

SHELL



Global Mega-Frackers



Written by Kevin Smith, with additional input from Mika Minio-Paluello, Anna Galkina, Pavlo Khazan, Frack Off and UK Tar Sands Network

PLATFORM

Web: www.platformlondon.org
Twitter: @platformlondon
Facebook: platformlondon
Email: info@platformlondon.org
Tel: 0207-403-3738

Platform relies on the support of individuals, trusts and foundations to ensure that we can keep promoting a vision of a fossil-fuel free future. If you would like to support us, visit: www.platformlondon.org/donate

Platform is a registered charity: no 1044485

FRACK OFF

Extreme Energy Action Network
Web: www.frack-off.org
Twitter: @frack_off
Facebook: frackoffuk
Email: info@frack-off.org
Tel: 07858-614861

Design by Sara Nilsson

Cover image:
Shell fracking protest outside Cape Town parliament.
Photo: Jolynn Minnaar



Shell Global Mega-Frackers

The era of relatively ‘easy to reach’ oil is over.

All fossil fuel extraction involves drilling and localised pollution, so none of it was ever ‘easy’ to reach. But global extraction levels for the oil that is comparatively straight forward to pump out seems to have peaked. Instead, the fossil fuel industry is increasingly focusing on harder to extract resources. Enter ‘unconventionals’ – dirtier fossil fuels which are more complicated to extract and refine, like tar sands, oil shale and shale gas, or those that are located in hazardous and challenging regions like the Arctic, or deepwater drilling.

It is not surprising then, that an established oil and gas major like Shell is investing heavily in global fracking and other unconventionals.

Fracking was originally industry slang for “hydraulic fracturing”, a specific method of cracking rock to access fuel trapped beneath low permeability rock. Since the gas or oil will not easily flow through the rock, pathways must be created with extensive drilling and fracturing.

Common features of fracking include horizontal drilling, stimulation (such as hydraulic fracturing and/or dewatering) and large numbers of wells drilled with dense, regular spacing - often as high as eight wells per square mile. These unconventional methods are used to extract shale gas (e.g. Barnett Shale in Texas and Marcellus Shale in Pennsylvania), tight oil (e.g. Bakken Shale in North Dakota) and coal bed methane (CBM) (e.g. Powder River Basin in Wyoming and Surat Basin in Queensland).

There is a large and growing body of literature on why fracking is proven to be damaging. Over 60,000 CBM wells and 45,000 shale gas wells have been drilled in the US, over 17,000 CBM wells in Canada, and over 5,000 in CBM wells in Australia. All these areas have experienced significant negative effects, including:

- 1** | Fracking inevitably results in some level of both air pollution and water contamination.
- 2** | The process involves enormous quantities of water - around four million gallons for each borehole.
- 3** | A massive industrialisation of the countryside, with well pads, compressor stations, pipelines, processing plants and so on.
- 4** | A wide range of health impacts, from nose bleeds and dizziness through to possible association with neurological problems and cancers.^{1, 2}
- 5** | In the US and Australia, fracking has negatively affected jobs and employment through its impact on agriculture and tourism.
- 6** | One of the most dangerous impacts is the fossil fuel industry’s framing of shale gas as ‘clean energy’ or a ‘transition fuel’. As Kevin Anderson of the Tyndall Centre for Climate Change Research has unequivocally put it:

“Shale gas is the same as natural gas - it is a high-carbon fuel, with around 75% of its mass made of carbon. For the UK and other wealthy nations, shale gas cannot be a transition fuel to a low-carbon future. Anyone who says differently does not understand our explicit international commitments under the Copenhagen Accord, the Cancun Agreements - or, alternatively, is bad at maths.”³

Shell is actively fracking or preparing to frack in every continent in the world. Its exploratory and extractive operations have also been accompanied by a PR offensive in the face of controversy, with CEO Peter Voser appearing on programmes such as BBC's Hardtalk to argue "why fracking is environmentally sound,"⁴ and accusing Europe of being "too emotional" on the issue.⁵

Shell doesn't only rely on their CEO in their PR efforts. It is also engaged in a multi-pronged sponsorship programme designed to help bolster its 'social licence to operate' - the company's ability to keep drilling despite causing numerous environmental and human rights abuses. The construction of this 'social licence to operate' in effect provides cover for the company's dirty and dangerous activities.

As part of its fracking PR offensive, Shell is heavily involved in both the creation of numerous front groups and the subversion of existing institutions in order to further their agenda. This goes beyond cultural sponsorship to include areas like academic research. The use of industry-funded academics to promote fracking has resulted in the coining of the term 'frackademic'. In the UK Shell funds ReFINE (Researching Fracking In Europe) at the Durham Energy Institute (DEI), whose inaugural meeting was held in Shell's headquarters.⁶ The Shell-Oxford Research Collaboration is another example of this trend.⁷

In the US Shell helped found the controversial MIT Energy Initiative, whose pro-fracking director has now been appointed Obama's Energy Secretary. Shell also funds industry front groups Shale Gas Europe and the Center for Sustainable Shale Development (CSSD) in the US to promote fracking.⁸

Shell has been the focus of global scrutiny for decades as a result of the pollution and conflict it has generated in the Niger Delta. More recently it attracted heavy criticism for both its tar sands extraction in Canada and its bungled attempts at oil drilling in the Arctic. This briefing shows that Shell should also receive negative publicity for its global fracking activities.

The briefing is also timed to coincide with the international Meltdown Festival taking place in June 2013 at the Southbank Centre in London. Every year, an artist of international repute curates the festival, and in 2013 that artist is Yoko Ono. Apart from an illustrious career spanning performance art,



The Shell Out Sounds choir make a guerrilla performance at the Southbank Centre.
Photo: Amy Scaife

conceptual art and music that spans decades, Yoko Ono has also made headlines for her anti-fracking activism. Alongside her son Sean Ono Lennon, she has led the organisation Artists Against Fracking, and pressured New York Governor Andrew Cuomo to maintain a state-wide moratorium on fracking.

The Southbank Centre, which hosts the Meltdown Festival, is not only located next door to Shell's London headquarters, but also has a long term history of accepting sponsorship from the oil company. The Shell website describes its "major sponsorship of Southbank Centre's recent Transformation Project, which included the newly refurbished Royal Festival Hall and surrounding area," as well as its sponsorship of the Shell Classic International concert series.⁹ This relationship was recently the subject of singing-interventions by a 'guerrilla-choir', Shell Out Sounds, who use "melody, harmony, poetry and rhythm to move hearts and expose Shell's greenwash."¹⁰

This briefing compiles numerous examples of Shell fracking around the world, but does not claim to be an exhaustive list. By timing the release with Yoko Ono's involvement in the Meltdown Festival, we hope to:

Increase awareness of the enormous role that Shell is playing in expanding fracking operations all over the world.

Create political space amidst the cultural showcase of the Meltdown Festival to understand the role that sponsorship plays in creating social legitimacy and cover for Shell's dangerous operations.

Promote the creative, community resistance to fracking that is taking place all over the world, which is especially instructive in the context of the industry being poised to start fracking in numerous sites across the UK.

NORTH AMERICA

USA

In Southern **Colorado**, Shell was given permission in 2011 to carry out exploratory fracking in a unique geological formation near the Spanish Peaks. Numerous local residents have protested at the lack of sufficient safeguard and a controversial approval process in which members of the public were prevented from speaking at preliminary meetings.¹¹

Shell is active in the massive Appalachian Marcellus Shale basin that stretches across a number of states including Pennsylvania. According to their website, “Shell is currently in full operation in the Tioga County area. We are also exploring the potential for natural gas development in Western **Pennsylvania**, specifically Lawrence and Butler Counties.”¹² Research from 2012 suggests that fluids from Marcellus Shale are seeping into Pennsylvania’s drinking water.¹³ Numerous protests against Shell’s operations have taken place including blocking the road to a fracking site with a giant papier mache pig.¹⁴

Shell is also involved in gas fracking in the USA in the Pinedale Anticline, Green River Basin, south of Pinedale, **Wyoming**, the Haynesville/Bossier Shale formation in east **Texas** and Western **Louisiana**, and Eagle Ford Shale, which extends from the edge of the **Texas** hill country southeast to the Mexico border.¹⁵

CANADA

Shell has shale gas fracking operations in Groundbirch, **North East British Columbia**. As of 2010 it had drilled 103 wells, with some 3,000 yet to come, causing a massive drain on fresh water sourced from the local Peace River. Millions of litres of water will be used for each well.¹⁶ The Deep Basin Tight Gas, located in **West Central Alberta** “consists of several tight gas sands trapped in a basin-centered gas system.”¹⁷

In 2012, Shell was forced to abandon its plans to extract coal-bed methane in an area of **British Columbia** known as the Sacred Headwaters on Tahltan Nation traditional territory following protests and interventions from both environmentalists and the Tahltan First Nation who consider the region “one of the most sacred and important areas for our people”, according to a spokesperson.¹⁸



Supporters of Maggie Henry’s farm in Lawrence County, PA chain themselves to giant pig in front of nearby Shell wellsite. Photo: ShadbushCollective



Banner with 60,000 signatures against Shell’s Sacred Headwaters development. Photo: Flickr/ltzafineday

AFRICA

ALGERIA

—

According to the International Energy Agency, Algeria holds 231 trillion cubic feet of recoverable shale gas. Companies including Shell have already signed contracts to explore for shale-gas, with Shell celebrating the “very attractive fiscal terms” it had been offered.¹⁹

Groups inside Algeria are challenging the fracking plans. The Anti-Shale Gas Euro-Maghreban Collective (CEMAGAS) and the Collectif National Pour Les Libertes Citoyennes (CNLC) have researched and publicly challenged corporate plans, including at events at the recent World Social Forum in Tunis. A statement from an Algeria solidarity group that protested in London when the Algerian energy minister was visiting said that “We are outraged by the complete lack of transparency in which the country’s affairs are being decided upon and we strongly denounce the ongoing alienation of the Algerian citizen from questions that are at the heart of the whole nation’s interests, for generations to come.”²⁰

TUNISIA

—

It is estimated that Tunisia has around 18 trillion cubic feet of potentially recoverable shale gas, and Shell is poised to enter a fracking deal with

the government. The international trade union, Public Services International (PSI) working with local affiliates, the Tunisian General Labour Union (UGTT), have announced that they are coordinating a national campaign in Tunisia against fracking due to the pressure it puts on the scarce water resources, as well as the pollution it creates.²¹

EGYPT

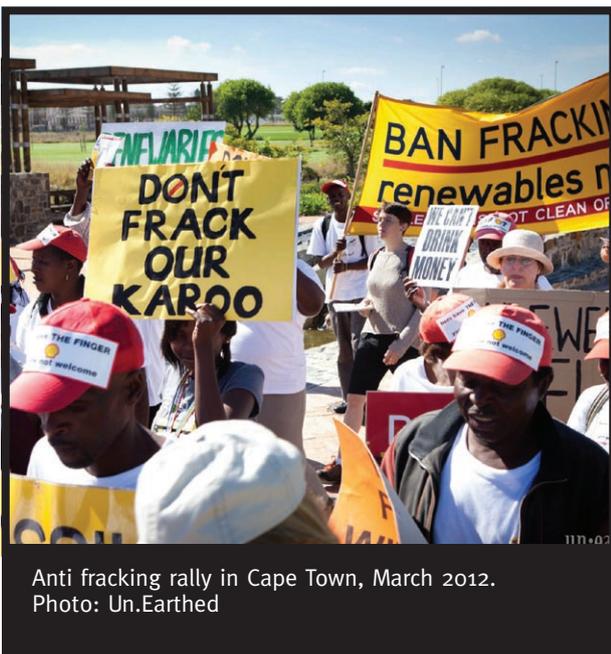
—

Shell has used hydraulic fracturing technology to drill three wells in Egypt’s Western Desert, in the Alam El Shawish West concession. Concerned that scarce water resources will be poisoned, local NGO Egyptian Initiative for Personal Rights (EIPR) has condemned the introduction of fracking to Egypt and demanded an immediate moratorium. Speaking in 2012, Reem Labib, EIPR’s Environmental Justice Researcher, explained that: “Fracking threatens Egypt’s drinking water, but Shell and Dana’s drilling is mired in secrecy. We don’t know the ingredients in the toxic cocktail used, where they plan to source water from, or how the poisonous slurry will be disposed of. The government hasn’t published any regulations specific to fracking, the local geological conditions, or how and whether it will monitor and evaluate the impacts of fracking.”²²

SOUTH AFRICA

—

In South Africa Shell has applied for rights to explore for shale gas in three huge blocks across the Karoo, totalling some 90 000 square kilometres, and in September 2012 the government lifted a 14 month moratorium on exploratory fracking.²³ This semi-desert region, renowned for its natural beauty, is thought to contain what could be the largest deposits of shale gas in the world. Local activists the Treasure Karoo Action Group have produced a legal document that critiques Shell’s Environmental Management Plan for fracking in the Karoo, and in 2011 the South African Advertising Standards Authority upheld four of the group’s complaints against Shell’s fracking advertising campaign as being false and misleading.²⁴



Anti fracking rally in Cape Town, March 2012.
Photo: Un.Earthed

ASIA

CHINA

In 2012, Shell's top executive in China announced that the company was planning to spend \$1 billion a year exploiting the country's shale gas reserves. Shell also intends to build a \$12.6 billion refinery and petrochemical complex in eastern China.²⁵ A report by the independent publication Caixin has suggested that fracking technologies have not received the same degree of public scrutiny as they have in the US, "much less addressed by the [Chinese] government or controlled via environmental laws."²⁶

AUSTRALIA

In 2010 shell carried out a joint takeover of coal seam gas producer Arrow, along with PetroChina.²⁷ In March 2013 the company faced criticism from a scientific committee set up by the federal government over its Surat Basin plans, citing lack of information on the project's potential impacts on the basin's groundwater and the fact that Arrow did not adequately address potential impacts to Matters of National Environmental Significance. As part of its Bowen Basin project, the company intends to drill 6,600 wells and generate 264 billion litres of water over the 40 year life of the project.²⁸

SOUTH AMERICA

ARGENTINA

In March 2013, a Shell-subsiidiary carrying out exploratory fracking in Sierras Blancas de Vaca Muerta, an area in Neuquen province discovered shale oil.²⁹

EUROPE

TURKISH KURDISTAN

Shell is drilling for shale gas in the region around the southeastern city of Diyarbakir in the vast Dadas Shale and is expected to drill three more wells in 2013.³⁰ The region is already heavily militarised as a result of Kurdish liberation struggles, and the development of more fossil fuel infrastructure is likely to incentivise yet more militarisation and human rights abuses.

RUSSIA (SIBERIA)

In April 2013 Shell signed a deal with Russian oil and gas major Gazprom that extends their existing joint venture on Salym field in Western Siberia. Shell will provide Gazprom with the fracking technology to extract shale oil around their existing Salym field, and potentially other sites. According to Shell's head of international oil & gas production Andrew Brown, "Russian shales are some of the most exciting in the world, but this is not a short-term production story at all." Shell's Salym joint venture has been under criticism from local environmental organisations for using a subcontractor that "disposed" of toxic drilling waste by mixing it with sand or concrete then dumping the toxic mix.

UKRAINE

In January 2013, Shell signed a \$10 billion shale gas Production Sharing Agreement with the government of Ukraine.³¹ Ukraine is believed to have an estimated 1.2 trillion cubic meters of shale-gas reserves, the third-largest such deposits in Europe. Critics have argued that revenues from fracking would provide a means for the increasingly authoritarian Yanukovich regime to stay in power.

Shell's plans in the Ukraine have been the subject of mass protests from citizens and NGOs,³² over controversies surrounding the impacts on drinking water,³³ the destruction of natural reserves,³⁴ and over the fact that an Environmental Risk Assessment has not been adequately carried out. The details of the Production Sharing Agreement have not been made public, contrary to Ukrainian legislation, which has led to civil society debate and speculation that Shell may be extracting natural resources without paying appropriate levels of taxation.



"Stop the Frack Attack." march in Washington DC, 2012.



Ohio residents blockading a fracking waste well.

NOT JUST ABOUT FRACKING

SHELL IN THE TAR SANDS

Shell has been operating in Alberta's Athabasca tar sands since 1957, although major operations didn't begin until 2003. It now accounts for approximately 20% of overall operations in the region. Shell is currently planning to double its tar sands extraction capacity, further exposing the company to both reputational damage and political risk, including litigation.

The Athabasca Chipewyan First Nation (ACFN), a local downstream First Nation, has raised numerous grievances with Shell around permits, leases, applications, and unmet agreements. The ACFN is currently in strong opposition to Shell's proposed Jackpine expansion and Pierre River open pit tar sands mines because of their direct violation of treaty rights, poor consultation, the increase of adverse cumulative impacts to critical habitat of vital species, direct water usage and contamination, the direct linkage to pipeline construction and spills, and ultimately the project contributions to climate-changing emissions, and less investment into clean energy alternatives.

In November 2011 the ACFN filed a lawsuit against the company citing breaches of past agreements, over \$1.5 million in losses for the First Nation, and severe adverse impacts on treaty rights. This case is still currently in discoveries and will be heard in 2013. This case has put the reputation of the company in question and creates serious reputation risk.

Athabasca Chipewyan First Nation -

<http://acfnchallenge.wordpress.com>

UK Tar Sands Network -

<http://no-tar-sands.org>

SHELL IN THE ARCTIC

Shell has spent \$4.5bn on drilling in the US Arctic and had to suspend operations after a series of accidents and safety problems with its ships and spill containment equipment.

REDOIL, an Alaskan Indigenous network, is calling for a moratorium on offshore drilling in the Arctic. The Beaufort and Chukchi Seas are critical to Indigenous subsistence way of life, and provide a vital habitat for polar bears, walruses, seals, migratory birds and the endangered bowhead whale. This ecosystem is already being hammered by climate change, with summer sea ice continuing to be lost at a record pace. Oil drilling further endangers it with pollution, noise disturbance and the risk of spills.

If an oil spill were to happen in icy waters, standard methods of cleanup would be ineffective, and darkness and harsh weather preclude cleanup operations for a large proportion of the time. Shell could face inordinate clean-up, litigation and compensation costs.

REDOIL -

http://earthjustice.org/about/clients_coalitions/reoil



Polar bear arrested during Edinburgh Arctic protest
© Steve Morgan / Greenpeace

SHELL IN THE NIGER DELTA

The Ogoni are an indigenous ethnic group numbering about 1.2million people inhabiting the coastal plains of the oil-rich, but impoverished Niger Delta region of Southern Nigeria. Oil in commercial quantities was discovered in their land by Shell in 1958, and from that point until they were ultimately expelled in 1993, Shell spent more than three decades intensively polluting the earth, air and waterways of the region, leaving a legacy of devastated communities. The intense and widespread resistance of Ogoni communities to Shell's operations resulted in brutal repression from the Nigerian government, often with Shell's cooperation, including mass arrests, rape, kangaroo courts and the execution of Ken Sar-Wiwa and 8 other Ogoni activists.

In 2011, a United Nations Environment Programme (UNEP) report condemned Shell's decades of pollution in the region and insisted that the clean up should start with a \$1 billion fund. In May 2013, Celestine AkpoBari Nkabari, an Ogoni activist from Social Action travelled to London to present retiring Shell CEO Peter Voser with a bottle of polluted water from Ogoniland. He said:

“I have travelled all the way from the Niger Delta to ask Shell what it has been doing in the past two years since the UN report established their responsibility for the devastating pollution in my homeland. We see no evidence of Shell starting the clean up. The only evidence that we see is the oil in our water, the smoke in our air, the crops that die and our livelihoods and culture that are destroyed. All the things that Ken Saro-Wiwa was fighting for, we are still fighting for them. While Peter Voser is retiring to spend more time with his family, in Ogoniland we are still fighting for a livable environment for our families.”

Social Action

www.saction.org



Akpobari Celestine from the Niger Delta presents a retirement present to Shell CEO Peter Voser.
Photo: Amy Scaife

1. Symptomatology of a gas field – An independent health survey in the Tara rural residential estates and environs, Dr Geralyn McCarron, April 2013. <http://scribd.com/doc/141534540/Fracking-Health-Report-Australia>
2. Breast cancer rate climbs up, Denton Record-Chronicle, 31 August 2011. <http://dentonrc.com/local-news/special-projects/gas-well-drilling-headlines/20110831-breast-cancer-rate-climbs-up.ece>
3. 'Viewpoints: Fracking's risks and benefits,' BBC Website, 5 January 2013. <http://bbc.co.uk/news/science-environment-20758673>
4. 'Shell CEO Voser: Why fracking is environmentally sound,' BBC HardTalk, 3 December 2012. <http://news.bbc.co.uk/1/hi/programmes/hardtalk/9774436.stm>
5. 'Europe is too emotional about fracking, says Shell chief,' Independent, 3 February 2012. <http://independent.co.uk/news/business/news/europe-is-too-emotional-about-fracking-says-shell-chief-6316129.html>
6. Frackademics In UK Pushing Industry Spin, Frack Off, 10 April 2013. <http://frack-off.org.uk/frackademics-in-uk-are-pushing-industry-spin>
7. Shell funds shale gas research at Oxford University, Extreme Energy Initiative, 9 May 2013. <http://extremeenergy.org/2013/05/09/shell-funds-shale-gas-research-at-oxford-university>
8. Fracking Greenwash: Revenge Of The Frackademics, Frack Off, 22 April 2013. <http://frack-off.org.uk/fracking-greenwash-revenge-of-the-frackademics>
9. Accessed 21 May 2013 - <http://shell.co.uk/gbr/environment-society/shell-in-the-society/social-investment/communities-sponsorships.html>
10. See <http://shelloutsounds.org/about/>
11. 'Colorado: Shell gets OK for fracking in Spanish Peaks', Summit County Citizens Voice, 4 July 2011. <http://summitcountyvoice.com/2011/07/04/colorado-shell-gets-ok-for-fracking-in-spanish-peaks/>
12. Shell US website, accessed 7 May 2013. <http://shell.us/aboutshell/projects-locations/appalachia.html>
13. 'New Study: Fluids From Marcellus Shale Likely Seeping Into PA Drinking Water', Pro Publica, 9 July 2012. <http://propublica.org/article/new-study-fluids-from-marcellus-shale-likely-seeping-into-pa-drinking-water>
14. 'Farm Supporters Use Giant Pig to Protest Fracking Near Bessemer, Pa.', AOL News, 28 January 2013. <http://on.aol.com/video/farm-supporters-use-giant-pig-to-protest-fracking-near-bessemer-pa--517655707>
15. 'Shell North America Onshore Gas Assets'leafelt, downloaded on 7 May 2013. <http://so3.static-shell.com/content/dam/shell/static/usa/downloads/onshore/onshore-assets-insert.pdf>
16. 'Royal Dutch Shell and its sustainability troubles Background report to the Erratum of Shell's Annual Report 2010', Milieudefensie, 17 May 2011. <http://milieudefensie.nl/publicaties/rapporten/shell-background-report/view>
17. 'Shell North America Onshore Gas Assets'leafelt, downloaded on 7 May 2013. <http://so3.static-shell.com/content/dam/shell/static/usa/downloads/onshore/onshore-assets-insert.pdf>
18. 'Shell Abandons Fracking Plans For BC's Sacred Headwaters', DeSmogBlog, 18 December 2012. <http://desmogblog.com/2012/12/18/shell-abandons-plan-frack-bc-s-sacred-headwaters>
19. 'Europe's Shale Boom Lies in Sahara as Algeria Woos Exxon', Bloomberg, 26 November 2012. <http://bloomberg.com/news/2012-11-26/europe-s-shale-boom-lies-in-sahara-as-algeria-woos-exxon.html>
20. "'Gaz de schiste – c'est fasciste!' – Don't Frack Algeria', Platform blog, 17 April 2013. <http://platformlondon.org/2013/04/17/gaz-de-schiste-cest-fasciste-fracking-algeria/>
21. 'International Union Enters Debate on Shale Gas in Tunisia', TunisiaLive website, 24 November 2012. <http://tunisia-live.net/2012/11/24/international-union-enters-debate-on-shale-gas-in-tunisia/>
22. 'Shell frack Egypt, threatening scarce water resources; Egyptians demand moratorium', Platform blog, 19 September 2012. <http://platformlondon.org/2012/09/19/shell-frack-egypt-egyptians-say-oi/>
23. 'Shell keen to start up Karoo drill', iolScitech website, 7 February 2013. <http://iol.co.za/scitech/science/environment/shell-keen-to-start-up-karoo-drill-1.1466166>
24. See <http://treasurethekaroo.co.za/about>
25. 'Shell plans at least \$1 billion a year China shale gas investment', Reuters, 21 August 2012. <http://reuters.com/article/2012/08/21/us-shell-china-idUSBRE87KoAS20120821>
26. 'China planning 'huge fracking industry'', Mother Jones, 27 November 2012. <http://guardian.co.uk/environment/2012/nov/27/china-planning-huge-fracking-industry>
27. 'Joint deal with Shell gives Beijing a stake in Australian coal-seam gas', Guardian, 22 March 2010. <http://guardian.co.uk/business/2010/mar/22/shell-petrochina-deal-australian-gas>
28. 'Arrow Energy in hot water over coal seam gas impact', The Courier Mail, 12 March 2013. <http://couriermail.com.au/business/arrow-energy-in-hot-water-over-coal-seam-gas-impact/story-fnefl294-1226595059811>
29. 'Shell Unit Finds Unconventional Hydrocarbons in Argentina,' Latin American Herald Tribune, 27 March 2013
30. 'UPDATE 1-Turkey finds wider evidence of shale gas – minister', Reuters, 20 Feb 2013. <http://reuters.com/article/2013/02/20/turkey-shalegas-idUSL6NoBKDIK20130220>
31. 'Shell, Ukraine in \$10 Billion Shale Gas Deal,' Industry Week, 25 January 2013. <http://industryweek.com/energy-management/shell-ukraine-10-billion-shale-gas-deal>
32. 'Харьков сказал «сланцевому газу»: «Давай, до свидания!»', Friends of the Earth Ukraine. <http://zsfoe.org/harkov-skazal-slantsevomu-gazu-davay-do-svidaniya/>
33. 'Дешевый сланцевый газ оставит Восток Украины без воды', 24 October 2012. <http://polemika.com.ua/article-101218.html>
34. 'Сланцевый газ: «вас забыли спросить...»', 26 November 2012. <http://dz.ua/news/77395>