

# **“Frackademics”**

A study of the relationships between  
academia, the fossil fuels industry  
and public agencies

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February 2015

Commissioned by Talk Fracking  
<http://www.talkfracking.org/>

This report has been commissioned by Talk Fracking –  
<http://www.talkfracking.org/>

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# 'Frackademics'

## A study of the relationships between academia, the fossil fuels industry and public agencies

*In nature we never see anything isolated, but everything in connection with something else which is before it, beside it, under it and over it.*

Goethe

*Against foreign powers, a prince can defend himself with good weapons and good friends; if he has good weapons, he will never lack for good friends.*

Machiavelli

This study examines the relationships between academia, the fossil fuel industry and public bodies – and how these relationships might influence the public debate over “fracking”.

The purpose of reviewing the connections between different agencies is to understand the nature of the environment which defines and constrains those decisions, and to explain the context within which recent decisions or policies have been framed. It traces the potential mechanisms by which the public debate over unconventional gas and oil may be manipulated, and how that fits in to the Government's promotion of their policies on unconventional gas and oil.

In scientific debate, all issues should be open to objective examination. In practice, however, the conditions defining the terms of that examination [often skew that process](#)<sup>1</sup>. People holding senior academic positions are also used to influence these discussions – even when they have their own vested interest in promoting an issue.

In the context of the modern public debate over the complexities of scientific information, this skewing of evidence can be exacerbated by the need of governments, or their public relations advisers, to ['accentuate the positive' behind their case](#)<sup>2</sup>. For example, the deliberate use of 'scientists' to provide a more positive view of unconventional gas and oil production was revealed in emails released by the Department for Energy and Climate Change (DECC) under the Freedom of Information Act<sup>3</sup>. In a discussion with DECC, a Centrica employee stated –

*Our polling shows that academics are the most trusted sources of information to the public so we are looking at ways to work with the academic community to present the scientific facts around shale.*

The connections which define the environment for the debate on unconventional gas and oil are complex. In order to bring a clearer view to this information, six specific case studies have been selected to highlight different aspects of this issue. Each outlines different ways in which the scientific evidence for the safety, or not, of unconventional gas and oil may be manipulated to favour the 'pro' side of the argument (currently it is difficult to show an 'official' bias the other way).

Each study is illustrated by a diagram which provides a visual representation of the relationships which characterise the issue. Extensive, clickable references are provided at the foot of the page.

- 1 *Science, Policy, and the Transparency of Values*, Kevin Elliott & David Resnik, Environmental Health Perspectives, July 2014 – [http://www.fraw.org.uk/files/politics/elliott\\_resnik\\_2014.pdf](http://www.fraw.org.uk/files/politics/elliott_resnik_2014.pdf)
- 2 *Testing Theories of American Politics*, Martin Gilens & Benjamin Page, Perspectives on Politics, 2014 – [http://www.fraw.org.uk/files/politics/gilens\\_page\\_2014.pdf](http://www.fraw.org.uk/files/politics/gilens_page_2014.pdf)
- 3 Email from Centrica to DECC, 19<sup>th</sup> September 2013 – *Correspondence and meetings between the Office of Unconventional Gas and Oil*, UKOOG, Centrica and IGas, DECC, 15<sup>th</sup> January 2014 – <https://www.gov.uk/government/publications/correspondence-and-meetings-between-the-office-of-unconventional-gas-and-oil-ukoog-centrica-and-igas>

## Case study 1: University funding and NERC's CDT for Oil and Gas

Doctoral research is a gateway to holding senior positions in academia. Therefore the availability of funding to support doctoral research represents a way in which those providing funding can skew the academic agenda in the future – favouring certain fields of research over others.

There are seven [research councils in the UK](#)<sup>4</sup> supporting over 50,000 researchers, 19,000 doctoral students, 14,000 research staff, and 2,000 research fellows in UK universities and research institutes. Recently the Government has sought greater industry funding for academic research projects by encouraging more corporate involvement – as an alternative to the [full privatisation](#)<sup>5</sup> initially considered during the Government's early “[bonfire of the Quangos](#)”<sup>6</sup>.

The Government is part-funding the UK research councils to set up '[Centres for Doctoral Training](#)'<sup>7</sup> – CDTs. These distribute funding [provided by the Government](#)<sup>8</sup> and their industry partners to doctoral students. In addition, CDTs act as centres to organise links between students and industry, as well as organising seminars and other events. Most of the new CDTs were established through the Engineering and Physical Sciences Research Council, and one was established through the [Natural Environment Research Council](#)<sup>9</sup> (NERC).

NERC is Britain's première science research institute for the natural environment. It is funded by a grant from the Department for Business, Innovation and Skills. NERC's institutes were also [slated for privatisation](#)<sup>10</sup>, though now it looks as if they will move towards seeking private operators for the public assets controlled by NERC.

The mission of NERC is [expressed as](#)<sup>11</sup> –

*To place environmental science at the heart of responsible management of our planet.*

The heart of 'responsible' management (they do not use the word, 'sustainable') is anticipating activities which would damage the natural environment. Why would NERC lead a project which arguably could damage the viability of our future environment? – through pollution, as well as through increasing carbon emissions as a result of developing a new source of fossil fuels.

The NERC [CDT in Oil and Gas](#)<sup>12</sup> was established in 2013 to train the next generation of geoscientific and environmental researchers in oil and gas. It comprises: seven 'core academic partners' – the universities of Aberdeen, Durham, Heriot-Watt, Imperial College London, Manchester, Oxford, and the British Geological Survey; twelve 'associate academic partners' – the universities of Birmingham, Cardiff, Dundee, Exeter (which incorporates the former Camborne School of Mines), Glasgow, Keele, Newcastle, Nottingham, Royal Holloway, Southampton, Strathclyde and the National Oceanography Centre (which comprises sites in Southampton and Liverpool); and nine industry sponsors – British Gas, BP, ConocoPhillips, E.On, Maersk Oil, OMV, Shell, Statoil and Total.

The CDT's administration is based at Heriot-Watt University.

4 *About Us*, Research Councils UK – <http://www.rcuk.ac.uk/about/aboutrcs/>

5 *Willets reluctant to privatise research council institutes*, Research, 7<sup>th</sup> November 2014 – [http://www.researchresearch.com/index.php?option=com\\_news&template=rr\\_2col&view=article&articleId=1345271](http://www.researchresearch.com/index.php?option=com_news&template=rr_2col&view=article&articleId=1345271)

6 Wikipedia: '2010 UK quango reforms' – [https://en.wikipedia.org/wiki/2010\\_UK\\_quango\\_reforms](https://en.wikipedia.org/wiki/2010_UK_quango_reforms)

7 *Centres for Doctoral Training*, EPSRC – <http://www.epsrc.ac.uk/skills/students/centres/>

8 *Osborne announces 22 new Centres for Doctoral Training*, EPSRC, 28<sup>th</sup> March 2014 – <http://www.epsrc.ac.uk/newsevents/news/newcdts/>

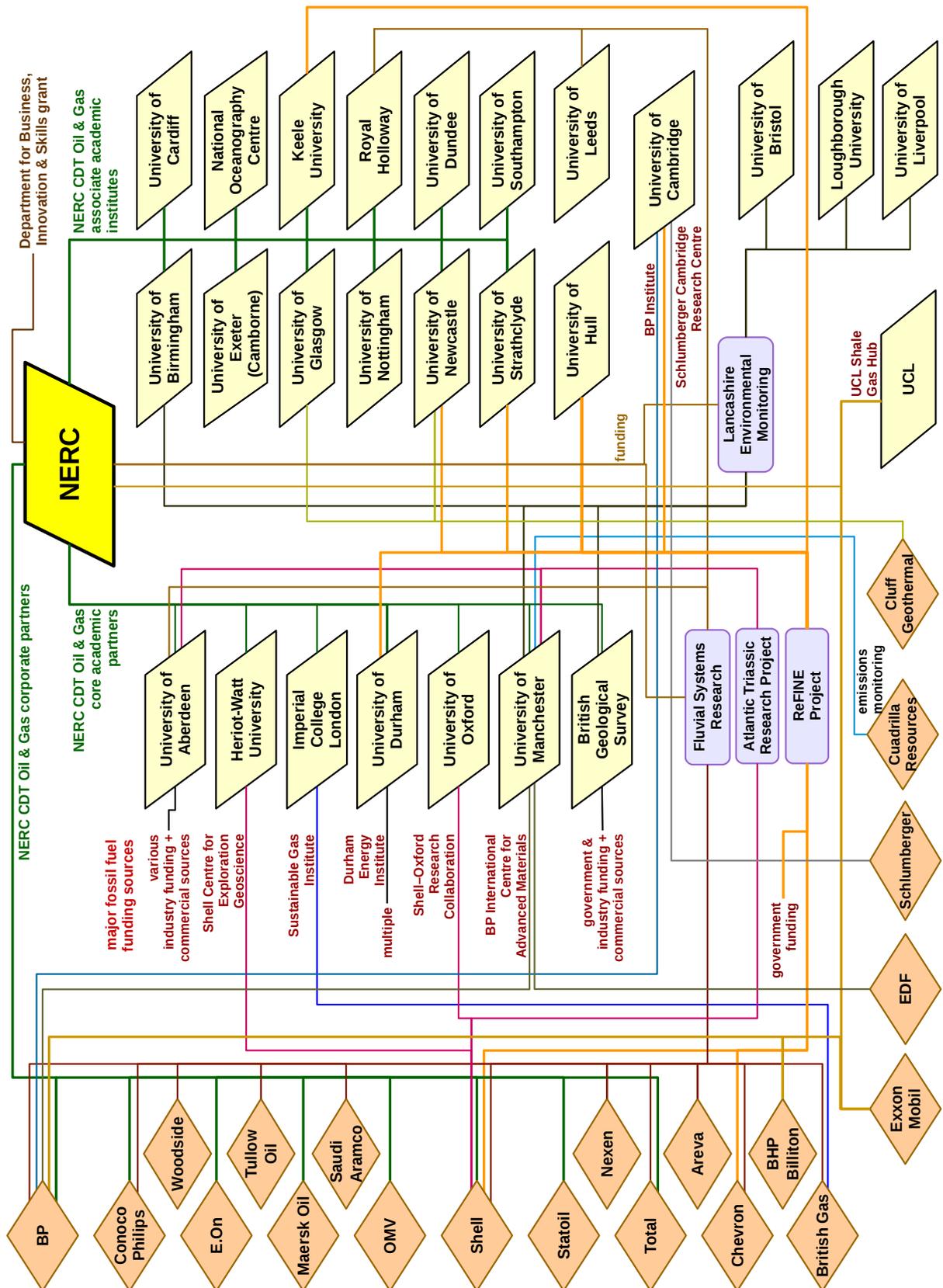
9 Natural Environment Research Council – <http://www.nerc.ac.uk/>

10 *NERC research centres 'safe from full privatisation'*, Times Higher Education, 21<sup>st</sup> January 2014 – <http://www.timeshighereducation.co.uk/news/nerc-research-centres-safe-from-full-privatisation/2010714.article>

11 *Vision*, NERC – <http://www.nerc.ac.uk/about/whatwedo/vision/>

12 NERC CDT for Oil & Gas – <http://www.nerc-cdt-oil-and-gas.ac.uk/>

# University Fossil Fuel Funding Sources and the NERC 'Centre for Doctoral Training' (CDT) in Oil and Gas



The diagram on the previous page maps the relationship between NERC and its partners in the CDT. In addition, the diagram maps the fossil fuel industry's funding of other major academic institutes and projects<sup>13</sup>. There are four research projects with specific relevance to unconventional fossil fuels shown in the diagram<sup>14</sup>.

In addition to the above, Cuadrilla Resources also has a contract with Salamander – a company founded out of the [University of Manchester](#)<sup>15</sup> – to carry out monitoring of their activities in Lancashire. The funding to develop the equipment used in this work, licensed from Manchester through Salamander, was provided by NERC.

Finally, Cluff Geothermal – part of the group including Cluff Natural Resources, which has recently [signed an agreement](#)<sup>16</sup> with Halliburton to trial underground coal gasification (UCG) in Britain – funds the universities of Glasgow and Newcastle to carry out research. A proportion of this research has application in unconventional fossil fuels exploitation as well as geothermal energy.

This network of funding, totalling a few hundred million pounds over the lifetime of these projects, is becoming the norm in academia. It is part of a much greater pattern of [fossil fuel industry involvement](#)<sup>17</sup> including not just funding, but also the exchange of staff and the awarding of honorary positions for senior executives to reward that support.

Industry involvement in academia can be a positive measure – producing graduates who have the required knowledge and expertise. However, as noted at the beginning, this also has the capacity to skew the type of research carried out by academic institutions for years, potentially a few decades into the future.

Right now there is a debate surrounding 'stranded' or 'unburnable' fossil fuels. A [recent report](#)<sup>18</sup> stated that, globally, a third of oil reserves, half of gas reserves and over 80 per cent of current coal reserves should remain unused from 2010 to 2050 to meet the target of restricting warming to 2°C. Arguably the CDT for Oil and Gas will perpetuate an industry which should be wound down.

**We do not need to undertake research to find yet more fossil fuels – we already have more than enough proven fossil fuel reserves to breach climatic limits. In which case, why does the Government fund institutes to carry out research to discover or produce yet more fossil fuels? Given the ecological restrictions, fossil fuels production is an industry with no future. Why then do universities devote so much effort to supporting this research?**

- 13 Institute for Petroleum Engineering, Heriot-Watt University – <http://www.pet.hw.ac.uk/>  
Sustainable Gas Institute, Imperial College London – <http://www.sustainablegasinstitute.org/>  
Durham Energy Institute, Durham University – <https://www.dur.ac.uk/dei/>  
Industry partners, Durham Energy Institute – <https://www.dur.ac.uk/dei/partners/>  
Shell-Oxford Research Collaboration – <http://shell.earth.ox.ac.uk/>  
BP International Centre for Advanced Materials, University of Manchester – <http://www.icam-online.org/>  
Modelling and Simulation Centre – <http://www.mace.manchester.ac.uk/our-research/centres-institutes/masc/>  
The BP Institute, University of Cambridge – <http://www.bpi.cam.ac.uk/>  
Schlumberger Gould Research Centre, University of Cambridge – <http://www.slb.com/about/rd/research/sgr.aspx>  
Shale Gas Hub, University College London – <http://www.ucl.ac.uk/earth-sciences/research/shale-gas-hub/>
- 14 ReFINE Project – <https://www.dur.ac.uk/refine/>  
Fluvial Systems Research Group – <http://www.abdn.ac.uk/geosciences/departments/geology/fsrg-934.php>  
Fluvial & Eolian Research Group, University of Leeds – <http://frg.leeds.ac.uk/>  
Lancashire monitoring, BGS – <http://www.bgs.ac.uk/research/energy/shalegas/lancashireMonitoring.html>
- 15 *Salamander: New research capabilities create novel commercial water and gas monitoring devices*, University of Manchester, 2013 – <http://documents.manchester.ac.uk/display.aspx?DocID=16235>
- 16 *Cluff Natural Resources Signs Memorandum of Understanding with Leading Oilfield Services Company*, CNR plc, 13<sup>th</sup> February 2015 – <http://www.cluffnaturalresources.com/documents/HalliburtonMOU13.02.15FINAL.pdf>
- 17 *Knowledge and Power: Fossil Fuel Universities*, Platform, People & Planet and 350.org, October 2013 – <http://bit.ly/fossilfuelunis>
- 18 *The geographical distribution of fossil fuels unused when limiting global warming to 2°C*, Nature, vol. 517 pp.187-190, 8<sup>th</sup> January 2015 – <http://www.nature.com/nature/journal/v517/n7533/full/nature14016.html>

## Case study 2: Academic involvement in major shale gas studies

Can the public have trust in the statements made by leading academics?; or do potential conflicts of interest warrant some element of suspicion, requiring that we test the validity of that information? What matters here is evidence. Not just the evidence of effects, but evidence that regulators have the capacity to monitor and regulate the impacts of these processes.

The Government's case in support of unconventional oil and gas is largely based upon four scientific reviews commissioned by Government agencies:

- The Royal Society/Royal Academy of Engineering review of [shale gas](#)<sup>19</sup> (2012);
- The Mackay-Stone review of the [climate impacts of shale gas](#)<sup>20</sup> (2013);
- The Public Health England (PHE) review of the [health impacts of shale gas](#)<sup>21</sup> (2014);
- The Scottish Government commissioned its own [expert study on unconventional gas](#)<sup>22</sup>.

If we contrast these reports, whilst their content differs their conclusions are broadly similar – *that the risks can be safely managed if the operations are properly run and regulated*.

Various criticisms can be made of these reviews. For example, the RS/RAE review. Today, the major criticism the RS/RAE report is its prematurity. Compared to what we know of these processes today, there was little evidence of impacts to consider when this report was produced. This can be demonstrated if we count the search results for “shale gas” from academic search engines over successive years<sup>23</sup> – most of references listed occur during or after 2012.

Practically we can only regulate that which can be managed; and we can only manage that which can be identified and measured. Without the ability to measure impacts effectively, there can be no regulatory process. This has been highlighted by a number of recent research papers<sup>24</sup>.

The main conclusion of these reports – *that, whatever the impacts, these can be controlled through 'appropriate regulation' or by applying 'best practice'* – is difficult to substantiate with evidence. None of these reports can cite actual evidence as to how such 'appropriate regulation' can function within Britain – nor that such regulation has worked effectively elsewhere.

For example, as was stated in the [British Medical Journal](#)<sup>25</sup> in relation to the PHE review –

*...the report incorrectly assumes that many of the reported problems experienced in the US are the result of a poor regulatory environment. This position ignores many of the inherent risks of the industry that no amount of regulation can sufficiently remedy.*

19 *Shale gas extraction*, Royal Society, 2012 – <https://royalsociety.org/policy/projects/shale-gas-extraction/report/>

20 *Potential greenhouse gas emissions associated with shale gas production and use*, David MacKay and Tim Stone, DECC, 9<sup>th</sup> September 2013 – <https://www.gov.uk/government/publications/potential-greenhouse-gas-emissions-associated-with-shale-gas-production-and-use>

21 *Review of potential public health impacts from shale gas extraction*, Public Health England, 26<sup>th</sup> June 2014 – <https://www.gov.uk/government/news/review-of-potential-public-health-impacts-from-shale-gas-extraction>

22 *Independent Expert Scientific Panel – Report on Unconventional Oil and Gas*, Scottish Government, August 2014 – <http://www.scottishscience.org.uk/article/independent-expert-scientific-panel-report-unconventional-oil-and-gas>

23 This analysis is described at length in *The Environmental Risks of “Fracking”*: A submission to the House of Commons Environmental Audit Committee Inquiry, Paul Mobbs/Mobbs' Environmental Investigations, December 2014 – [http://www.fraw.org.uk/mei/archive/eac\\_submission-the\\_environmental\\_risks\\_of\\_fracking.pdf](http://www.fraw.org.uk/mei/archive/eac_submission-the_environmental_risks_of_fracking.pdf)

24 *Understanding exposure from natural gas drilling puts current air standards to the test*, Brown et al., *Reviews on Environmental Health*, vol.29, 29<sup>th</sup> March 2014 – [http://www.fraw.org.uk/files/extreme/brown\\_lewis\\_2014.pdf](http://www.fraw.org.uk/files/extreme/brown_lewis_2014.pdf)  
*Potential Public Health Hazards, Exposures and Health Effects from Unconventional Natural Gas Development*, Adgate et al., *Science of the Total Environment* (undated preprint), March 2014 – [http://www.fraw.org.uk/files/extreme/adgate\\_2014.pdf](http://www.fraw.org.uk/files/extreme/adgate_2014.pdf)

*Air Impacts of Increased Natural Gas Acquisition, Processing, and Use: A Critical Review*, Moore et al., *Science of the Total Environment* (undated preprint), March 2014 – [http://www.fraw.org.uk/files/extreme/moore\\_2014.pdf](http://www.fraw.org.uk/files/extreme/moore_2014.pdf)

25 *Public Health England's draft report on shale gas extraction: Mistaking best practices for actual practices*, Law et al., *British Medical Journal*, vol.348 g2728, 17th April 2014 – [http://www.fraw.org.uk/files/extreme/bmj\\_2014.pdf](http://www.fraw.org.uk/files/extreme/bmj_2014.pdf)

Why do the UK 'experts' reviewing the evidence in these reports have such a high opinion of regulatory action – when other expert agencies, arguably closer to the problem in North America, take such a different view? For example, the recent reviews of safety in [Quebec](#)<sup>26</sup> and [New York State](#)<sup>27</sup> have determined that the process must not be allowed to proceed. They consider that there is not enough evidence to show that the impacts can be appropriately controlled, and therefore managed and regulated. As stated in the recent New York State review –

*In assessing whether public health would be adequately protected from a complex activity such as high volume hydraulic fracturing (HVHF), a guarantee of absolute safety is not required. However, at a minimum, there must be sufficient information to understand what the likely public health risks will be. Currently, that information is insufficient.*

This is where the issue of the potential conflicts of interest arises between the advisory role of academia in helping decision-makers, and the increasing involvement of business interests in funding those roles. As public funding falls, and business takes a greater role in deciding research priorities through awarding grants to institutes, can academia retain its objective detachment?

A good example is the University of Newcastle, and its professional association with underground coal gasification (UCG). Professor Paul Younger has worked on both the RS/RAE review and the Scottish IESP. He is also the co-author of [a recent paper](#)<sup>28</sup> which argued the Government's proposed controls over earthquakes from fracking were too stringent, and [another paper critical](#)<sup>29</sup> of the recent study from ReFINE on well failure rates. He is also a director of Five Quarter Energy, along with other senior figures from the university, which has UCG licences along the North East coastline, and has received financial support from the government to further their project.

Taking expert opinion in forming policy is very important. However, in order to guarantee that this 'opinion' is free from bias, it must be always based upon objective, empirical evidence. Without evidence to substantiate their words, the views expressed by 'scientists' are no more valid than those of any other well-informed individual. And vice-versa, where the public use evidentially-based research to substantiate their claims, that evidence should be considered in the debate.

In the case of the expert reports commissioned by Government, they each review varying levels and ranges of evidence. To varying degrees, it is possible to make various criticisms of how the academics involved have reflected the whole body of evidence available, and how those conclusions stand given the knowledge gained through more recent research studies.

**However, their common conclusion – that we can regulate away the problematic aspects of these processes – is not based on evidence. It is based upon assumption and hearsay. They cite untested codes of practice, or claims that the process will be different here in Britain. If regulatory agencies in other states are unable to eliminate the environmental and health problems created by these processes, it is unreasonable, without evidence, to assume that things will happen differently here.**

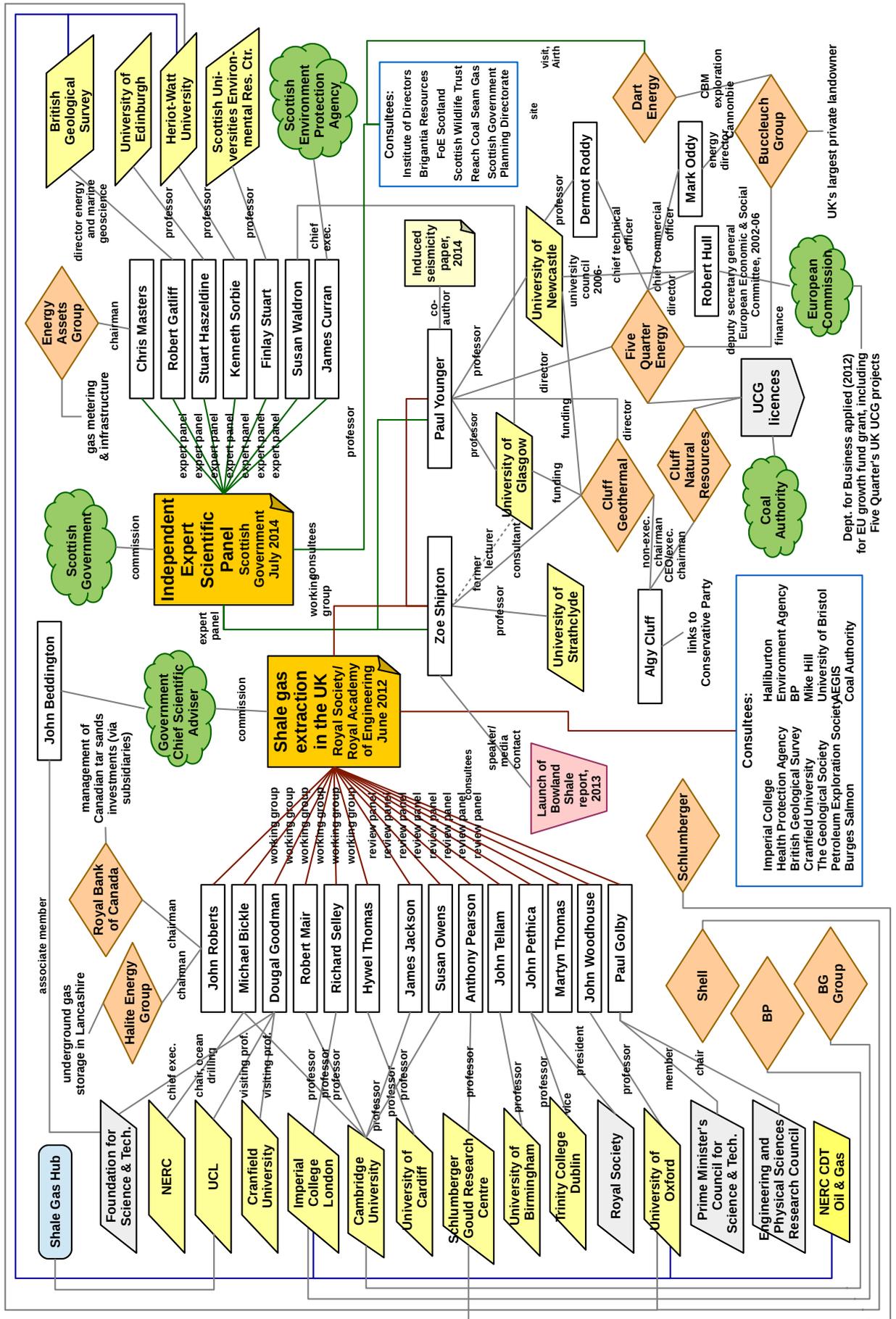
26 *Issues relating to shale gas exploration and exploitation in the St. Lawrence Lowlands*, Bureau d'audiences publiques sur l'environnement (Quebec), November 2014 – [http://www.bape.gouv.qc.ca/sections/rapports/publications/bape307\\_Chap13\\_ENG.pdf](http://www.bape.gouv.qc.ca/sections/rapports/publications/bape307_Chap13_ENG.pdf)

27 *A Public Health Review of High Volume Hydraulic Fracturing for Shale Gas Development*, Department of Health, New York State, December 2014 – [http://www.fraw.org.uk/files/extreme/ny\\_doh\\_2014.pdf](http://www.fraw.org.uk/files/extreme/ny_doh_2014.pdf)

28 *Quantification of potential macroseismic effects of the induced seismicity that might result from hydraulic fracturing for shale gas exploitation in the UK*, Westaway & Younger, Quarterly Journal of Engineering Geology and Hydrogeology, vol.47 no.4 pp.333-350, 2014 – <http://eprints.gla.ac.uk/96201/>

29 *Discussion of "Oil and gas wells and their integrity: Implications for shale and unconventional resource exploitation"* by Davies et al., Thorogood and Younger, 2015 – <http://eprints.gla.ac.uk/96049/>

# Academic Involvement in Major Shale Gas Studies



### Case study 3: The Mackay-Stone shale gas climate impacts study

When the [Mackay-Stone report](#)<sup>30</sup> was released by DECC in September 2013, it generated the kind of headlines which the Government were looking for in the wake of the Balcombe protests in Sussex. For example, [from the BBC](#)<sup>31</sup> – “Shale carbon footprint 'small', according to new report”.

This issue begins with the publication in 2011 of a [paper by Robert Howarth](#)<sup>32</sup> on the emissions of methane from shale gas operations. It stated that over a 20-year time frame the impact of shale gas was *worse* than coal. This paper was followed up by subsequent publications in 2012, and Howarth's [most recent paper](#)<sup>33</sup>, using new evidence, replicates those results.

Due to Howarth's research, DECC needed a scientific case to respond to the criticisms of the climate impacts of shale gas. In mid-2013 they commissioned two DECC advisers to write a report:

- Professor David Mackay was Chief Scientific Adviser to DECC from 2009 to 2014. He is the Regius Professor of Engineering at Cambridge University, and is the author of the book, [Sustainable Energy Without the Hot Air](#)<sup>34</sup>.
- Dr. Tim Stone was DECC's Senior Advisor to the Secretary of State until mid-2013. He is a non-executive director of Horizon Nuclear Power, Anglian Water, and is the expert on the board at the European Investment Bank. He was previously the expert chair of DECC's Office for Nuclear Development, the global senior advisor at KPMG Corporate Finance, and a director/manager at S.G. Warburg, Chase Manhattan and Arthur Andersen.

This pairing flags up a recent change, encouraged since the beginning of the coalition government in 2010. 'Non-academics' from industry are serving on policy review panels. For example, it was [disclosed in 2011](#)<sup>35</sup> that energy companies had supplied over 50 staff to Government – which raises questions regarding [corporate influence over state institutions](#)<sup>36</sup>.

The results of the Mackay-Stone study suggest that shale gas could produce *less emissions* than current North Sea gas production. To produce that figure they took a value for the gas which leaks during the productive life of a well, and divided it by the amount of gas the well produced – creating a value for emissions per unit of gas which was compared to other natural gas sources in Britain.

In order to produce those figures Mackay and Stone used arguably unrepresentative data to feed into their calculations. *Their process of calculation is valid – it's their data that is questionable.*

Their figure for emissions uses industry 'inventory data' – which over recent years has been shown to be a statistically poor method of demonstrating the levels of [fugitive emissions](#)<sup>37</sup>. They also made reference to a then unpublished paper which, they claimed, would demonstrate that emission levels were low. That paper, when published, contained flaws which invalidated that claim.

30 *Potential greenhouse gas emissions associated with shale gas production and use*, David Mackay and Tim Stone, DECC, 9<sup>th</sup> September 2013 – <https://www.gov.uk/government/publications/potential-greenhouse-gas-emissions-associated-with-shale-gas-production-and-use>

31 *Shale carbon footprint 'small', according to new report*, BBC News, 9<sup>th</sup> September 2013 – <http://www.bbc.co.uk/news/science-environment-24018319>

32 *Methane and the greenhouse-gas footprint of natural gas from shale formations*, Robert W. Howarth et al., Climatic Change, June 2011 – [http://www.fraw.org.uk/files/extreme/howarth\\_2011.pdf](http://www.fraw.org.uk/files/extreme/howarth_2011.pdf)

33 *A bridge to nowhere: methane emissions and the greenhouse gas footprint of natural gas*, Robert W. Howarth, Energy Science and Engineering, May 2014 – [http://www.fraw.org.uk/files/extreme/howarth\\_2014.pdf](http://www.fraw.org.uk/files/extreme/howarth_2014.pdf)

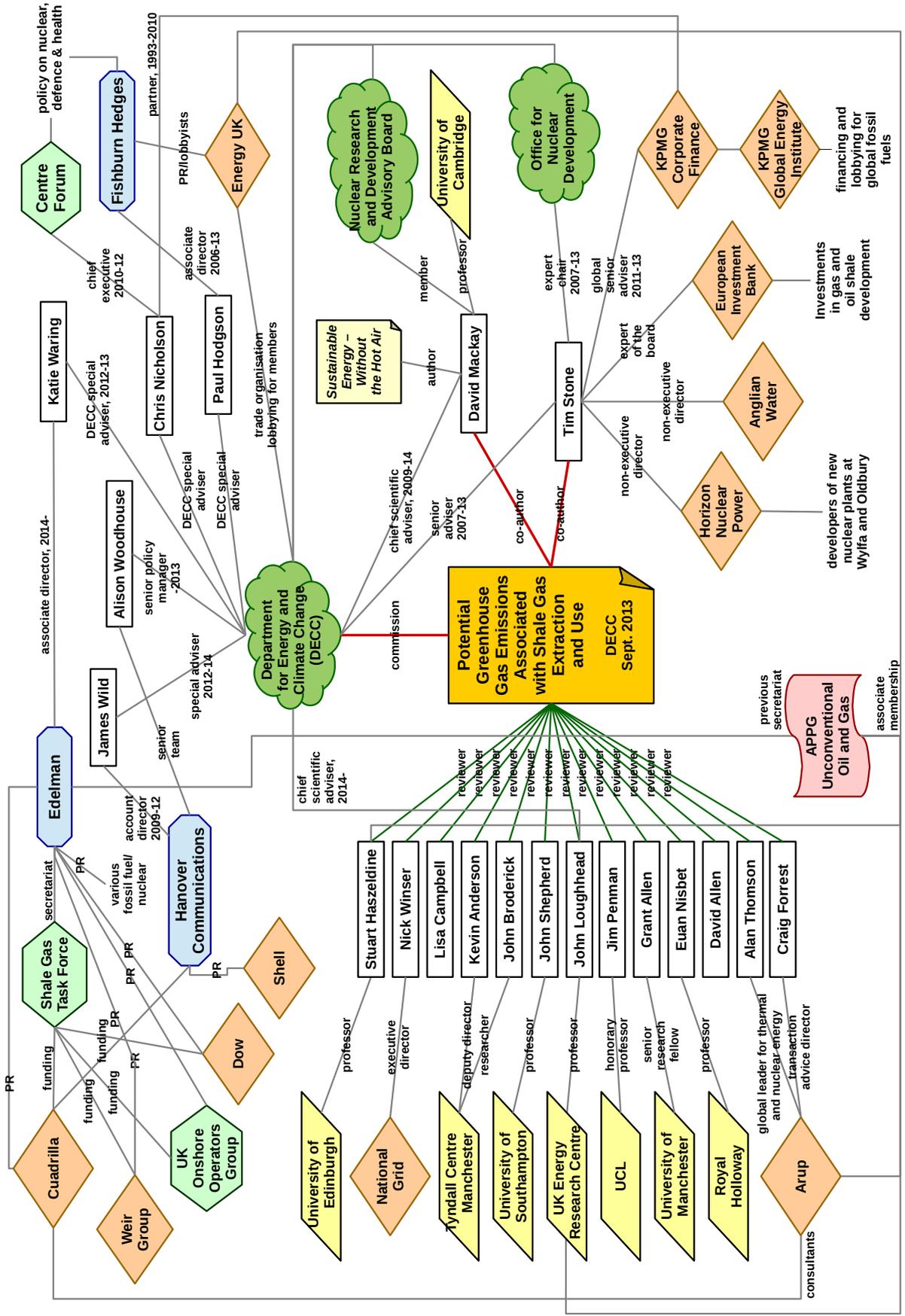
34 *Sustainable Energy Without the Hot Air*, David Mackay, 2008. Available on-line – <http://www.withouthotair.com/>

35 *Energy companies have lent more than 50 staff to government departments*, Damian Carrington, Guardian On-line, 5<sup>th</sup> December 2011 – <http://www.theguardian.com/business/2011/dec/05/energy-companies-lend-staff-government>

36 *The network of global corporate control*, Vitali et al., PLOS One, October 2011 – [http://www.fraw.org.uk/files/anarchism/vitali\\_2011.pdf](http://www.fraw.org.uk/files/anarchism/vitali_2011.pdf)

37 *Methane leaks erode green credentials of natural gas*, Jeff Tollefson, Nature, 3<sup>rd</sup> January 2013 – [http://fraw.files/extreme/tollefson\\_2013.pdf](http://fraw.files/extreme/tollefson_2013.pdf)

# The Mackay-Stone shale gas climate impacts study



For example, it was a non-randomised study of 0.1% of the wells drilled in the USA, which is not an objectively representative sample. The publisher also had to correct the article a month later, as the authors with conflicts of interest had not declared them at the time of publication.

On the other side of the equation, the figures Mackay and Stone used for gas production per well are too high. Currently there is a great deal of debate over how much gas and oil unconventional wells [actually produce](#)<sup>38</sup>. Recent studies suggest that resource estimates need to be downgraded, now that we have sufficient statistical data of what is actually being [produced in the field](#)<sup>39</sup>. There is no specific source for Mackay and Stone's figures, but their modelling assumes levels of gas production which are roughly twice the value determined by the [US Geological Survey](#)<sup>40</sup> and the [US Department of Energy](#)<sup>41</sup>.

The easiest way to explain the flaw in Mackay and Stone's reasoning is this: The method of calculation was correct. However, they took a figure for the emissions from gas production which may be half what it should be. This was divided by a figure for gas production which was twice as big as it should be. The result was that they produced an estimate for emissions which was one quarter of what it should have been. More representative data would have produced a very different result from that which energy ministers and industry figures promoted as 'fact' to the public.

The production of the Mackay-Stone review enabled DECC to carry out a public relations offensive which used the alleged low emissions from unconventional gas to promote its virtues. That DECC's role has become largely an issue of public relations is unsurprising. Much of the policy side of DECC's work is not coming from the responsible minister, Ed Davey. It is coming from George Osborne at the Treasury – DECC is being bypassed. For example, the [white paper on investment](#)<sup>42</sup>, set not only the energy policy framework for shale gas, but also directed the Environment Agency and local planning authorities to expedite developments more quickly.

DECC is notable in that it has a high level of ["revolving door"](#)<sup>43</sup> involvement between government and public relations companies – many of whom are fronting campaigns on behalf of energy industry clients. What is of interest are the links between DECC and the PR companies Edelman – which will be considered later in case study 6 – and Hanover Communications. Both these companies have worked for the most vocal fracking company, Cuadrilla.

**The Mackay-Stone report is an exemplar of the strategy to use 'scientists' to front the national policy for unconventional gas and oil. However, when we pick apart the report's findings, what we find is a result that is somewhat different – and which contradicts the message communicated by DECC at the time. Was the report an objective consideration of the climate impacts of unconventional gas, or was it designed to use 'science' to deflect criticism of Government policy. The high level of 'revolving door' relationships between DECC and PR companies should lead the public to question whether DECC serves them, or other vested interests.**

38 A reality check on the shale revolution, David Hughes, Nature, 21<sup>st</sup> February 2013 – [http://fraw.files/extreme/hughes\\_2013.pdf](http://fraw.files/extreme/hughes_2013.pdf)

39 *Natural gas: The fracking fallacy*, Mason Inman, Nature, 3<sup>rd</sup> December 2014 - <http://www.nature.com/news/natural-gas-the-fracking-fallacy-1.16430>

40 *Variability of Distributions of Well-Scale Estimated Ultimate Recovery for Continuous (Unconventional) Oil and Gas Resources in the United States*, Open-File Report 2012-1118, U.S. Geological Survey, U.S. Department of the Interior, June 2012 – [http://www.fraw.org.uk/files/extreme/usgs\\_eur\\_2012.pdf](http://www.fraw.org.uk/files/extreme/usgs_eur_2012.pdf)

41 *Updated Fugitive Greenhouse Gas Emissions for Natural Gas Pathways in the GREET Model*, A. Burnham et al., Energy Systems Division, Argonne National Laboratory, October 2013 – <https://greet.es.anl.gov/files/ch4-updates-13>

42 *Investing in Britain's future*, Cm8669, HM Treasury, June 2013 – [http://www.fraw.org.uk/files/ukgov/hm\\_treasury\\_2013.pdf](http://www.fraw.org.uk/files/ukgov/hm_treasury_2013.pdf)

43 Wikipedia: 'Revolving door (politics)' – [http://en.wikipedia.org/wiki/Revolving\\_door\\_%28politics%29](http://en.wikipedia.org/wiki/Revolving_door_%28politics%29)

## Case study 4: The Science Media Centre and the 'seeding' of articles

Over the last few decades, particularly in relation to the struggle over issues such as tobacco or climate change, the abuse of science in the media has become an issue of academic study. As a result research has been produced which highlights the problems created by the [manipulation of science through public relations](#)<sup>44</sup>, or the politically-inspired publication of '[sceptical science](#)'<sup>45</sup>.

There are various ways of identifying the mechanisms of "science PR". Most famously, from papers disclosed in the legal cases against the tobacco industry in the US, an [executive who summed up](#)<sup>46</sup> the purpose of engaging with the public in the debate over the 'safety' of tobacco – *Doubt is our product since it is the best means of competing with the "body of fact" that exists in the mind of the general public. It is also the means of establishing a controversy... If we are successful in establishing a controversy at the public level, then there is an opportunity to put across the real facts...*

Increasingly the response to public debates is not factual. Instead it seeks to obfuscate – thereby preventing the public debate from being resolved and decisive action taken to change policy.

During the 1990s there were a number of science controversies in Britain – from GM crops, to nuclear power, to animal testing. In 2000, the House of Lords Science and Technology Committee reviewed the issue of '[science and society](#)'<sup>47</sup>, and decided that there was a crisis in the public's trust of science. Out of that came the [Science Media Centre](#)<sup>48</sup> (SMC), established in 2002 by the Royal Institution. The SMC became independent in 2011, and is now housed at the Wellcome Trust. The SMC's funded comes from [a variety of sources](#)<sup>49</sup>.

The [purpose of the SMC](#)<sup>50</sup> is to –

*To provide, for the benefit of the public and policymakers, accurate and evidence-based information about science and engineering through the media, particularly on controversial and headline news stories when most confusion and misinformation occurs.*

Put simply, the role of the SMC is to ghostwrite information for use by journalists – acting as a PR agency for science. They also hold meetings where journalists can meet and hear lectures from scientists on issues currently in the media. "Fracking" has been one of their recent topics. To date [they have produced](#)<sup>51</sup> eight news articles, and have held four speaker events for journalists. This has generated a number of news articles across the general and specialist media – within which the copy is utilised without any reference to the role of the SMC.

Recent studies highlight the problematic impacts of ghostwriting science-based [information for journalists](#)<sup>52</sup>. In reality, this process is another tool in the panoply of public relations tactics used to influence political and public opinion. Unfortunately the media often accept copy from agencies without question – when in fact there are a number of important questions which should be asked

44 *Doubt is Their Product: How Industry's Assault on Science Threatens Your Health*, David Michaels, Oxford University Press, 2008 – <https://global.oup.com/academic/product/doubt-is-their-product-9780195300673>

45 *The organisation of denial: Conservative think tanks and environmental scepticism*, Jacques et al., Environmental Politics, June 2008 – [http://www.fraw.org.uk/files/climate/jacques\\_2008.pdf](http://www.fraw.org.uk/files/climate/jacques_2008.pdf)

46 *Smoking and Health Proposal*, Brown & Williamson, 1969 – <http://legacy.library.ucsf.edu/tid/rgy93f00>

47 *Science and Society*, Third Report of Session 1999-2000, House of Lords Science and Technology Committee, February 2000 – <http://www.publications.parliament.uk/pa/ld199900/ldselect/ldsctech/38/3801.htm>

48 Science Media Centre – <http://www.sciencemediacentre.org/>

49 Science Media Centre: 'Funding' – <http://www.sciencemediacentre.org/about-us/funding/>

50 Science Media Centre: 'About Us' – <http://www.sciencemediacentre.org/about-us/>

51 Science Media Centre: 'Search results for (shale)' – <http://www.sciencemediacentre.org/?s=shale>

52 *The Haunting of Medical Journals: How Ghostwriting Sold "HRT"*, Adriane J. Fugh-Berman, PLOS Medicine, vol.7 no.9 e1000335, September 2010 – <http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1000335>

about the 'certainty' of statements made in relation to the science of unconventional gas and oil.

The diagram over the page shows the network of organisations funding the SMC. It lists, by date, a series of articles which they published (yellow boxes), or events for journalists which they held (pink trapezoids), on the topic of "shale gas". The 'scientists' who contributed are listed on the left, and the lines relate each one to the articles/events they participated in.

While there are a wide number of scientists providing comment, there are a handful who dominate the commentary. Many of those involved come from institutes which are part of NERC's CDT for Oil and Gas. As shown in case study 1, a number of these institutes also have funding relationships with the fossil fuel industry, or industry-sponsored research projects.

Many observations can be made upon the contributions of the scientists selected. For example:

- On 26<sup>th</sup> January 2015, Professor Zoe Shipton, University of Strathclyde, commented<sup>53</sup> –  
*Several independent studies, including that by the Royal Society and Royal Academy of Engineering, have concluded that we have the technological capability to extract onshore unconventional hydrocarbons with relatively little environmental and public health impact.*

In fact the RS/RAE report did not comment on *public health* – it concentrated on the 'health and safety' of workers. As discussed earlier, the report was written before the present body of evidence on the impacts of shale gas in the US and elsewhere was available.

- On 17<sup>th</sup> April 2012 Professor Quentin Fisher, University of Leeds, commented<sup>54</sup> –  
*The conclusion reached by this independent group of experts, that hydraulic fracture operations for shale gas should be allowed to proceed both at the Preese Hall site and other potential sites in the UK, is totally backed up by evidence by a wealth of data from the USA where hydraulic fracturing of shale gas plays is routine.*

This statement does not reflect the wide range of research – from academic institutes and published in peer reviewed journals – which comes to a different conclusion; that shale gas exploitation creates a number of troublesome ecological impacts. For example, as documented in the US National Academy of Sciences Institute of Medicine's [workshop review of health impacts](#)<sup>55</sup>. Likewise, this is not a conclusion arrived at by the professional panels in the recent [New York State Department of Health](#)<sup>56</sup> review, nor by the [Quebec Bureau d'audiences publiques sur l'environnement](#)<sup>57</sup> review.

In relation to 'fracking', the role of the SMC appears to be putting a relatively narrow view of, in most cases positive, opinions of the safety of 'fracking'. These opinions are based upon the professional position of those involved, and are not supported with references to evidence to confirm their validity. In turn, these views have often been quoted in the media without question.

**In the case of shale gas, the SMC is not providing a balanced view of the available evidence, and uncertainties, on the impacts of unconventional oil and gas. It is providing quotes from academics who mostly represent a 'UK establishment' viewpoint, which ignores the whole body of evidence available on this issue from the USA, Australia and Canada.**

53 *Expert reaction to new report on fracking by the Environmental Audit Committee*, SMC, 26<sup>th</sup> January 2015 – <http://www.sciencemediacentre.org/expert-reaction-to-new-report-on-fracking-by-the-environmental-audit-committee/>

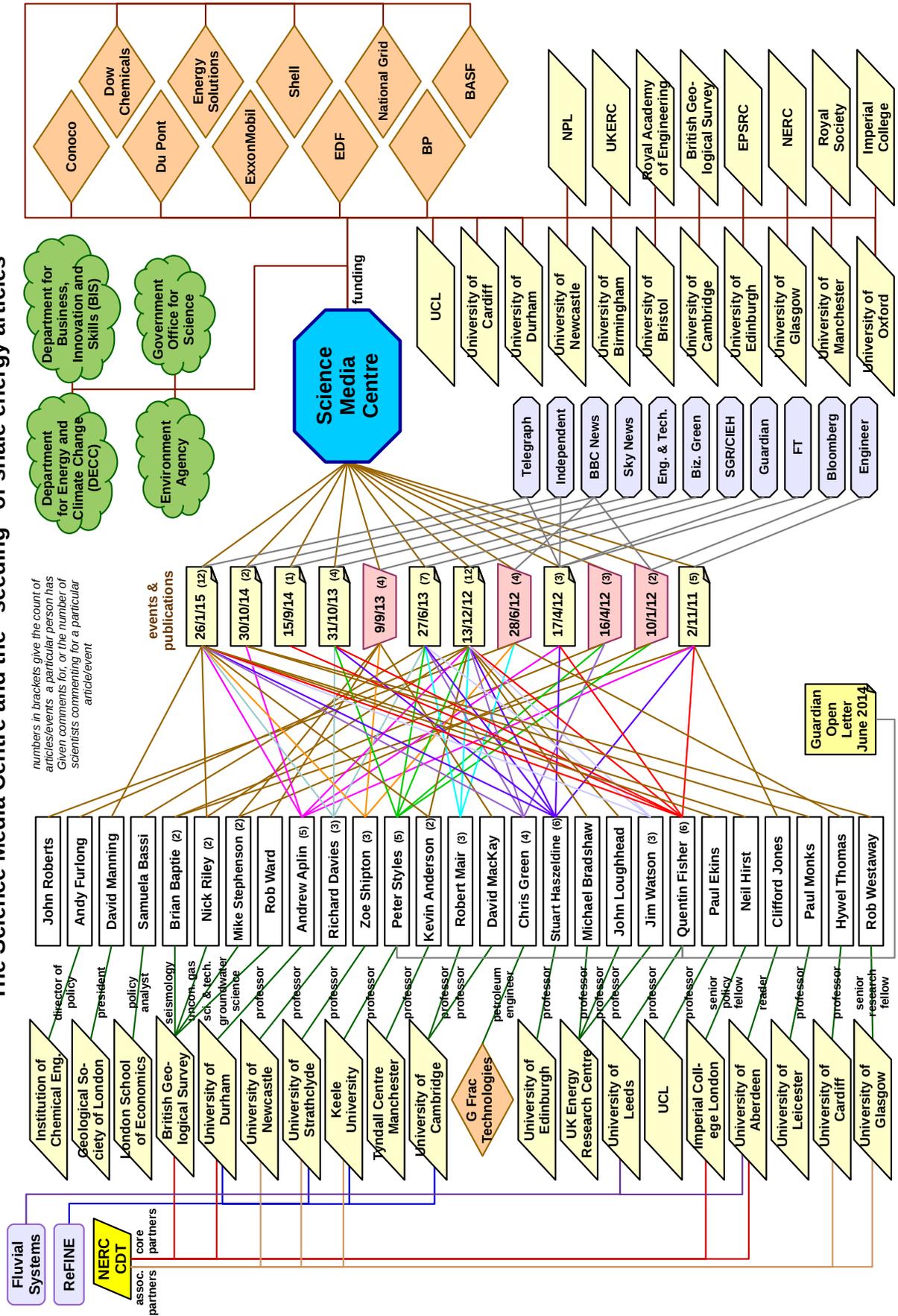
54 *Expert reaction to independent report into fracking*, SMC, 17<sup>th</sup> April 2012 – <http://www.sciencemediacentre.org/expert-reaction-to-independent-report-into-fracking-2/>

55 *Health Impact Assessment of Shale Gas Extraction: Workshop Summary*, Christine Coussens, Rose Marie Martinez, Institute of Medicine, National Academy of Sciences, 2014 – [http://www.fraw.org.uk/files/extreme/iom\\_2014.pdf](http://www.fraw.org.uk/files/extreme/iom_2014.pdf)

56 *A Public Health Review of High Volume Hydraulic Fracturing for Shale Gas Development*, Department of Health, New York State, December 2014 – [http://www.fraw.org.uk/files/extreme/ny\\_doh\\_2014.pdf](http://www.fraw.org.uk/files/extreme/ny_doh_2014.pdf)

57 *Issues relating to shale gas exploration and exploitation in the St. Lawrence Lowlands*, Bureau d'audiences publiques sur l'environnement (Quebec), November 2014 – [http://www.fraw.org.uk/files/extreme/bape\\_2014.pdf](http://www.fraw.org.uk/files/extreme/bape_2014.pdf)

# The Science Media Centre and the "seeding" of shale energy articles



## Case study 5: Guardian 'open letter' from academics

On 4<sup>th</sup> June 2014 the Guardian [published a letter](#)<sup>58</sup>, co-signed by 50 academics, on the issue of shale gas. We should begin with the concluding paragraph of the letter –

*As geoscientists and petroleum engineers from Britain's leading academic institutions, we call on all politicians and decision-makers at all levels to put aside their political differences and focus on the undeniable economic, environmental and national security benefits on offer to the UK from the responsible development of natural gas from Lancashire's shale.*

The diagram on the next page shows the 50 academics, each assigned to their respective institute. In addition to showing relevant links for each person as an individual, the institutes which are part of the NERC CDT for Oil and Gas are grouped together as either 'core' or 'associate' members. As can be seen in the other case studies, the CDT is a common thread linking many of the institutes involved.

Earlier in the letter it stated –

*After nearly 30 years of near-abundant supplies of natural gas from the North Sea, we have become more exposed and vulnerable because of our increased reliance on foreign imports of energy to meet our power-generation needs.*

This is an economic, not geophysical point – and it is wholly incorrect. Globally, whether or not a state produces a large proportion of its energy supply has little correlation to its economic success.

If we take the world's [25 largest economies](#)<sup>59</sup>, and the IEA's 2014 [energy statistics](#)<sup>60</sup>, there is no correlation between the size of an economy and its import dependence. The world's great manufacturing economies import most of their energy – e.g. Germany (63%), South Korea (87%) and Japan (97%). 18 of the world's largest 25 economies import more than 50%. And if energy production creates security, why are net energy exporters such as Sudan, Libya, Iraq, Venezuela, Nigeria and Egypt in such economic and/or social trouble?

The strength and security of an economy is based on more than just its sources of energy.

The letter continues –

*According to the independent British Geological Survey, the Bowland Basin, which covers significant parts of north-west England, currently sits on top of 1,300 trillion cubic feet of natural gas. If we extract only 10% of this valuable resource, that is enough to boost our domestic supply to meet existing demand by at least a further 25 years, according to geoscientific experts.*

If the signatories are geophysical experts, they must know this statement is inaccurate:

Firstly, the British Geological Survey (BGS) are not 'independent'. They are partly funded through NERC, and are now required to operate their organisation on a commercial footing – creating a dependency upon companies requiring their geophysical expertise.

Secondly, BGS has never stated that there is a [certain 'resource'](#)<sup>61</sup> of gas under Northern England. What their [Bowland Survey report](#)<sup>62</sup> states is that there may be a fifty-fifty chance of

58 *Lancashire's shale gas can fill UK energy gap*, Guardian On-line, Wednesday 4th June 2014 – <http://www.theguardian.com/environment/2014/jun/04/lancashire-shale-gas-uk-energy-gap>

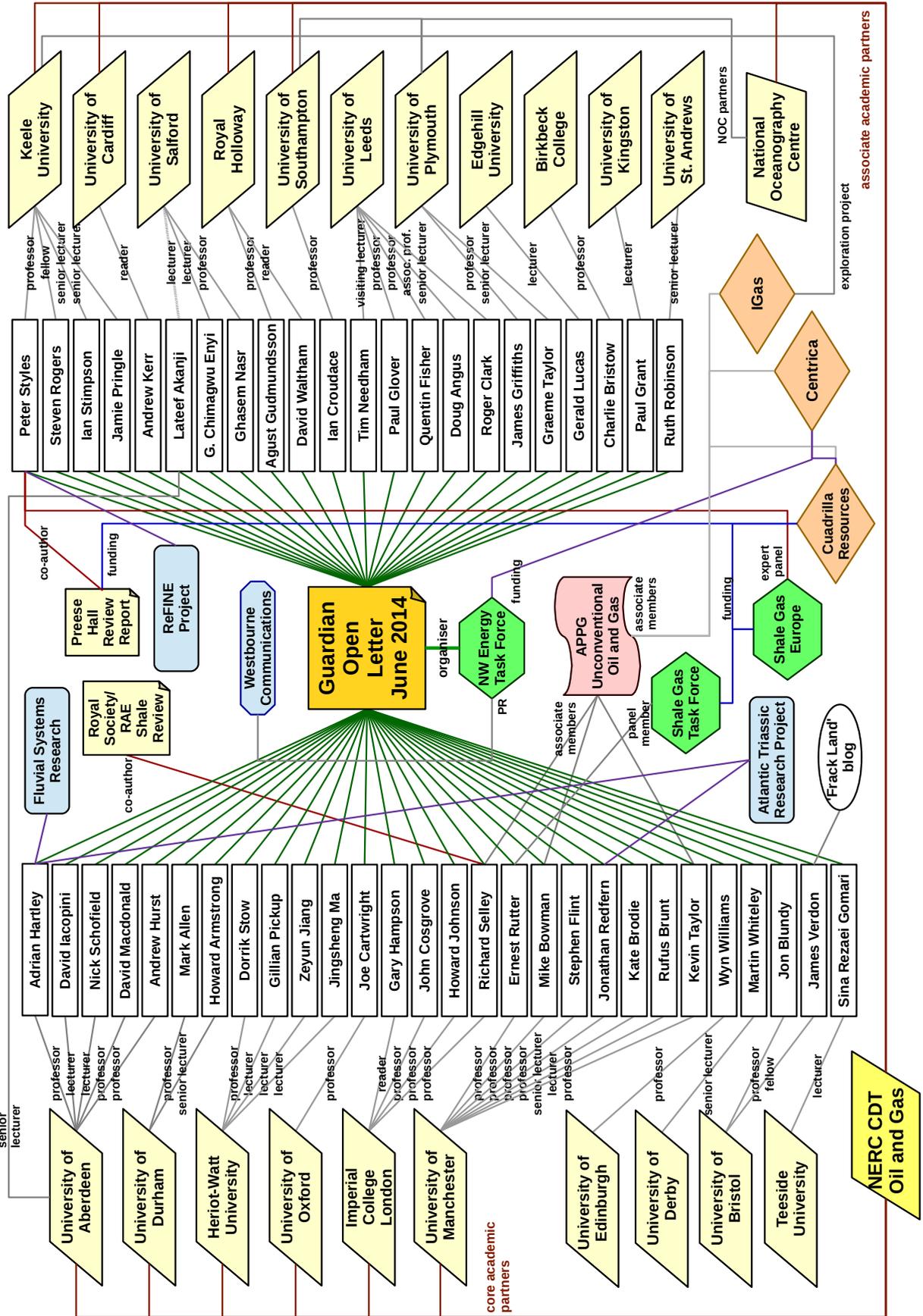
59 United States, China, Japan, Germany, France, United Kingdom, Brazil, Italy, Russia, India, Canada, Australia, Spain, South Korea, Mexico, Indonesia, Netherlands, Turkey, Saudi Arabia, Switzerland, Argentina, Sweden, Poland, Belgium, Norway – source, *GDP and its breakdown at current prices in US Dollars*, United Nations Statistics Division, December 2014 – <http://unstats.un.org/unsd/snaama/dnltransfer.asp?fid=2>

60 *Key World Energy Statistics 2014*, International Energy Agency, September 2014 – <http://www.iea.org/publications/freepublications/publication/keyworld2014.pdf>

61 *Resources vs Reserves*, DECC/BGS, June 2013 – [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/209306/Resources\\_vs\\_Reserves\\_-\\_note\\_-\\_27-6-13.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/209306/Resources_vs_Reserves_-_note_-_27-6-13.pdf)

62 *Bowland Shale Gas Study – Main Report*, DECC/BGS, June 2013 – <https://www.gov.uk/government/uploads/system/>

# Guardian 'Open Letter' From Academics, June 2014



[uploads/attachment\\_data/file/226874/BGS\\_DECC\\_BowlandShaleGasReport\\_MAIN\\_REPORT.pdf](https://www.gov.uk/government/uploads/attachment_data/file/226874/BGS_DECC_BowlandShaleGasReport_MAIN_REPORT.pdf)

“1,300 trillion cubic feet of natural gas” existing there. If we take the more reliable 90% probability figure, it is 40% less than that quoted. Even then, it is still just an abstract probability, and may never become a viable proposition for production at all – as [Poland has recently discovered](#)<sup>63</sup>.

As with so many recent statements regarding the benefits of shale gas in Britain, arguably the letter [contains a lot of hype](#)<sup>64</sup> with very little factual substance to back up the claims made.

In reality, what this letter represents is not a reasoned statement from fifty academics – it is a public relations smokescreen. Through their participation, those involved have arguably risked their public credibility by putting their name to a set of questionable statements (it would be interesting to check with each of them if they knew exactly what they were signing up to at the time).

The letter was drafted and the signatories organised by the [North West Energy Task Force](#)<sup>65</sup> (NWETF). They are a Lancashire based lobby group which is [funded by](#)<sup>66</sup> Cuadrilla and Centrica – with support from their PR agents, [Westbourne Communications](#)<sup>67</sup> (who occasionally represent Cuadrilla and Centrica). NWETF claim that they organised and drafted the letter<sup>68</sup> – which explains why its content is centred around issues related to economic hype rather than geophysical science.

What this kind of group is, and their work represents, is what is known in the USA as [“astroturf”](#)<sup>69</sup> – the creation of ‘fake grassroots’ organisations whose primary purpose is to front public relations material for their funders. Front groups such as this are now also used in public relations in Britain, as noted in the quote in the previous case study, to engineer doubt within contentious debates.

This letter came just a few days after a letter from [Talk Fracking](#)<sup>70</sup> – signed by 150 celebrities, academics, business people and community groups – which called for a public debate on fracking. This kind of tit-for-tat PR is what astroturf groups are designed to do. For example, shortly after Talk Fracking ran a nation-wide speaking tour, [‘We Need to Talk About Fracking’](#)<sup>71</sup> – which the industry refused to take part in – the industry launched its own exclusive event, [‘Let’s Talk About Shale’](#)<sup>72</sup>.

Just as “fracking” is being brought to the UK from the US, increasingly US-style public relations are distorting local and national public debates, and promoting policies which are arguably harmful to the public interest. Whether it likes it or not, academia is being drawn into this process. And the increasing level of funding which ties academia to corporate interests makes it harder for the public to trust that their research information, and government decisions based upon it, are truly impartial.

**The Guardian letter is immaterial to the evidence-based debate on unconventional oil and gas – and yet at the same time it is valuable. It highlights how, in order to engineer consent, those promoting these technologies are resorting to bogus and distorted messages. However, their flaw is that, when tested using objective evidence, they can easily be exposed as ‘astroturf’ due to the inaccuracies their that messages contain.**

63 *Polish fracking: Shale fail*, The Economist, 14<sup>th</sup> November 2014 – <http://www.economist.com/blogs/easternapproaches/2014/11/polish-fracking>

64 *Ministers’ shale gas ‘hype’ attacked*, Roger Harrabin, BBC News, 12<sup>th</sup> November 2014 – <http://www.bbc.co.uk/news/uk-politics-30013668>

65 North West Energy Task Force – <http://www.nwenergy.org.uk/>

66 North West Energy Task Force: ‘About us’ – <http://www.nwenergy.org.uk/about-us>

67 Powerbase: ‘North West Energy Task Force’ – [http://powerbase.info/index.php/North\\_West\\_Energy\\_Task\\_Force](http://powerbase.info/index.php/North_West_Energy_Task_Force)

68 *“Focus on the scientific facts and get behind shale”, say academic geoscientists and engineers to politicians*, North West Energy Task Force, 5<sup>th</sup> June 2014 – [http://www.nwenergy.org.uk/\\_focus\\_on\\_the\\_scientific\\_facts\\_and\\_get\\_behind\\_shale\\_say\\_academic\\_geoscientists\\_and\\_engineers\\_to\\_politicians](http://www.nwenergy.org.uk/_focus_on_the_scientific_facts_and_get_behind_shale_say_academic_geoscientists_and_engineers_to_politicians)

69 Wikipedia: ‘Astroturfing’ – <https://en.wikipedia.org/wiki/Astroturfing>

70 *We Need to Talk About Fracking*, Talk Fracking, June 2014 – <http://www.talkfracking.org/news/150-celebrities-scientists-and-organisations-call-for-fracking-debate/>

71 Talk Fracking – <http://www.talkfracking.org/about/>

72 Let’s Talk About Shale – <http://www.talkaboutshale.com/>

## Case study 6: The interrelationship between the All-Party Parliamentary Group on Unconventional Gas and Oil and The Task Force on Shale Gas

In this last case study we will examine how 'astroturfing' happens at the Parliamentary level; and how the public relations mediated relationships between corporate interests and politics are increasingly used to frame and manage public debate.

To better inform members of Parliament, [All-Party Groups](#)<sup>73</sup> are run by and for Members of the Commons and Lords. Many APPGs also involve individuals and organisations from outside Parliament. There are a [large number of groups](#)<sup>74</sup> – 133 groups devoted to countries, and 473 devoted to other topics/issues.

In a number of cases the APPGs are run by public relations companies, and involve companies with a direct financial interest in that issue – who might also pay a contribution towards the costs of the APPG's secretariat as part of their participation. The way in which APPGs grant access to Parliamentarians, in return for funding to pay for the work of the group, has been highlighted as potentially the '[next big scandal](#)' in Parliament<sup>75</sup>. The recent report by [Transparency International](#)<sup>76</sup> also highlights the potential abuses within the APPG system.

There is an [APPG on Unconventional Gas and Oil](#)<sup>77</sup>. It has a number of Parliamentary members, an advisory panel made up of academics and corporate representatives, and group of 'associate members' – including individuals, academics and industry and corporate bodies.

The support role for this APPG was split, and has changed in the last few months:

- The public relations company [Edelman](#)<sup>78</sup> had run the secretariat for the APPG until late 2014, when Hill and Knowlton took over. Edelman is one of the larger PR companies with a [large client book](#)<sup>79</sup> – including Shell, Chevron, Exxon Mobil, Ovo Energy, E.On, Schlumberger and Statoil;
- The 'strategy' company [Hill and Knowlton](#)<sup>80</sup> (HK) had run the APPGs communications via the web site, and now runs its secretariat too. HK are another global company with a long history of representing some of the most difficult corporate clients – from the tobacco industry, to Exxon during the Valdez oil spill. HK also have a long reputation for setting up front groups – such as the 'Citizens for a Free Kuwait' group which presented influential '[scripted](#)' testimony<sup>81</sup> to encourage the US Congress to enter the First Gulf War.

Edelman [listed the companies](#)<sup>82</sup> who financed their secretariat function: 3Legs Resources, Arup, Calor Gas, Centrica, CNG Services, Cuadrilla, Dow Chemical Ltd, Energy & Utilities Alliances,

73 UK Parliament: 'All-Party Groups' – <http://www.parliament.uk/about/mps-and-lords/members/apg/>

74 UK Parliament: 'Register Of All-Party Groups' – <http://www.publications.parliament.uk/pa/cm/cmallparty/register/contents.htm>

75 *Corporate funding of all-party groups 'next big scandal' after huge rise under the coalition*, Paul Gallagher, Independent On-line, 18<sup>th</sup> May 2014 – <http://www.independent.co.uk/news/uk/politics/corporate-funding-of-allparty-groups-next-big-scandal-after-huge-rise-under-the-coalition-9391286.html>

76 *Lifting The Lid On Lobbying: The Hidden Exercise Of Power And Influence In The UK*, Transparency International UK, February 2015 – [http://www.transparency.org.uk/our-work/publications/18-press-releases/download/251\\_dd6a4ae9b4e9aa45021527dc42211e5d](http://www.transparency.org.uk/our-work/publications/18-press-releases/download/251_dd6a4ae9b4e9aa45021527dc42211e5d)

77 APPG on Unconventional Gas and Oil – <http://www.appgunconventionaloilandgas.com/>

78 Edelman UK – <http://www.edelman.co.uk/>

79 Association of Professional Political Consultants: 'Company Profile, Edelman' – <http://www.appc.org.uk/members/register/register-profile/?company=Edelman>

80 Hill and Knowlton Strategies – <http://www.hkstrategies.co.uk/>

81 Wikipedia: 'Nayirah (testimony)' – [http://en.wikipedia.org/wiki/Nayirah\\_%28testimony%29](http://en.wikipedia.org/wiki/Nayirah_%28testimony%29)

82 Association of Professional Political Consultants: 'Register for 1st September 2013 – 30<sup>th</sup> November 2013' – <http://www.appc.org.uk/wp-content/uploads/13-NOV-REGISTER-26.2.1411.pdf>

Essar Energy, Eversheds, Ground Gas Solutions, Igas Energy, Ineos UK, K&L Gates LLP, Mitsubishi Power Systems Europe Ltd, Macquarie Capital, MWH, Norwest Energy, Petrafit, Peel Environmental, Quatre Limited, Savills, Shale Gas World UK, Shell, SLR Consulting, Statoil, Squire Sanders, Total, UK Onshore Operators Group, and The Weir Group.

The APPG maintains<sup>83</sup> that it is not run by the fracking industry – although these and related companies dominate the APPG's [Parliamentary accounts](#)<sup>84</sup>.

Coincident with Edelman's departure from supporting the APPG, in October 2014 a [new group](#)<sup>85</sup> was set up to carry out detailed studies into the evidence of the impacts of shale gas development. Led by the former Labour minister and recently retired head of the Environment Agency, Chris Smith, the purpose of the group was stated as –

*The Task Force on Shale Gas aims to provide a transparent, trusted, independent and impartial platform for public scrutiny, discussion and information about shale gas exploration and production in the UK.*

The Task Force has engaged a number of academics and public figures to guide this process:

- Chris Smith, who while chair of the Environment Agency helped to guide through [new licensing procedures](#)<sup>86</sup> for unconventional oil and gas. He is also a [non-executive director](#)<sup>87</sup> of Spencer Ogden, a company which specialises in recruitment for the oil and gas industry.
- Professor Ernest Rutter, University of Manchester. He is one of the signatories of the Guardian 'letter from academics'. He has spoken in favour of shale gas development, and of [his concerns about](#)<sup>88</sup> the “campaign of misinformation, disinformation and sometimes even outright lies has left many people confused and uncertain.”
- Professor Nigel Brandon, Director of the Sustainable Gas Institute at Imperial College London – funded by BG Group, who have investments in [unconventional gas extraction](#)<sup>89</sup> in the USA and Australia.
- Stephen Tindale, former executive director of Greenpeace and associate fellow at the Centre for European Reform. He has previously written on his blog about ["The climate case for shale gas"](#)<sup>90</sup>, basing his arguments on the results of the Mackay-Stone review.
- Michael Holgate, independent energy consultant with over 25 years' experience in the oil, renewable energy and carbon management sectors, and consultant for shale gas company 3 Legs Resources – who have exploration interests in Poland.

83 *MPs lobby group denies fracking funding*, EnergyLive, 23<sup>rd</sup> August 2013 – <http://www.energylivenews.com/2013/08/23/mps-lobby-group-denies-fracking-funding/>

84 UK Parliament: 'Register of All-Party Groups, Unconventional Oil and Gas' – <http://www.publications.parliament.uk/pa/cm/cmllparty/register/unconventional-oil-and-gas.htm>

85 *Former Environment Agency head to lead industry-funded fracking task force*, Guardian On-line, 21<sup>st</sup> October 2014 – <http://www.theguardian.com/environment/2014/oct/21/former-environment-agency-head-to-lead-industry-funded-fracking-task-force>

86 *Owen Paterson held urgent meeting for fracking boss, documents show*, Guardian On-line, 21<sup>st</sup> March 2014 – <http://www.theguardian.com/environment/2014/mar/21/owen-paterson-urgent-meeting-fracking-cuadrilla-lord-browne>

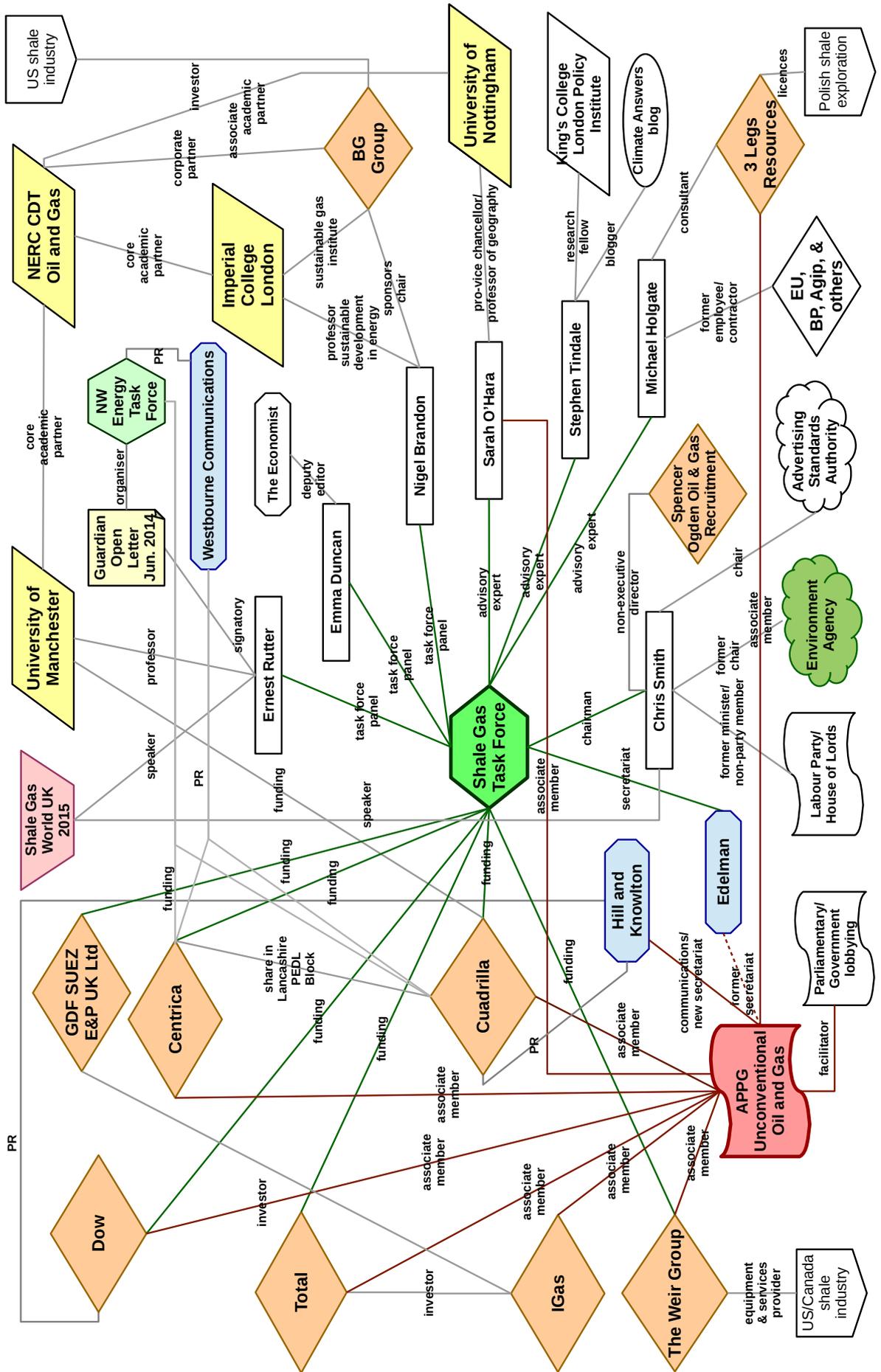
87 UK Parliament: 'Register of Lords' Interests' – <http://www.parliament.uk/mps-lords-and-offices/standards-and-interests/register-of-lords-interests/>

88 *To frack or not to frack? That is the question for communities*, Guardian On-line, 15<sup>th</sup> August 2013 – <http://www.theguardian.com/local-government-network/2013/aug/15/fracking-debate-local-communities-energy>

89 BG Group: 'Unconventional gas' – <http://www.bg-group.com/439/sustainability/2013-sustainability-report/environment-and-climate-change/unconventional-gas/>

90 Climate Answers: 'The climate case for shale gas', 5<sup>th</sup> August 2014 – <http://climateanswers.info/2014/05/the-climate-case-for-shale-gas/>

# Interrelationship between the APPG on Unconventional Gas & Oil and The Task Force on Shale Gas



The Task Force has a secretariat to organise its work. This is operated by Edelman – who ran the APPG on Unconventional Gas and Oil's secretariat. The [Task Force is funded](#)<sup>91</sup> by Centrica, Cuadrilla, Dow, Total, The Weir Group and GDF Suez UK – many of whom also fund the APPG.

Given the presently available evidence, what we might speculate about the Task Force on Shale Gas is that: it is a group of experts who have previously expressed varying levels of support for shale gas; which is served by a PR company who have previously represented shale gas interests; which is funded by conventional and unconventional fossil fuel companies; and which has a mission “to provide a transparent, trusted, independent and impartial platform for public scrutiny”.

Though we stand to be corrected by their future conduct, *the background and composition of the Task Force on Shale Gas fits the long-standing pattern of an industry front group.*

To see why, we need only look to the work of [Edelman in Canada](#)<sup>92</sup>, where they are promoting an alternative option to the Keystone XL pipeline. This involves creating the kind of 'public information' activities we can see within the work of the Task Force here, to counter the messages put out by environmental groups. That programme<sup>93</sup> builds upon the 'grassroots advocacy' which [Edelman developed in the US](#)<sup>94</sup> for organisations such as the American Petroleum Institute and Walmart.

There is a pre-existing model for a group similar to the Task Force in the US – the [Center for Sustainable Shale Development](#)<sup>95</sup>. It too was modelled as a 'stakeholder' group where academics, industry and even environmental groups could come together and objectively research the impacts of shale gas. That model was shown to be a front following an investigation by the [Public Accountability Initiative](#)<sup>96</sup> – which led some organisations to leave. Their [follow-up study](#)<sup>97</sup> showed that, a year later, the CSSD had developed closer industry ties to make up for the funding lost from the departing members.

The Task Force on Shale Gas is, given its provenance, an unlikely vehicle to “to provide a transparent, trusted, independent and impartial platform for public scrutiny, discussion and information about shale gas”. And yet, the Environmental Audit Committee [recently stated](#)<sup>98</sup> –

*[para.83] The Government must fully engage with the work of the Task Force on the climate change and environmental risks, and await its findings before proceeding further with fracking in the UK.*

**Contrary to their aims, it is difficult to see how the public will accept the work of the Task Force on Shale Gas as a “trusted, independent and impartial platform”. They cannot demonstrate their 'impartiality'. Many of its members have previously expressed partisan points of view. It's similarity to other 'front groups' in North America also casts doubt on its suitability as an honest broker to resolve the public's concerns about shale gas.**

91 Task Force on Shale Gas: 'About the Task Force' – <http://www.shaletaskforce.uk/about-the-task-force>

92 *Here's What Big Oil Has In The Pipes If Keystone Fails*, Kate Sheppard, Huffington Post, 17<sup>th</sup> November 2014 – [http://www.huffingtonpost.com/2014/11/17/transcanada-pipeline-oil\\_n\\_6174570.html](http://www.huffingtonpost.com/2014/11/17/transcanada-pipeline-oil_n_6174570.html)

93 The Edelman/TransCanada documents were leaked to Greenpeace in Canada in 2014 –

- *East Energy Campaign Organization* – [http://www.fraw.org.uk/files/direct\\_action/tc\\_edelman\\_20141.pdf](http://www.fraw.org.uk/files/direct_action/tc_edelman_20141.pdf)
- *Grassroots Advocacy Vision Document* – [http://www.fraw.org.uk/files/direct\\_action/tc\\_edelman\\_20142.pdf](http://www.fraw.org.uk/files/direct_action/tc_edelman_20142.pdf)
- *Digital Grassroots Advocacy Plan* – [http://www.fraw.org.uk/files/direct\\_action/tc\\_edelman\\_20143.pdf](http://www.fraw.org.uk/files/direct_action/tc_edelman_20143.pdf)
- *Strategic Plan: Quebec* – [http://www.fraw.org.uk/files/direct\\_action/tc\\_edelman\\_20144.pdf](http://www.fraw.org.uk/files/direct_action/tc_edelman_20144.pdf)

94 *The Shadow Lobbying Complex*, Lee Fang, The Nation, 20<sup>th</sup> February 2014 – [http://www.theinvestigativefund.org/investigations/politicsandgovernment/1929/the\\_shadow\\_lobbying\\_complex?page=entire](http://www.theinvestigativefund.org/investigations/politicsandgovernment/1929/the_shadow_lobbying_complex?page=entire)

95 The Center for Sustainable Shale Development – <https://www.sustainableshale.org/>

96 *Big Green Fracking Machine*, Public Accountability Initiative, June 2013 – [http://www.fraw.org.uk/files/extreme/pai\\_2013.pdf](http://www.fraw.org.uk/files/extreme/pai_2013.pdf)

97 *Anatomy of an Industry Front Group*, Public Accountability Initiative, August 2014 – [http://www.fraw.org.uk/files/extreme/pai\\_2014.pdf](http://www.fraw.org.uk/files/extreme/pai_2014.pdf)

98 *Environmental risks of fracking*, Eighth Report of Session 2014-15, House of Commons Environmental Audit Committee, January 2015 – <http://www.publications.parliament.uk/pa/cm201415/cmselect/cmenvaud/856/856.pdf>

## Conclusion

The basis of rational, scientific judgement is evidence, and the framework for how that evidence is assessed and conclusions drawn.

The recent use of scientists to front the case for unconventional gas and oil in Britain is not based on clear, unequivocal evidence. Instead it relies upon the status of those making the claims to substantiate the arguably partial information presented. It is a process driven by a narrow, public relations focus rather than an open investigation of all available evidence.

What is often not stated as part of this process are the conflicting professional or institutional roles or interests of those involved, which create questions about bias. In the case of unconventional gas and oil it raises doubts as to the objectivity and reliability of the claims made.

There is no strong case proving the safety and reliability of 'fracking'. Instead reference is made to uncertain or unproven mechanisms of 'regulation' or 'best practice' to remedy any potential problems which may arise. Current Government policy rests upon a set of 'official' positions about the safety or efficacy of unconventional gas and oil which were devised some two or three years ago. The validity of these positions, and the Government's reliance upon certain academic reports to demonstrate their case, is also called into question by this recent body of research.

Reflecting the evidence now available, the best conclusion we can draw on the safety of unconventional gas and oil is that 'we don't know the full scope or extent of its impacts'. This was also the result of recent studies by public agencies in New York State and Quebec, as well in other previous studies carried out in other areas where these processes are already under development.

The use of 'scientists' to represent the Government and industry case, and the reports they have produced to justify Government policy, raise questions of official bias within the use of science-based evidence. This is highlighted in the six case studies chosen for review in this report:

- ◆ The Natural Environment Research Council's Centre for Doctoral Training in Oil and Gas (Case Study 1) is a questionable use of public funding for scientific research. We cannot safely produce the majority of the fossil fuels we know to exist today due to the impacts this would have on the climate. Given the inertia within academia, and the fact that decisions on resource allocation today may result in long-standing commitments to research in certain fields rather than others, it is questionable whether NERC can justify supporting research which champions the discovery and extraction of fossil fuels. Other fields of research are arguably more deserving of this funding to meet future energy and environmental challenges.
- ◆ The Government's use of science in support of their policy on shale gas (Case Study 2) raises questions about objectivity in the consideration of evidence. Much of the Government's case relies on statements which, in light of recent research on the environmental impacts of unconventional gas and oil, are arguably unsound. The fact that these studies all tend to put emphasis on best practice and regulation, without first demonstrating that existing impacts are the result of failures in regulation or practice, also raises questions about their validity.
- ◆ Of these various reports, the one which stands out is the Mackay-Stone report on the climate impacts of shale gas (Case Study 3). This reports uses arguably unrepresentative data to construct a case for the climate-friendly status of shale gas. In fact, given the range of data available, no such claims can be made. Arguably the impacts are much higher than that stated in the report, and quoted by Government ministers and public figures on numerous occasions since its publication.

- ◆ The use of these and other statements by scientists, in support of unconventional gas and oil, is further complicated by groups such as the Science Media Centre (Case Study 4). They were set up to 'promote' science amongst the public. And yet, when we review the statements they circulate to the media, we find that they are not an accurate appraisal of the available evidence. They create a false certainty about the safety of these processes, and thus mislead the public about the impacts that may result if development took place in Britain.
- ◆ As a specific example of this use of scientists to mislead public opinion, the Guardian letter (Case Study 5) is a prime example. It is a letter which makes largely economic, not geophysical, claims about shale gas extraction in Lancashire. What is more, the points made in the letter can be shown to be inaccurate or exaggerations of the statistical evidence available. However, through referencing to the positions of the academics who were (whether knowingly or unknowingly) signatories to this letter, the result is that the objective case for unconventional gas and oil is being deliberately misrepresented to the public.
- ◆ Finally, we can see the planned, deliberate nature of this deception if we look at the public relations industry's past history of 'grassroots advocacy' – and its creation of groups to advance the case for certain developments as part of that advocacy process, so called 'astroturf' groups. If we look at recent events in Canada and the USA, and in particular the role of public relations companies such as Edelman, the recently formed Task Force on Shale Gas (Case Study 6) is arguably a front to pass-off the industry's case for unconventional gas and oil development in Britain. Not only have the members of the Task Force previously expressed positions in support of shale gas development, the organisation behind the Task Force is similar to that of other industry-dominated groups – such as the All Party Parliamentary Group on Unconventional Gas and Oil. As a result the Task Force cannot be considered to be an independent and impartial organisation to represent the public interest.

Over recent years a term has arisen to describe the use of scientists to advance a favourable case for unconventional gas and oil – “frackademics”. What this denotes is not simply the use of spurious claims of scientists to mislead the public. It is also emblematic the acceptance of industry or government financial support for academic institutes who provide the technical credibility for controversial policies. Thus it is not just the content of what is being said that is relevant, but also the context in which/by whom it is being spoken.

We have, from student loans to the part privatisation of our leading science laboratories, a crisis in science funding in Britain. This creates doubt as to the impartiality and objectivity of the information these agencies produce as it introduces a need to represent their clients interests. This doubt has been exacerbated by the Government use of partisan evidence and reports in their promotion of policy. As funding pressures grow, and industries who wish to advance certain special interests come in to fill the gap, we have to ask whether the public can fully trust the use of scientists or scientific evidence in the media.

**There is no objective case to support the development of unconventional gas and oil in Britain. At best, reviewing evidence from studies from around the world, what we can say is that there is a great deal of uncertainty as to the scope and severity of impacts from these processes. Therefore the use of scientists by Government and industry to promote a positive view of these technologies is misleading, since in nearly all cases that uncertainty is not being represented to the public. This risks further diminishing the public's trust in science, as it is increasingly being used to support developments which arguably have an uncertain – but likely negative – impact upon the public's interests.**

## Appendix: Information sources for case study diagrams

This appendix lists the primary information sources used to construct the diagrams which outline the mapped relationships which form the basis of this report. Where later diagrams repeat source information (e.g. references to NERC's CDT), these are not repeated.

### 1. University Fossil Fuel Funding Sources and the NERC 'Centre for Doctoral Training' (CDT) in Oil and Gas

- NERC CDT Oil & Gas – <http://www.nerc-cdt-oil-and-gas.ac.uk/>
- *Knowledge and Power: Fossil Fuel Universities* – <http://bit.ly/fossilfuelunis>
- Institute for Petroleum Engineering, Heriot-Watt University – <http://www.pet.hw.ac.uk/>
- Sustainable Gas Institute, Imperial College London – <http://www.sustainablegasinstitute.org/>
- Durham Energy Institute, Durham University – <https://www.dur.ac.uk/dei/>
- Industry partners, Durham Energy Institute – <https://www.dur.ac.uk/dei/partners/>
- Shell-Oxford Research Collaboration – <http://shell.earth.ox.ac.uk/>
- BP International Centre for Advanced Materials, University of Manchester – <http://www.icam-online.org/>
- Modelling and Simulation Centre – <http://www.mace.manchester.ac.uk/our-research/centres-institutes/masc/>
- The BP Institute, University of Cambridge – <http://www.bpi.cam.ac.uk/>
- Schlumberger Gould Research Centre, University of Cambridge – <http://www.slb.com/about/rd/research/sgr.aspx>
- Shale Gas Hub, University College London – <http://www.ucl.ac.uk/earth-sciences/research/shale-gas-hub/>
- ReFINE Project – <https://www.dur.ac.uk/refine/>
- Fluvial Systems Research Group – <http://www.abdn.ac.uk/geosciences/departments/geology/fsrg-934.php>
- Fluvial & Eolian Research Group, University of Leeds – <http://frg.leeds.ac.uk/>
- Lancashire monitoring, BGS – <http://www.bgs.ac.uk/research/energy/shalegas/lancashireMonitoring.html>

### 2. Academic Involvement in Major Shale Gas Studies

- *Shale gas extraction in the UK: a review of hydraulic fracturing*, RS/RAE, June 2012 – <https://royalsociety.org/policy/projects/shale-gas-extraction/>
  - Report – <https://royalsociety.org/policy/projects/shale-gas-extraction/report/>
  - Working group – <https://royalsociety.org/policy/projects/shale-gas-extraction/working-group>
  - Consultation – <https://royalsociety.org/~media/policy/projects/shale-gas-extraction/2012-10-26-shale-gas-consultations.zip>
- *Independent Expert Scientific Panel Report on Unconventional Oil And Gas*, Scottish Government, July 2014 – <http://www.scottishscience.org.uk/article/independent-expert-scientific-panel-report-unconventional-oil-and-gas>
  - Background info. – <http://www.gov.scot/Topics/Business-Industry/Energy/resources/PanelUnconventionalOilGas>
- Powerbase: 'Algy Cluff' – [http://powerbase.info/index.php/Algy\\_Cluff](http://powerbase.info/index.php/Algy_Cluff)
- Five Quarter Energy: 'Our Board' – <http://www.five-quarter.com/#!/our-board/c542>
- *Would the Duke of Buccleuch be so keen on fracking at his stately pile?*, Joan McAlpine, Daily Record, 8<sup>th</sup> October 2013 – <http://www.dailyrecord.co.uk/news/scottish-news/joan-mcalpine-would-duke-buccleuch-2348584>
- Cluff Geothermal: 'About' – <http://www.cluffgeothermal.com/about>
- Cluff Natural Resources – <http://www.cluffnaturalresources.com/index.aspx>

### 3. DECC Shale Climate Impacts Study

- *Potential Greenhouse Gas Emissions Associated with Shale Gas Extraction and Use*, David Mackay, Tim Stone, DECC, September 2013 – <https://www.gov.uk/government/publications/potential-greenhouse-gas-emissions-associated-with-shale-gas-production-and-use>
- Powerbase: 'David Mackay' – [http://powerbase.info/index.php/David\\_MacKay](http://powerbase.info/index.php/David_MacKay)
- Powerbase: 'Tim Stone' – [http://powerbase.info/index.php/Tim\\_Stone](http://powerbase.info/index.php/Tim_Stone)
- Powerbase: 'Department of Energy and Climate Change' – [http://powerbase.info/index.php/Department\\_of\\_Energy\\_and\\_Climate\\_Change#Chief\\_Scientific\\_advisor](http://powerbase.info/index.php/Department_of_Energy_and_Climate_Change#Chief_Scientific_advisor)
- *Special adviser data releases: numbers and costs*, Cabinet Office, 18th December 2014 – <https://www.gov.uk/government/publications/special-adviser-data-releases-numbers-and-costs-november-2014>
- APPG Unconventional Oil and Gas – <http://www.appgunconventionaloilandgas.com/>
- Powerbase: 'Edelman' – <http://powerbase.info/index.php/Edelman>
- Powerbase: 'Hanover Communications' – [http://powerbase.info/index.php/Hanover\\_Communications](http://powerbase.info/index.php/Hanover_Communications)
- Powerbase: 'Fishburn Hedges' – [http://powerbase.info/index.php/Fishburn\\_Hedges](http://powerbase.info/index.php/Fishburn_Hedges)

### 4. The Science Media Centre and the “Seeding” of Shale Energy Articles

- Science Media Centre – <http://www.sciencemediacentre.org/>
- Science Media Centre: 'Funding' – <http://www.sciencemediacentre.org/about-us/funding/>
- Powerbase: 'Science Media Centre' – [http://powerbase.info/index.php/Science\\_Media\\_Centre](http://powerbase.info/index.php/Science_Media_Centre)
- SMC's own case review – *Science Media Centre*, Fiona Fox, Chief Executive – <https://ec.europa.eu/jrc/sites/default/files/events/20130919-rt-eurocase/20130919-rt-eurocase-fox.pdf>
- Science Media Centre: 'Shale Gas' – <http://www.sciencemediacentre.org/?s=shale&cat=>
- SMC articles reviewed:
  - **26/1/15** – *Expert reaction to new report on fracking by the Environmental Audit Committee*, SMC, January 26<sup>th</sup> 2015 – <http://www.sciencemediacentre.org/expert-reaction-to-new-report-on-fracking-by-the-environmental-audit-committee/> Seeded article –
    - *Fracking: MPs demanding ban 'listened to ill-informed green groups not science'*, Emily Gosden, Telegraph On-line, 26<sup>th</sup> January 2015 – <http://www.telegraph.co.uk/news/earth/energy/fracking/11368632/Fracking-MPs-demanding-ban-listened-to-green-campaigners-not-science.html>
  - **30/10/14** – *Expert reaction to study of air pollution around oil and gas wells in the US*, SMC, October 30<sup>th</sup> 2014 – <http://www.sciencemediacentre.org/expert-reaction-to-study-of-air-pollution-around-oil-and-gas-wells-in-the-us/> Seeded articles –
    - *Fracking emits more formaldehyde than medical students experience from dead bodies*, Sarah Knapton, Telegraph On-line, 30<sup>th</sup> October 2014 – <http://www.telegraph.co.uk/news/earth/energy/fracking/11196238/Fracking-emits-more-formaldehyde-than-medical-students-experience-from-dead-bodies.html>
    - *'Dangerously high' levels of airborne carcinogens found at US fracking sites*, Steve Connor, Independent On-line, Thursday 30<sup>th</sup> October 2014 – <http://www.independent.co.uk/environment/dangerously-high-levels-of-airborne-carcinogens-found-at-us-fracking-sites-9826586.html>
  - **15/9/14** – *Expert reaction to new study of groundwater contamination above shale gas fields*, SMC, September 15<sup>th</sup> 2014 – <http://www.sciencemediacentre.org/expert-reaction-to-new-study-of-groundwater-contamination-above-shale-gas-fields/> Seeded article –
    - *Weak wells not fracking caused US gas leaks into water*, Matt McGrath, BBC News, 15<sup>th</sup> September 2014 – <http://www.bbc.co.uk/news/science-environment-29206704>
  - **31/10/13** – *Expert reaction to PHE report on shale gas and public health*, SMC, October 31<sup>st</sup> 2013 – <http://www.sciencemediacentre.org/expert-reaction-to-phe-report-on-shale-gas-and-public-health/> Seeded article –
    - *Shale Gas: Radioactive Radon Risk In Homes*, Sky News, Thursday 31<sup>st</sup> October 2013 – <http://news.sky.com/story/1162175/shale-gas-radioactive-radon-risk-in-homes>

- **9/9/13** – *Shale gas and fracking*, SMC, September 9<sup>th</sup> 2013 – <http://www.sciencemediacentre.org/shale-gas-and-fracking-4/> Seeded article –
  - *News analysis: Fracking protestors should find their focus*, Mark Venables, Engineering and Technology, 16<sup>th</sup> September 2013 – <http://eandt.theiet.org/magazine/2013/09/analysis.cfm>
- **27/6/13** – *Expert reaction to the news that shale gas reserves in Lancashire and Yorkshire are greater than previously thought*, SMC, June 27<sup>th</sup> 2013 – <http://www.sciencemediacentre.org/expert-reaction-to-the-news-that-shale-gas-reserves-in-lancashire-and-yorkshire-are-greater-than-previously-thought/> Seeded article –
  - *UK shale gas survey confirms huge reserves*, Will Nichols and Jessica Shankleman, Business Green, 27<sup>th</sup> June 2013 – <http://www.businessgreen.com/bg/news/2277981/uk-shale-gas-survey-confirms-huge-reserves>
- **13/12/12** – *Expert reaction to resumption of fracking in the UK*, SMC, December 13<sup>th</sup> 2012 – <http://www.sciencemediacentre.org/expert-reaction-to-resumption-of-fracking-in-the-uk/> Quoted –
  - *Shale gas and fracking: examining the evidence*, Gwen Harrison, Stuart Parkinson and Gary McFarlane, Scientists for Global Responsibility (SGR) and the Chartered Institute of Environmental Health (CIEH), July 2014 – <http://www.frackfreebalcombe.co.uk/page125.php>
- **28/6/12** – *Is it safe to proceed with fracking in the UK?*, SMC, June 28<sup>th</sup> 2012 – <http://www.sciencemediacentre.org/is-it-safe-to-proceed-with-fracking-in-the-uk-3/> Seeded articles –
  - *UK fracking should be expanded, but better regulated, says report*, Fiona Harvey, Guardian On-line, 29<sup>th</sup> June 2012 – <http://www.theguardian.com/environment/2012/jun/29/shale-gas-fracking-expanded-regulated>
  - *'Fracking' safe with strong regulation, report says*, Richard Black, BBC News, 29<sup>th</sup> June 2012 – <http://www.bbc.co.uk/news/science-environment-18611647>
- **17/4/12** – *Expert reaction to independent report into fracking*, SMC, April 17<sup>th</sup> 2012 – <http://www.sciencemediacentre.org/expert-reaction-to-independent-report-into-fracking-2/> Seeded articles –
  - *Gas 'fracking' gets green light*, Fiona Harvey, Guardian On-line Tuesday 17<sup>th</sup> April 2012 – <http://www.theguardian.com/environment/2012/apr/17/gas-fracking-gets-green-light>
  - *Fracking: drilling method 'to be extended' despite causing Blackpool earthquakes*, Nick Collins, Telegraph On-line, 17<sup>th</sup> April 2012 – <http://www.telegraph.co.uk/news/science/science-news/9206898/Fracking-drilling-method-to-be-extended-despite-causing-Blackpool-earthquakes.html>
  - *Cautious go-ahead for fracking*, Pilita Clark, FT, 17<sup>th</sup> April 2012 – <http://www.ft.com/cms/s/0/8027fe0a-87ee-11e1-b1ea-00144feab49a.html>
  - *Fracking for gas allowed in UK despite earthquakes*, Michael McCarthy, Independent On-line, Tuesday 17<sup>th</sup> April 2012 – <http://www.independent.co.uk/news/uk/home-news/fracking-for-gas-allowed-in-uk-despite-earthquakes-7648265.html>
  - See also SMC's case review
- **16/4/12** – *Independent scientific report to DECC on fracking and earthquakes near Blackpool*, SMC, April 16<sup>th</sup> 2012 – <http://www.sciencemediacentre.org/independent-scientific-report-to-decc-on-fracking-and-earthquakes-near-blackpool/>
  - See SMC's case review
- **10/1/12** – *Shale gas and fracking*, SMC, January 10<sup>th</sup> 2012 – <http://www.sciencemediacentre.org/shale-gas-and-fracking/>
  - *Fracking water pollution in Lancashire 'extremely unlikely'*, BBC News, 10<sup>th</sup> January 2012 – <http://www.bbc.co.uk/news/uk-england-lancashire-16494766>
  - *U.K. Shale Drilling Won't Start Dangerous Earthquakes*, Kari Lundgren, Bloomberg News, 12<sup>th</sup> January 2012 – <http://www.businessweek.com/news/2012-01-12/u-k-shale-drilling-won-t-start-dangerous-earthquakes.html>
- **2/11/11** – *Expert reaction to Cuadrilla's report into fracking and earthquakes*, SMC, November 2<sup>nd</sup> 2011 – <http://www.sciencemediacentre.org/expert-reaction-to-cuadrillas-report-into-fracking-and-earthquakes-2/> Seeded article –
  - *Fracking-induced tremors are 'extremely rare', says report*, Stephen Harris, The Engineer, 3<sup>rd</sup> November 2011 – [http://www.theengineer.co.uk/news/news-analysis/fracking-induced-tremors-are-extremely-rare-says-report/1010791\\_article](http://www.theengineer.co.uk/news/news-analysis/fracking-induced-tremors-are-extremely-rare-says-report/1010791_article)
- *Shale gas and fracking*, SMC, November 2<sup>nd</sup> 2011 – <http://www.sciencemediacentre.org/shale-gas-and-fracking-3/>  
<http://www.sciencemediacentre.org/wp-content/uploads/2013/04/Shale-gas-and-fracking.pdf>

## 5. Guardian 'Open Letter' From Academics, June 2014

- *Lancashire's shale gas can fill UK energy gap*, Guardian On-line, Wednesday 4th June 2014 – <http://www.theguardian.com/environment/2014/jun/04/lancashire-shale-gas-uk-energy-gap>
- “Focus on the scientific facts and get behind shale”, say academic geoscientists and engineers to politicians, North West Energy Task Force, June 2014 – [http://www.nwenergy.org.uk/\\_focus\\_on\\_the\\_scientific\\_facts\\_and\\_get\\_behind\\_shale\\_say\\_academic\\_geoscientists\\_and\\_engineers\\_to\\_politicians](http://www.nwenergy.org.uk/_focus_on_the_scientific_facts_and_get_behind_shale_say_academic_geoscientists_and_engineers_to_politicians)
- Powerbase: 'North West Energy Task Force' – [http://powerbase.info/index.php/North\\_West\\_Energy\\_Task\\_Force](http://powerbase.info/index.php/North_West_Energy_Task_Force)
- Powerbase: 'Westbourne Communications' – [http://powerbase.info/index.php/Westbourne\\_Communications](http://powerbase.info/index.php/Westbourne_Communications)
- Shale Gas Europe – <http://shalegas-europe.eu/>
- Powerbase: 'Shale Gas Europe' – [http://powerbase.info/index.php/Shale\\_Gas\\_Europe](http://powerbase.info/index.php/Shale_Gas_Europe)

## 6. Interrelationship between the APPG on Unconventional Gas & Oil and The Shale Energy Task Force

- APPG Unconventional Oil and Gas – <http://www.appgunconventionaloilandgas.com/>
- Task Force on Shale Gas – <http://www.shaletaskforce.uk/>
- Task Force on Shale Gas: 'About' – <http://www.shaletaskforce.uk/about-the-task-force>
- Powerbase: 'Task Force on Shale Gas' – [http://powerbase.info/index.php/Task\\_Force\\_on\\_Shale\\_Gas](http://powerbase.info/index.php/Task_Force_on_Shale_Gas)
- House of Lords Register of Members Interests: 'Chris Smith' – <http://www.parliament.uk/biographies/lords/lord-smith-of-finsbury/186>
- Powerbase: 'Chris Smith' – [http://powerbase.info/index.php/Chris\\_Smith\\_%28UK\\_politician%29](http://powerbase.info/index.php/Chris_Smith_%28UK_politician%29)
- Powerbase: 'Edelman' – <http://powerbase.info/index.php/Edelman>
- Powerbase: 'Hill and Knowlton' – [http://powerbase.info/index.php/Hill\\_and\\_Knowlton](http://powerbase.info/index.php/Hill_and_Knowlton)