

Degrowth and Fracking

Failing Techo Fix for the Growth Economy

Brian Davey

Feasta and Frack Free Notts



Rex Tillerson, CEO Exxon-Mobil

“We have spent our entire existence adapting. We'll adapt ... It's an engineering problem and there will be an engineering solution.”

Protecting the “Faith” in endless Economic Growth

- *The Problem*
- Depletion = using progressively inferior resources which are more costly to extract
- Greater pollution and wastes through use of inferior resources = public health and environmental problems

The Faith

Depletion and Pollution will be resolved by technological change following responses to markets and price signals

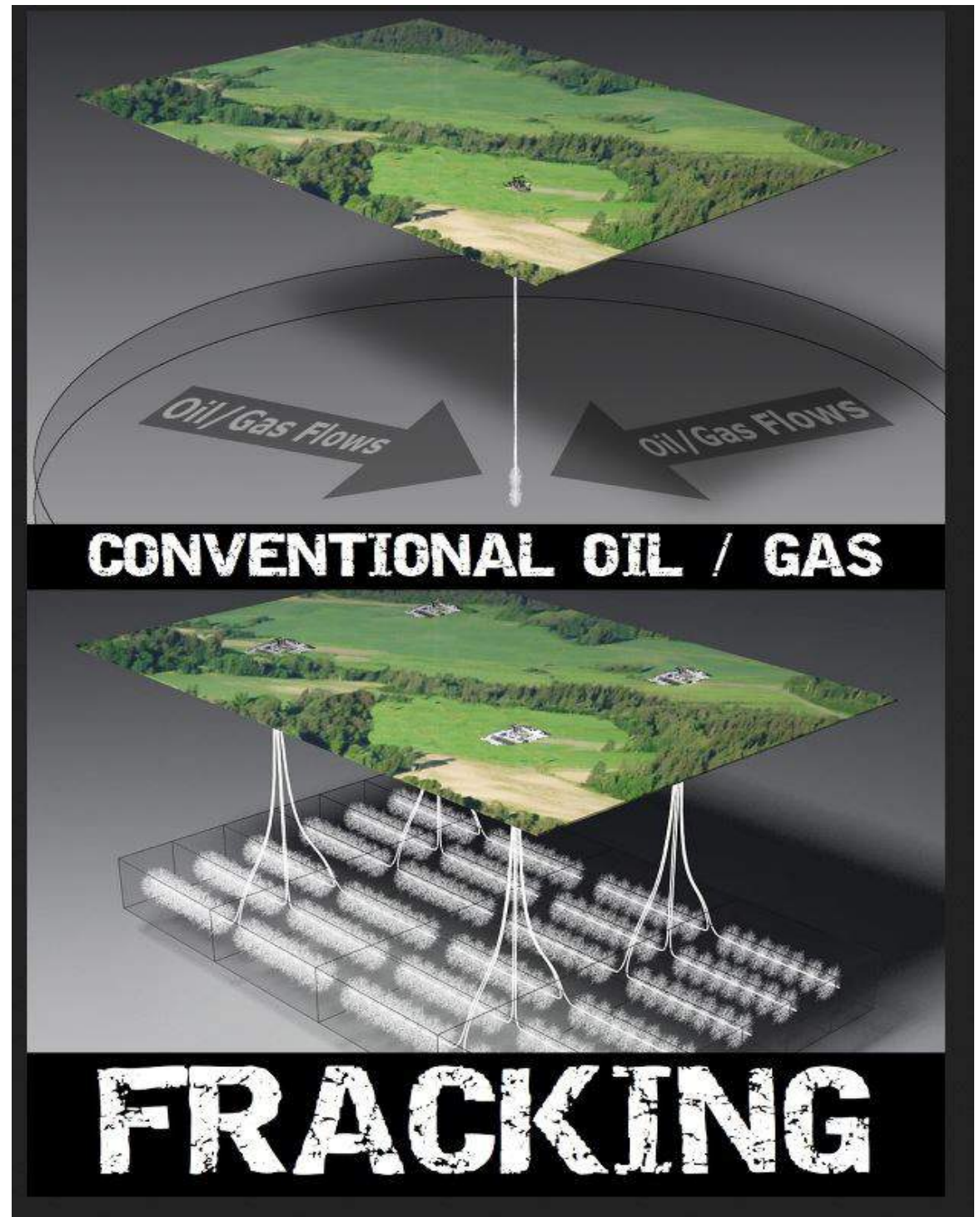
Maintaining the faith involves
Inability to acknowledge risks and harms

Necessitates PR, friends in government and neutralising the regulatory system as effective protection above the heads of local people so as not to get in the way

What makes Shale Oil/Gas an inferior Resource?

Scale, operational intensity and land take are hugely different in conventional and unconventional fields

Could be 100 or more wells per 10km x 10km square . This would be 10 well pads with 10-50 wells originating from each pad + access roads, pipelines, compressor stations, hundreds of trucks, settling ponds (in some countries), flares stacks etc.



Gas industry apologists typically frame the issues in terms by describing single wells, or single well pads or single fracks. But these would not be economic - relevant scale to describe is *a gas field* with hundreds of wells.

Scale Matters. A 5% chance of a single well failing for one well is not the same as a 5% chance of each well failing in a 100 well gas field.

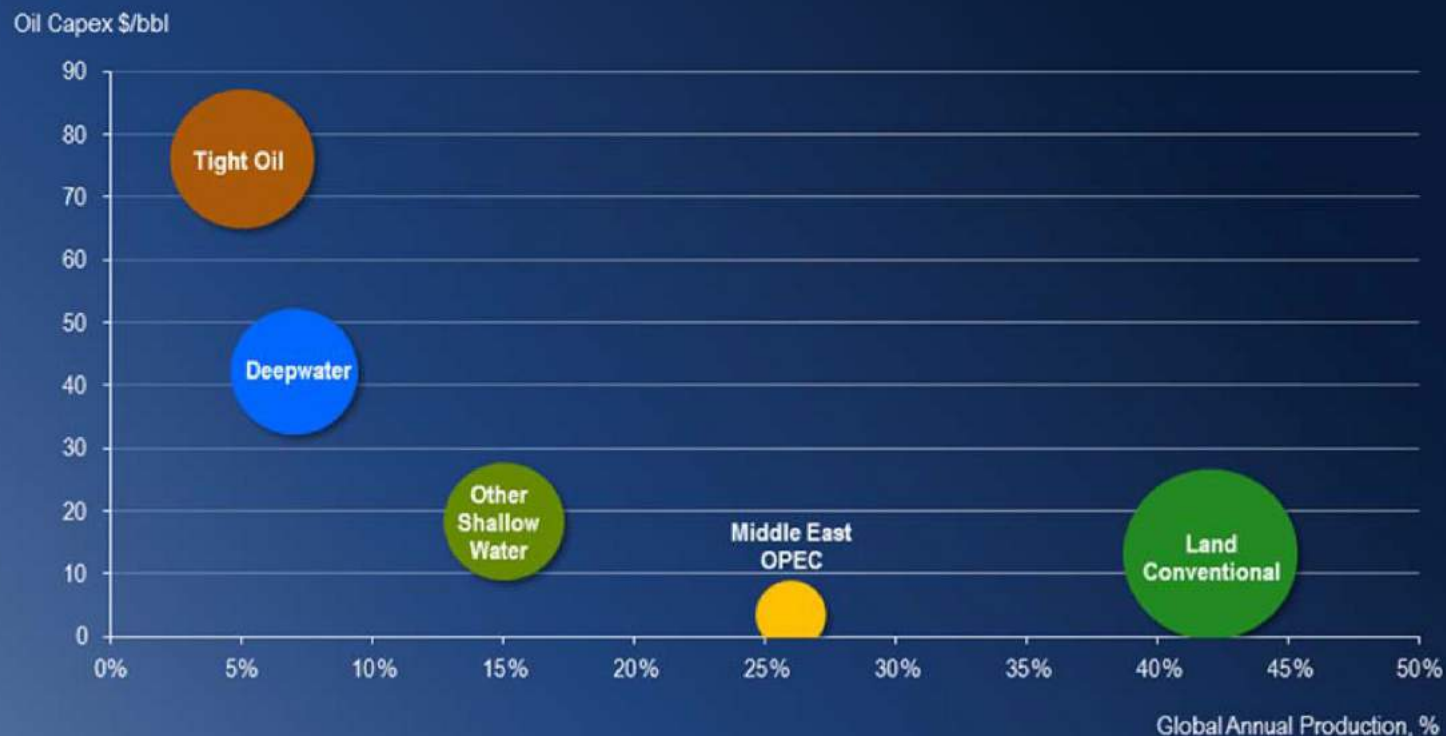


Higher Capital Intensity = Extra Borrowing

Servicing the debt requires high oil and natural gas prices and low interest rates

All Resources Are Not Equal

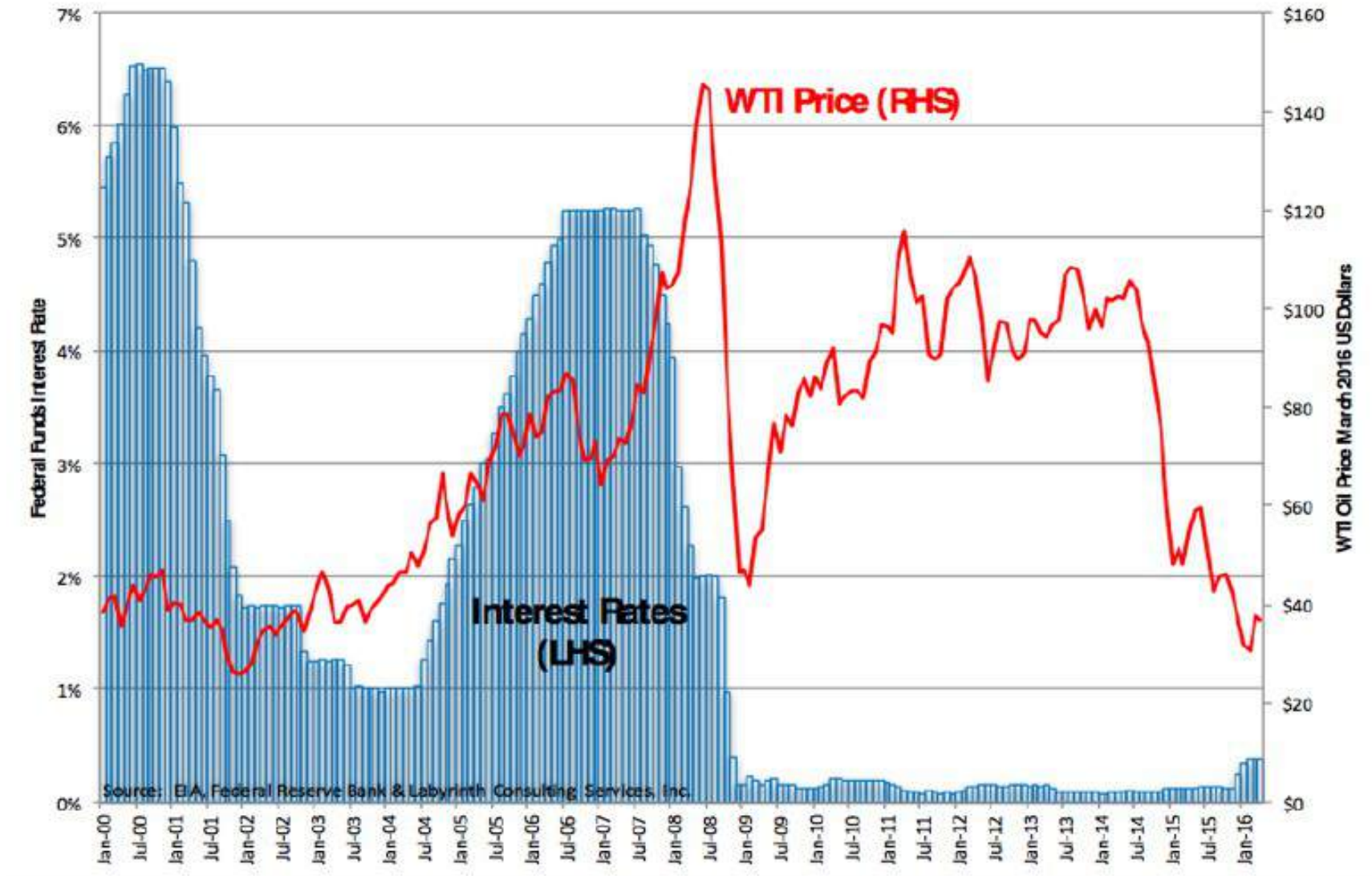
Oil Production and Capex by Operating Environment, 2014
Bubble size represents E&P Oil Capex Billion US\$



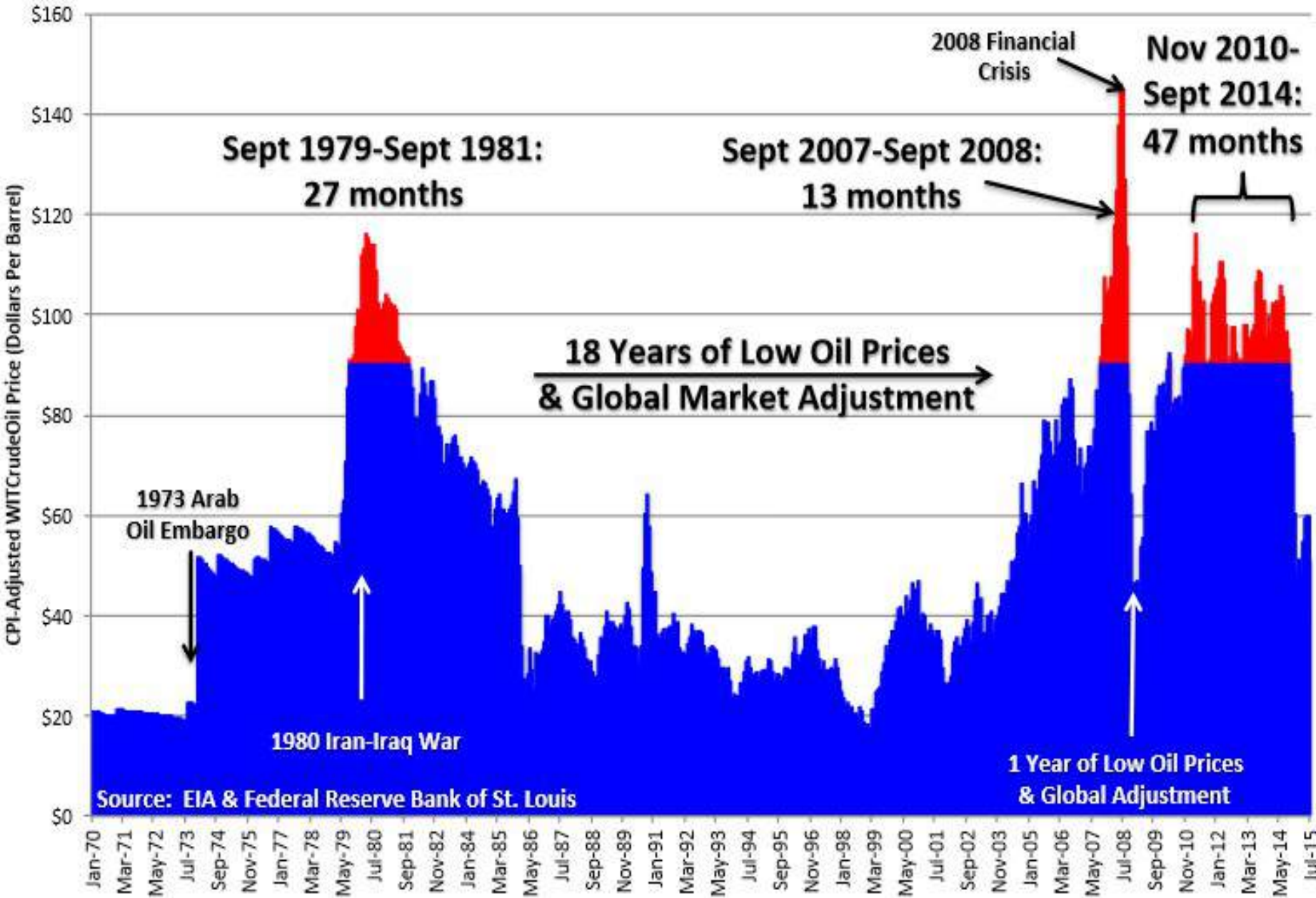
Source: Barclays, IEA, SLB Analysis
Note: Middle East OPEC: Saudi Arabia, Kuwait, UAE and Qatar

The Cost of Borrowing

Federal Funds Interest Rates January 2000-March 2016



Oil Prices in 2015 Dollars

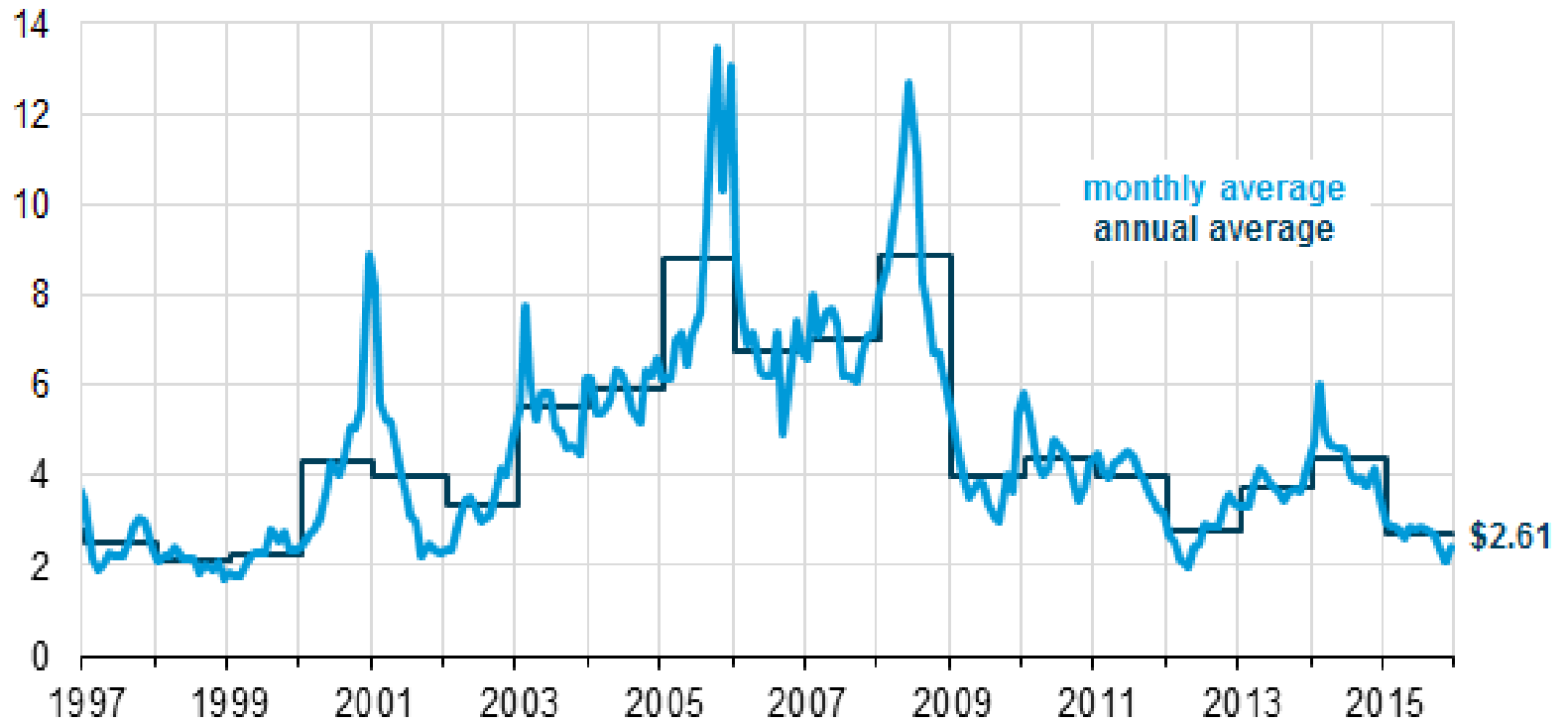


Source: EIA & Federal Reserve Bank of St. Louis

JANUARY 5, 2016

Average annual natural gas spot price in 2015 was at lowest level since 1999

Monthly and annual average natural gas spot price at Henry Hub (1996-2015)
dollars per million British thermal unit



Source: U.S. Energy Information Administration, based on *Natural Gas Intelligence*

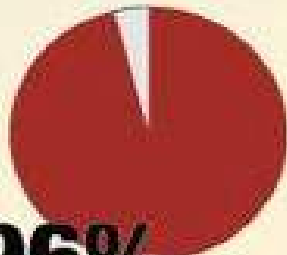
Break even in Marcellus shale roughly \$4 per million BTU so usually not profitable...

Extra Scale and Extra Operational Intensity = more environmental and public health risks and makes gas fields a competitor for land and water



Of the **400+** peer reviewed publications on the impacts of shale gas development, **75%** were published since January 2013

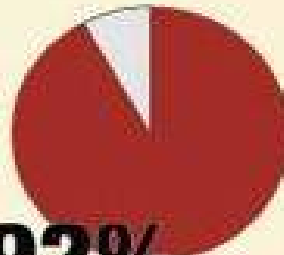
HEALTH



96%

*indicate potential risks or adverse health outcomes

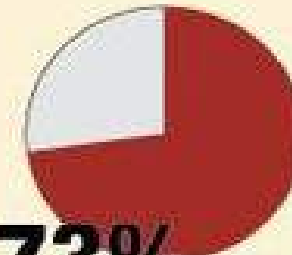
AIR QUALITY



92%

indicate elevated concentrations of air pollutants

WATER CONTAMINATION

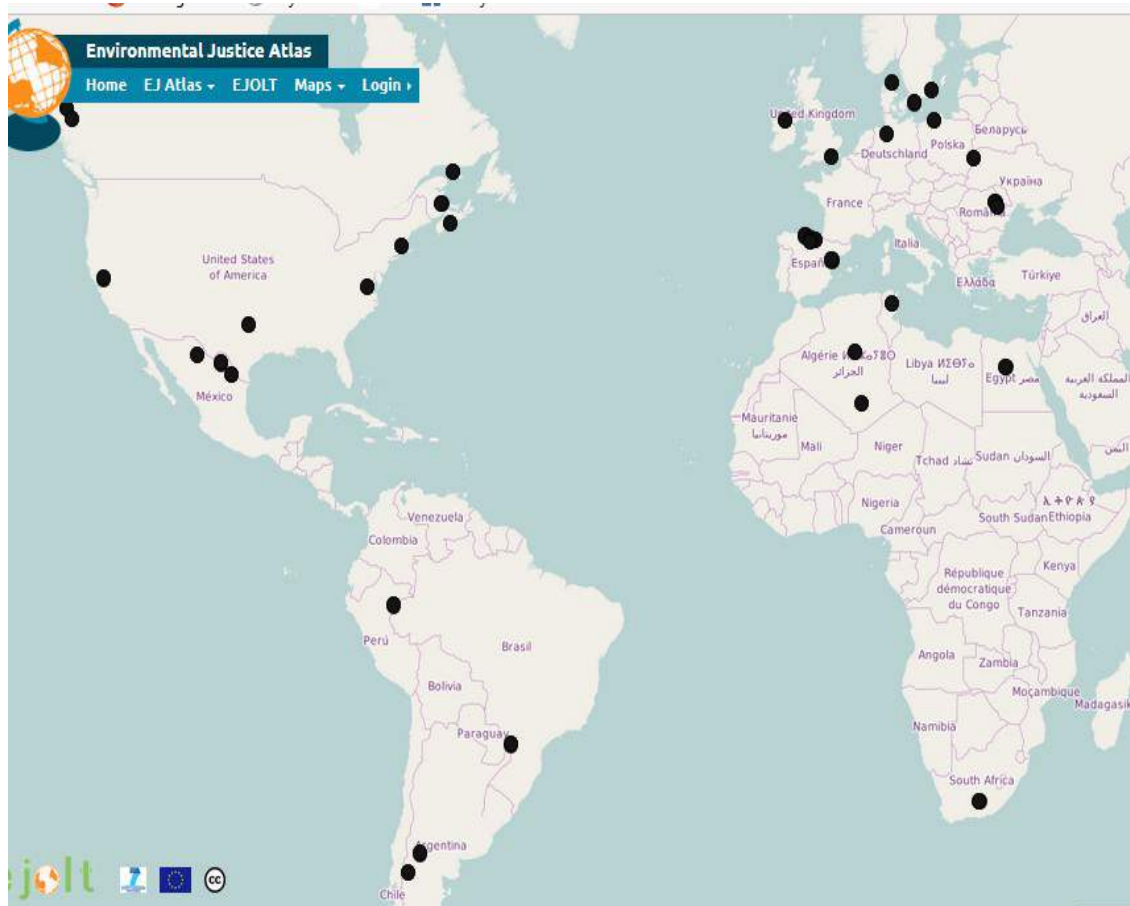


73%

indicate potential, positive association, or actual incidence of water contamination.

LISTEN TO THE SCIENCE
FRACKING = UNSAFE

More harms and risks and competition with other land and water use means conflicts with communities



- Environmental Justice Atlas (and FoE) lists fracking conflicts in:
- Canada, Northern Ireland, Spain, the USA, Mexico, Romania, Peru, Brazil, Tunisia, Algeria, Germany, Sweden, Egypt, South Africa, Poland and Argentina..there are also conflicts in Australia and a potential for conflict in Indonesia and perhaps China

Local Opposition eg by farmers often militant and effective eg Pungesti in Romania and Zurawlov in NE Poland near the border with the Ukraine



**Local
opposition
using
information
from
horizontal
global
networks
against the
top-down
strategy
steered
globally**

2010 Global Shale Gas Initiative – now the *Unconventional Gas Technical Engagement Programme*

How Hillary Clinton's State Department Sold Fracking to the World

A trove of secret documents details the US government's global push for shale gas.

—By **Mariah Blake** | September/October 2014 Issue

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Illustration by John Ritter

Working with a range of other US government departments including the *Environmental Protection Agency* promoting the influence of *Chevron, ExxonMobil, ConocoPhillips and Shell*

Promoted fracking in:

China, South Africa, Poland, Lithuania Romania, Morocco, Bulgaria, Chile, India, Pakistan, Argentina, Indonesia, and Ukraine.

Geo-politics: NATO sells fracking as “energy independence”

theguardian
website of the year

UK world politics sport football opinion culture business lifestyle fashion environment tech travel

home › environment › energy pollution climate change wildlife

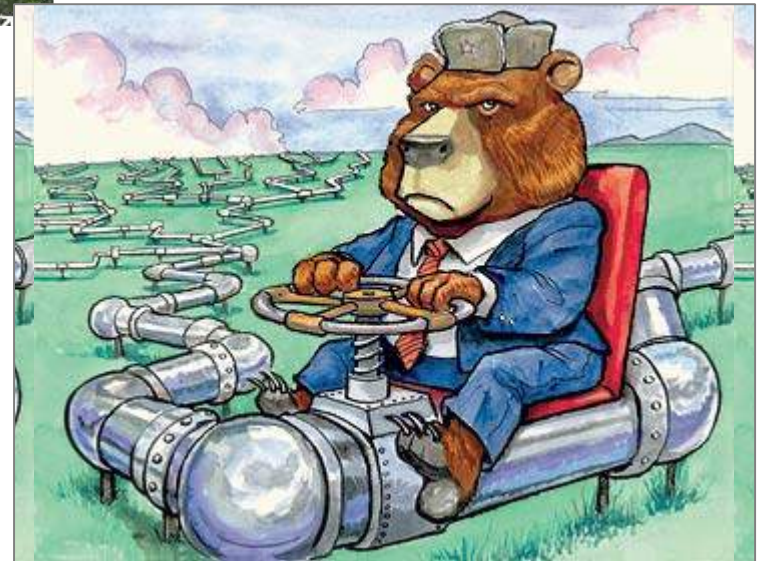
Environment

Russia 'secretly working with environmentalists to oppose fracking'

Nato chief, Anders Fogh Rasmussen, says Moscow mounting disinformation campaign to maintain reliance on Russian gas



...if you disagree with fracking you may be secretly working for the Russians...



Despite US Govt support...

- **Allowed/high level of development but loss making...**

- USA, Canada, Australia (Coal seam gas)

- **Not economically viable**

- Poland, Lithuania, Romania, Denmark, Norway, Sweden

In Conflict Zone and potential uncertain

- Ukraine

- **Allowed but still exploratory and early development**

- England, Northern Ireland, Spain, Hungary

- **Heavy Restrictions**

- Germany, Czech Republic, Austria,

Moratorium Reversed/Potential still unknown

South Africa

- **Developing but slower than anticipated**

- China, Argentina,

- **Banned or Moratorium**

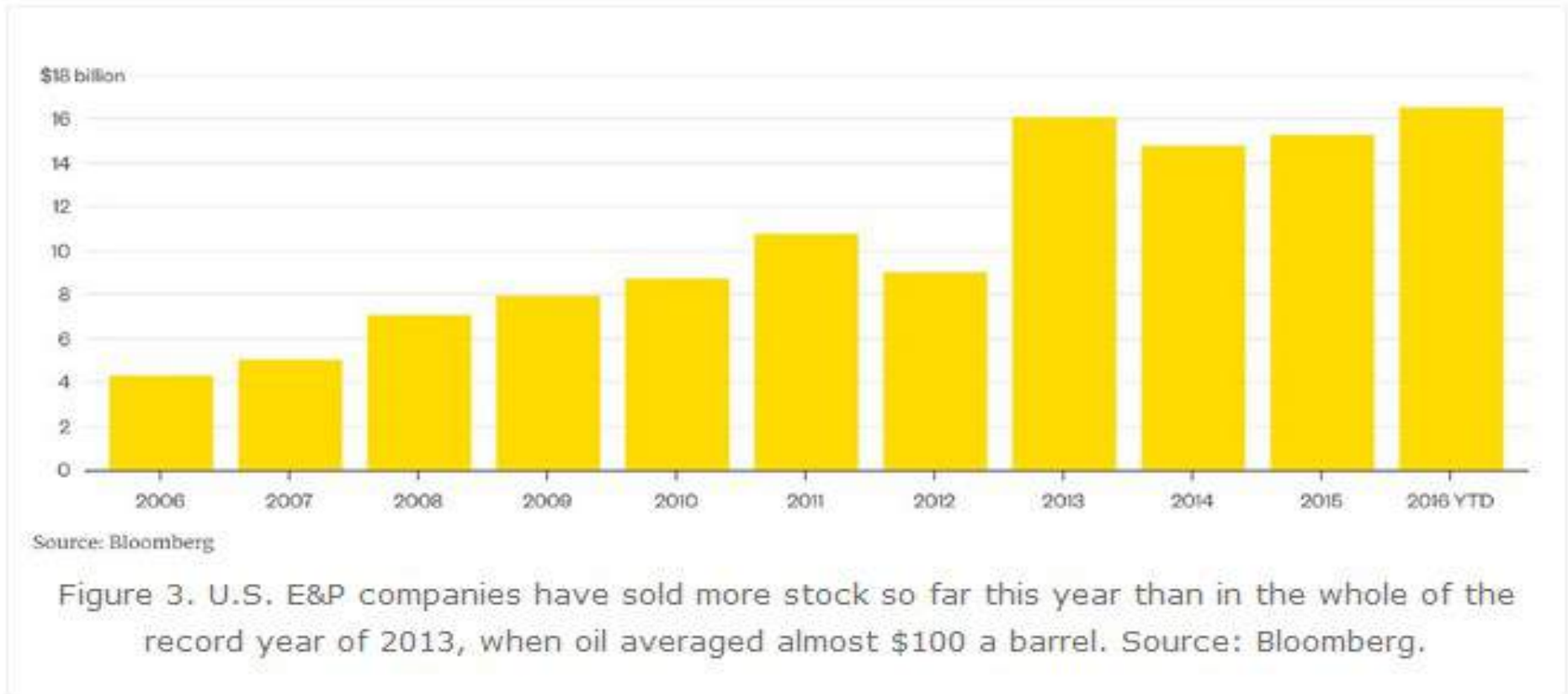
- France, Bulgaria, Belgium, Netherlands

Overall:

Not a “Game Changer”.

Outside North America development has been slow and faltering.

USA and Canada – the bigger the losses the more Wall Street lends



**In first quarter of 2016 main operators in the Permian, Bakken and Eagle Ford spending 4 times what they earn. Average tight oil company has a debt to cash flow ratio of 10 to one. If all earnings were used for paying off debts it would take them 10 years to do this.
(Arthur Berman July 2016)**

Need for networked local communities to take the power to decide back

Return the power to decide on land use, eco-systems, water and water supply, local transport, minerals extraction to the local level either as stronger powers for local land planning and/or protection of existing common land arrangements and/or the revival of commoning arrangements for land management.

