaten SA's bid to host the mega telescope.

## Old gold?

Luke Havemann, director at Havemann Inc, a firm specialising in energy matters, says questions around which applications are affected need to be addressed.

He refers to statements by DMR media liaison Bheki Khumalo saying the moratorium only applies to new licence applications – possibly meaning those already put forward by Shell, Falcon Oil and Gas, and Bundu still stand.

Khumalo says the Cabinet statement says the moratorium is on "new prospecting applications. The law is very clear. It says if someone like Shell submits an EMP [environmental management plan] to the department, it has 120 days to consider it and the minister is not at that point yet with Shell's EMP."

However, Havemann says it makes no sense to have new applications stopped, while old ones continue. He adds that it goes against the idea of a cautious approach, which is required by law in this kind of matter.

“There must be a complete comprehensive investigation into all the implications first. The two just don’t go hand-in-hand. You can’t allow for certain ones to slip through the cracks because they were there before.”

Havemann also says the exact framing of Cabinet’s statement applies across the board to all applications.

He previously put forward a written objection to Shell’s exploration under instruction from the Treasury the Karoo Action Group.

### **Good decision**

Democratic Alliance (DA) shadow minister of water and environmental affairs Gareth Morgan says the official opposition party welcomes Cabinet’s decision to place a moratorium on onshore gas exploration licences.

“The DA appreciates that common sense has prevailed. There is no policy on hydraulic fracturing, more commonly known as fracking, in SA.

“Most notably, fracking is a high-risk procedure making use of toxic chemicals and is by no means foolproof. Neither the Department of Mineral Resources nor the Department of Water have sufficient compliance and enforcement capacity to monitor and hold exploration rights holders to account if there are pollution events.”

### **SKA threat**

Val Munsami, deputy director-general for research development and innovation at the Department of Science and Technology (DST), says the shale gas initiative leaves a big question around the SKA.

At a Parliamentary Portfolio Committee meeting last month, he said the department is concerned about the exploration from an SKA perspective.

“In terms of international lobbying strategies, it’s starting to creep in. The international partners are asking questions about where this is going and how it will impact the SKA.”

Associate director of the SKA SA project Anita Loots said the actual fracking may cause a problem at a later stage, but the immediate concern is around strong radio signals that will be present because of the exploration.

In response to a National Council of Provinces question this month, science and technology minister Naledi Pandor said an application for prospecting has no impact on SA’s bid to host the SKA.

“An application can only have impact if granted. If the Shell application is granted, and if Shell uses communication systems with frequency ranges that interfere with radio telescope operations, the prospecting will affect radio astronomy.”



## **Big risk**

SA is bidding against Australia to host the SKA.

The final decision regarding the successful host country for the SKA telescope is expected in 2012, with work due to start in 2013. Operations will start in 2015, provided a significant portion of the array has been commissioned.

The SKA is a mega telescope, about 100 times more sensitive than the biggest existing radio telescope.

## **Moratorium on Karoo gas exploration is welcomed**

April 27, 2011

Max Matavire

The New Age

Hundreds of farmers and environmentalists in the Eastern Cape have overwhelmingly welcomed government's decision to place a moratorium on gas exploration in the Karoo, in what some have described as a victory for the opponents of the exploration by oil firms in the area.

Controversy brewed over the proposed gas exploration in the Karoo by seven companies, including oil giant Shell.

Shell has already submitted a proposal document to the Department of Minerals and Energy on how it intended applying its fracking technique to extract gas in the area. Due to immense pressure from the farming community and environmentalists in the Eastern Cape, the government has announced that an investigation into the method Shell proposes to use be conducted to determine its effects on the underground water system.

The government this week said: "The Cabinet has endorsed the decision by the Department of Minerals and Energy to invoke a moratorium on licences in the Karoo where fracking is proposed."

Fracking involves millions of litres of water, sand and chemicals being pumped at high pressure into underground shale beds to create cracks for gas and oil to escape.

Cabinet's decision follows numerous concerns raised about contamination of ground water and whether there is sufficient water available in the semi-arid area for such a water intensive industry, what it would do to farmers' livelihoods and eco-tourism, and the damage it would do to the fragile Karoo ecosystem.

These concerns also coincide with news that broke last week of a blowout in a fracking well in Pennsylvania, US, spilling thousands of potentially toxic liquids across a pasture and into a water system.

Petrochemicals group Sasol, Anglo-American, Bundu Gas and Falcon Oil and Gas are among those also eyeing shale gas in the Karoo. Oil giant Royal Dutch Shell is leading the pack with an application for exploration rights to 90000km<sup>2</sup>.

Shell SA chairperson Boanng Mohale yesterday maintained that there won't be any environmental damage or pollution of underground water when the company does fracking.

However, Derek Light, a Graaff-Reinet attorney who is leading the anti-fracking campaign on behalf of more than 200 Eastern Cape farmers and others, yesterday said the moratorium was a victory for South Africa.

"It shows the government takes our environment and our Constitution seriously," said Light. He said the battle had never been against the government. "It is against these foreign gas exploration companies. This is a fantastic, extraordinary landmark in our democracy," said Light.

Cape Town attorney Luke Havemann, of Havemann Inc, the firm which presented the formal objection to the government by the Treasure the Karoo Action Group against the Shell application, said the compilation of the probe team was now the "question on everybody's lips", as well as how their findings would dovetail with the probes already under way in countries like the US, Canada and France.