

The background of the cover is a photograph of two men. The man on the left is wearing a dark jacket and a cap, and is holding a lit torch. The man on the right is wearing a dark suit and a white shirt, and is looking down at something in his hands. The background is dark and blurry.

# QUAKES, POLLUTION AND FLAMING FAUCETS The UK media on shale gas

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## **About the author**

Andrew Montford is deputy director of GWPF and is best known as the author of *The Hockey Stick Illusion*.

# 1 When greens loved gas

Although it is hard to believe now, when it first became clear that extracting gas from shales would become routine, environmentalists were highly enthusiastic. Having much lower carbon emissions than coal, gas was seen as a bridge fuel, which would kill off coal in the short term, paving the way to an all-renewable future.<sup>1,2</sup>

So if you go back to the earliest UK reports about the shale gas revolution, you are quickly struck by how different in tone they are to the coverage of later years. In November 2009, for example, BBC Business News reported a dramatic rise in US gas reserves.<sup>3</sup> The article, written by a staffer based in Norway, explained the technological developments behind the changed outlook and quoted Rune Bjornson, the head of Norway's Statoil, as saying it was 'a potential gamechanger'.

And on the environmental front it was good news too. A picture accompanying the article noted that 'shale rock drilling operations are relatively small,' while elsewhere you learned that 'replacing coal with gas could help reduce carbon emissions' and that 'shale gas could be [a] greener alternative' that could deliver 'vast reductions in emissions'. Only a brief mention was given to the idea that 'the chemicals used in the pressure-washer style drilling methods can leak into the ground water'.

The following spring, *Prospect* magazine also looked at the nascent shale revolution, describing it as the 'fuel of the future'<sup>4</sup> and pooh-poohed the idea that fracking could contaminate water supplies:

Some environmentalists – and Gazprom – say the drilling process threatens water sources. For that reason, New York has prevented shale-gas exploitation in its share of the Marcellus shale (while Pennsylvania, which shares the field, has allowed it)...But take Gazprom's objections with a pinch of salt. The arrival of shale gas in the mainstream threatens its business model...

Not everyone got it right though. The *Daily Telegraph*'s business reporter Rowena Mason said that shale 'needs to be fractured with water and sand leaving vast open scars across the landscape';<sup>5</sup> although the article was generally positive in tone.

However, it soon became clear to everyone that the impact of shale gas was going to be even bigger than even the most optimistic promoters had thought. US natural gas prices, in freefall since 2008, continued to decline and as people started to realise just how much shale there was around the world, an awful realisation took hold: shale gas was going to be so cheap and so plentiful for decades to come that it might not be a bridge fuel at all. The renewables revolution might never actually happen.

## 2 *Gasland* and the BBC's sudden interest

The film *Gasland* started to play in cinemas across the USA and in certain European countries in September 2010.<sup>6</sup> Director Josh Fox's magnum opus has become infamous for the 'flaming faucet' scene, in which a Pennsylvania householder set fire to their tap, the methane in the water supply alleged to be the result of nearby shale gas operations. This story has now been thoroughly discredited: the problem of methane in water supplies in the area was known long before fracking was even dreamt of, let alone made a reality. However, journalists across the world were taken in – or perhaps 'taken in' - by the deception and the film's release marked the beginning of a dramatic change in the way shale gas was to be portrayed in the media.

On 8 September 2010, just a week before *Gasland's* US release, BBC radio's *Costing the Earth* covered the shale gas industry,<sup>7</sup> relaying the allegations of water contamination by fracking chemicals and 'flaming faucets'.

Granville Summit resident Shana Spencer said methane contamination led to her well water becoming flammable. Put a match to the kitchen tap and a flame would leap up.

The possibility that this story might be untrue doesn't seem to have occurred to anyone on the team at *Costing the Earth*.

In the preceding years, the *Guardian* had focused on a long-running series of scare stories on 'peak oil'. It had therefore been largely silent on the subject of shale gas, the only mentions tending to be from 'expert' energy commentators suggesting that exploitation of shales was a high-cost strategy for the future.<sup>8</sup> However, change was in the air and on 1 October 2010, it carried a syndicated piece from Yale Environment.<sup>9</sup> This was a fairly blatant piece of scaremongering, with a particular focus on the allegedly high water requirements for unconventional oil and gas, another set of claims that has long since been rebutted.<sup>10</sup> As the article put it:

'It's a pact with the devil,' says Randy Udall, a consulting energy analyst from Colorado. 'The tar sands and shale oil and shale gas require a lot of water. It sets up a collision course for the West.'

Amusingly, Udall's background is not quite as presented in the article. He had actually had a career as an outward-bound instructor; his output as a 'consulting energy analyst' was apparently his involvement with the Association for the Study of Peak Oil and some campaigning activity related to solar energy. Elsewhere he is described as a 'leading environmentalist'.<sup>11</sup>

*Gasland* was only released in the UK at the start of 2011, a few months later than in the USA.<sup>12</sup> The weeks running up to its release were marked by a sudden surge of interest in the subject at the BBC. In particular, the *Newsnight* show's science editor Susan Watts introduced the 'flaming faucets' canard to UK screens,<sup>13</sup> in a piece that cut almost straight to the chase. After explaining what fracking is, she adopted breathless tones as she moved straight on to the environmentalists' wild claims:

...this new source of energy is controversial. Video sharing website YouTube is buzzing with clips showing people who live close to gas drill sites setting light to their tap water.

To back this up, she showed film of a Pennsylvania resident called Bill Ely setting fire to his water supply, reporting that 'he is suing [shale gas firm, Cabot Oil and Gas] for contaminating his water supply with methane gas and putting his home at risk of explosion'. Subsequent history has revealed the choice of Ely to be an extremely unfortunate one. His case lasted nearly a decade before being settled out of court, although this was not before the court had heard and accepted evidence that the water had been flammable before drilling operations commenced, as well as noting that the evidence presented by the Ely family 'was spare, sometimes contradictory, frequently rebutted by other scientific expert testimony, and relied in some measure upon tenuous inferences'.<sup>14</sup>

A few weeks later, Roger Harrabin did his first shale piece,<sup>15</sup> reeling off a long list of potential woes, some of which were apparently new:

Shale gas has also been accused of poisoning water supplies, killing livestock, destabilising the landscape and of sucking investment from the renewable technologies said to be vital for combating climate change.



He also described flaming faucets, and gave *Gasland* – due for release in less than a month's time – a useful namecheck.

### 3 The *Guardian* enters the fray

In April 2011 the *Guardian* – until that time only an occasional commenter on the subject of shale gas – launched what amounted to an outright campaign against it. Over the course of less than a month, it published no less than eight articles, four of them on 20 April alone. The titles portray the tone of the underlying articles very well.

- 12 April: Meet the families whose lives have been ruined by gas drilling<sup>16</sup>
- 20 April: Is shale gas as green as the oil companies say?<sup>17</sup>
- 20 April: Q&A<sup>18</sup>
- 20 April: Fossil fuel firms use 'biased' study in massive gas lobbying push<sup>19</sup>
- 20 April: '*Gasland* changed everything' – fracking firm battles to woo English villagers<sup>20</sup>
- 21 April Pennsylvania: the 'ground zero' of the US shale gas drilling boom<sup>21</sup>
- 25 April: Growing controversy over shale gas<sup>22</sup>
- 9 May: Methane contamination of water rises near to shale gas sites<sup>23</sup>

The first of these articles repeated claims that water had been contaminated with methane and even strongly implied that *rivers* could now be set on fire as a result of fracking:

Not far from Paradise Road [Wyalusing, Pennsylvania], methane bubbles percolate from the riverbed, drifting down the Susquehanna River. Residents in the community known as Sugar Run set up an entrapment tarp last fall when the bubbles were discovered, clicked a lighter and then watched flames shoot up the riverbank.

The others were little different in tone, with much of their content derived directly from *Gasland*:

The film showed terrifying examples of what can go wrong when shale gas drilling and fracking takes place – leaks of methane from under the ground, contamination of the water supply and the soil, the danger of explosions. Hundreds of people in the US are reported to have been affected by pollution, have had their health ruined, and lost their houses or jobs as a result of the problems there. Scenes that show residents able to set fire to their water supply because of methane contamination are the new face of shale gas exploration.

Meanwhile, the BBC's Richard Black had received an advance copy of a paper in the journal *Climatic Change* written by an ecologist and a civil engineer from Cornell University, who claimed that methane leaks from gas wells meant that shale gas was 'worse than coal' for climate.<sup>24</sup> Like so many before him (and those who followed), Black accepted this story without question when he reported its publication. However, the paper is highly controversial and has been the subject of considerable criticism – 'seriously flawed' was one description in the academic literature.<sup>25</sup>

### 4 Pushback

It is noteworthy that an official refutation of the claims about flaming faucets had emerged as early as January 2011, when a state regulator – the Colorado Oil and Gas Conservation Commission – declared that:<sup>26</sup>

*Gasland* incorrectly attributes several cases of water well contamination in Colorado to oil and gas development when our investigations determined that the wells in question contained biogenic methane that is not attributable to such development.

Thus all of the *Guardian's* initial campaign against shale gas, and every mention of methane in water, postdated this official pronouncement.

Over the course of 2011, efforts were made to correct the record. In May, Matt Ridley's GWPF report on the subject was published,<sup>27</sup> and covered all the main environmental scare stories propagated by the mainstream media, and in particular the *Guardian* and the BBC. Media coverage of the report was, however, rather limited, with only the *Sunday Telegraph* covering it in detail. As always, the green agenda closed doors to factual ripostes.

At around the same time, the filmmaker Phelim McAleer confronted *Gasland's* Josh Fox at a screening in Chicago. Filming with a hidden camera, he asked about the reports that there had been methane in water in many places in Pennsylvania decades before fracking commenced.<sup>28</sup> Extraordinarily, Fox's answer made it clear that he knew of these reports but insisted that they were not relevant to his own film and that he didn't feel his viewers needed to be aware of them. Others were unearthing many similar stories;<sup>29</sup> one newspaper article from back in the 1980s described methane in Pennsylvania wells as 'an incredibly common problem.'<sup>30</sup>

## 5 Making a mountain out of a microtremor

Fracking has a long history, dating back to the middle of the last century. There are therefore plenty of examples of fracking having been used in the UK, but few outside the oil and gas industry were aware that the technique even existed before the world started paying attention in 2010.

However, by early 2011, the UK media was watching the nascent UK shale industry very closely. On 1 April 2011, there was a minor earth tremor, centred at a point some 1.8 km from Cuadrilla Resources' shale gas exploration well at Preece Hall in Lancashire. The tremor, which took place 3.6 km below the surface, was of a magnitude – 2.3 – that meant that it was unlikely that anyone would actually have felt it;<sup>31,32</sup> the US Geological Survey suggests that a lorry rumbling past a house is equivalent to about magnitude 3, and since seismic activity is measured on a logarithmic scale, a 2.3 tremor is almost an order of magnitude smaller than one of magnitude 3. This is why, although such tremors are extremely common, nobody actually feels them. The British Geological Survey publishes data about recent seismic events on its website;<sup>33</sup> at time of writing there had been six tremors of magnitude 2.3 or above in the previous 50 days. So despite the close attention being paid to Cuadrilla, nobody actually noticed the tremor, and there was no media coverage.

Six weeks later, there was an even smaller event – technically a microseism rather than a tremor – with a magnitude of just 1.5 (there have been a dozen such events in the last 50 days). However, this time the press picked up on the story and the *Guardian* was soon blaring out 'Blackpool earthquake tremors may have been caused by gas drilling.'<sup>34</sup> The discussion was, almost without exception, about 'earthquakes' and 'quakes' rather than 'tremors'. Even supposedly highbrow media outlets used the more alarming term: the *Guardian* almost without exception, and the BBC and *New Scientist* exclusively so.<sup>35,36</sup> Calls for a ban were not far behind, and the government responded by placing a restriction on the new industry that meant that activity had to cease if there were microseisms of more than the absurdly low level of magnitude 0.5.

## 6 A year on, media eco-warriors still push flaming faucets

Nearly a year after regulators in the USA had discounted the possibility of domestic tap water becoming flammable, the BBC's correspondents were still pushing the story as hard as they could.

In October 2011, it was BBC Northern Ireland;<sup>37</sup> in November, it was BBC Northwest, who again cited the case of Bill Ely and his highly dubious legal case<sup>38,39</sup> – Ely told the BBC that the water had been fine before drilling operations began, completely contradictory to what the court was told a few years later. They also interviewed another Pennsylvania resident, Crystal Stroud, who claimed that drilling operations had contaminated her drinking water with barium, making her hair fall out. In fact, regulators had already ruled that her water contamination had nothing to do with the drilling – wells much closer to the drilling site had no such problems; barium contamination of local wells was a well-known problem in the area.<sup>40</sup> The BBC reported the regulator's findings, but this then begs the question of why they so glibly reported the claims of both Bill Ely and Crystal Stroud.

Even in March 2012, the BBC – this time through its East Midlands division – was still pushing the same line.<sup>41</sup> Mercifully though, word seems finally to have got round that this line of argument was becoming untenable, particularly after a Texas court found that one 'flaming faucet' litigant had been pumping natural gas directly into their water supply!<sup>42</sup> The East Midlands piece seems to have been the final mention of 'flaming faucets' by the BBC, although I can find no record of the corporation ever correcting the record.

It wasn't that the BBC had given up though; it was just that the line of argument had changed. In March 2012, Susan Watts returned to the fray with an article entitled 'Fracking: Concerns over gas extraction regulations'.<sup>43</sup> The story was based around claims that induced earth tremors might damage well casings, leading to gas leaks. Watts' source was a Lancashire resident called Mike Hill, who she introduced as 'a technical advisor to Lancashire's Fylde Borough Council, and a former oil and gas man' and 'not against fracking'. His CV told a slightly different story however: Hill is an electrical engineer who had previously worked in the oil industry and had also assisted Friends of the Earth and the Green Party.<sup>44</sup> He later ran for Parliament on an anti-fracking ticket.<sup>45</sup>

2012 also saw what I think is the earliest example of a highly misleading graphic that now accompanies many BBC website articles on shale (Figure 1). This suggests to readers that fracking takes place close to water tables. In reality the shale beds and water tables are separated by thousands of feet; the corporation allows itself 'plausible deniability' by including the words 'Not to scale'. Figure 2 is an equivalent diagram produced by the British Geological Survey, which shows that honest representations are possible.

Meanwhile, the *Guardian* wasn't giving up nearly so easily on flaming faucets, repeating the allegations (alongside the full panoply of wild claims about the horrors of the shale industry) in articles on 25 February,<sup>46</sup> 17 April,<sup>47</sup> 20 September,<sup>48</sup> and 31 October 2012.<sup>49</sup> Space was even given to Josh Fox to repeat his scare stories, despite McAleer's revelations a few months earlier.<sup>50</sup> The stories continued for many months, although they seem to have petered out by the end of 2013.<sup>51</sup> <sup>52</sup> It is hard to equate this persistence on the *Guardian's* part with any great interest in disseminating accurate information.

The most likely reason for the gradual dropping of the flaming faucets story was another film. Phelim McAleer's *Fracknation*, a response to Josh Fox's *Gasland*, was released at the start of 2013 and it was clear that its appearance would mean the public would become aware of what Fox had kept quiet. Both the BBC and the *Guardian* ignored *Fracknation* – a dramatic

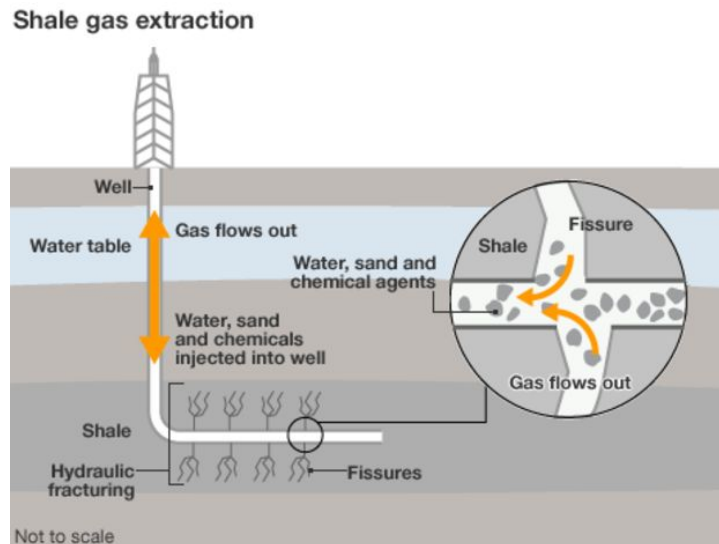


Figure 1: The BBC's explainer on shale gas technology

Note the apparent proximity of the fractures to the water table, and the words 'Not to scale.'

contrast to the blanket coverage they gave *Gasland* – but it was clear that word was out, and a new approach would be required in future.

## 7 Moving on

In December 2012, the Government gave the go-ahead to resume fracking in the UK, and a further shift in the direction of the attack on shale gas became clear in the media coverage. The BBC's Matt McGrath dropped flaming faucets and completely sidelined claims about induced seismicity,<sup>53</sup> while reporting the largely positive results of a series of official inquiries into fracking. However, the earlier allegations were now replaced with a new focus on water contamination by fracking chemicals and the slightly more prosaic issue of traffic impacts. No mention was made of the crucial difference between the situation in the USA, where many people in rural areas draw water from wells, and in the UK, where almost everybody is on mains water.

In an odd coincidence, when BBC journalists interviewed Friends of the Earth about the announcement,<sup>54</sup> they too had dropped flaming faucets and induced seismicity, and were now majoring on alleged pollution by fracking chemicals.

Throughout 2013, the BBC covered further allegations of future water contamination by shale operations, although it is fair to say that the coverage was rather more balanced than in earlier years. In July, a press release from a group of water companies said that fracking could be a problem if not 'carefully planned and carried out'. It is somewhat surprising that such a statement of the obvious was considered newsworthy, but the (unnamed) journalist involved did at least invite and publish a meaningful response from Cuadrilla.<sup>55</sup> A similar report by Matt McGrath in August made similar allegations,<sup>56</sup> before an official decision that such claims were overblown seemed to put an end to the argument. As the news page reported:

A study by the water industry has concluded that "fracking" to extract shale gas is safe...<sup>57</sup>

In another sign of change, a BBC report in the summer of 2013 finally explained that

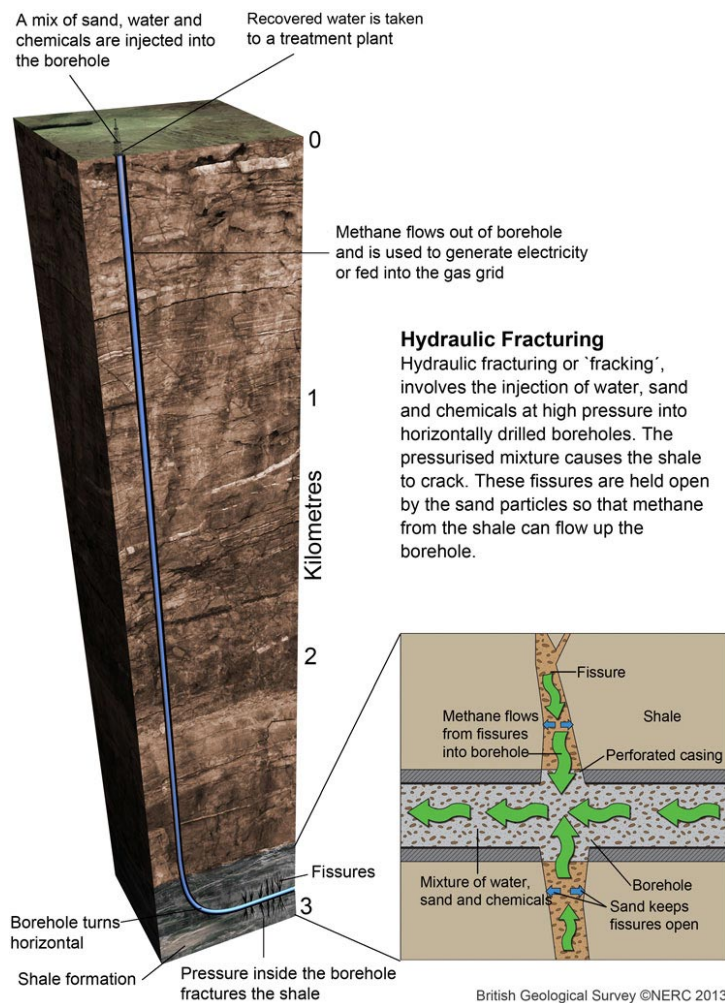


Figure 2: The British Geological Survey's explainer on shale gas technology.

fracking had been used in the UK for decades,<sup>58</sup> without discernable harm being caused. It had taken four years for them to explain this to their viewers.

This is not to say that the BBC had adopted a rigorous approach. In February 2014, for example, an article looking at the economic potential of onshore gas for the economy of the north-west reported 'fears of further earthquakes, water pollution and environmental damage'.<sup>59</sup> Such fears among ordinary people are of course understandable because the BBC had been trying to frighten them for years. In March 2014, children watching the *Newsround* show were regaled with the claims by a group of environmental NGOs that fracking could harm wildlife.<sup>60</sup> *Newsround* returned to shale gas in October 2016, this time reporting claims that the industry could contaminate drinking water.<sup>61</sup> There was no let up for adult viewers either. In December 2015, the BBC's Science editor David Shukman asked rhetorically why shale gas is controversial,<sup>62</sup> saying that concerns were centred around water use (a ridiculous claim in a high-rainfall country like the UK), use of 'potentially carcinogenic chemicals', and 'earth tremors'.

The *Guardian* was keeping up the pressure too, churning out dozens of stories, many of them fairly blatant scaremongering, as a few of the titles suggest:

- Fracking is depleting water supplies in America's driest areas, report shows<sup>63</sup>

- Fracking could carry unforeseen risks as thalidomide and asbestos did, says report<sup>64</sup>
- UK energy dependence – five hidden costs expose truth about fracking<sup>65</sup>
- Majority of potential UK fracking sites are rich in important wildlife<sup>66</sup>

There was even an extraordinary story (and accompanying video) of a New South Wales MP setting a river on fire, blaming fracking in the area, although even the *Guardian* felt it necessary to point out that government scientists had said that the methane in the river was natural.<sup>67</sup> However, a good scare story is, apparently, still a good scare story, even if false.

## 8 Conclusions

And so it continues. It is fair to note that there have been a handful of more balanced articles – for example Roger Harrabin’s October 2016 piece, which said that contamination of water supplies ‘should not occur, as fracking typically involves drilling more than a mile underground – far deeper than the water-bearing rocks (aquifers) from which we get our water supplies.’<sup>68</sup> But the tendency to photocopy press releases from green groups is still the defining characteristic of the environment correspondent: witness the recent BBC article which reported that ‘Lancashire residents “used for fracking experiment”’. This essentially reproduced claims made by two protestors, apparently plucked from among the ranks of those encamped outside Cuadrilla’s Preston New Road site.<sup>69</sup> That they were medical doctors didn’t make the claims any more newsworthy. This was simply a case of BBC journalists doing campaigning work. The same site was also visited by the *Countryfile* programme,<sup>70</sup> with the story hung off a Defra report that said that oil and gas activity would lead to a deterioration of air quality in the vicinity of a well. That this deterioration was foreseen as a result of engine exhausts – and that it was therefore quite unremarkable – went unmentioned.

The *Guardian* has, of course, been just as misleading on shale gas coverage, but nobody would argue that they do not have the right to take a position and to argue their case. If *Guardian* journalists choose to hype absurd scare stories in pursuit of higher circulation figures or because it satisfies an ideological urge, the readers who pay their salaries can draw conclusions accordingly.

But the BBC is taxpayer-funded and has no such ‘get out’ clause. Its funding is predicated on it allowing the corporation to stand above the fray and report facts. Yet almost without exception, it has relayed the wildest claims of the environmental movement – not just on shale gas but on every environmental issue – and relayed them verbatim, unquestioningly and in the most misleading fashion. This is a betrayal, for which they should not be forgiven.

## Notes

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## **About the Global Warming Policy Foundation**

The Global Warming Policy Foundation is an all-party and non-party think tank and a registered educational charity which, while openminded on the contested science of global warming, is deeply concerned about the costs and other implications of many of the policies currently being advocated.

Our main focus is to analyse global warming policies and their economic and other implications. Our aim is to provide the most robust and reliable economic analysis and advice. Above all we seek to inform the media, politicians and the public, in a newsworthy way, on the subject in general and on the misinformation to which they are all too frequently being subjected at the present time.

The key to the success of the GWPF is the trust and credibility that we have earned in the eyes of a growing number of policy makers, journalists and the interested public. The GWPF is funded overwhelmingly by voluntary donations from a number of private individuals and charitable trusts. In order to make clear its complete independence, it does not accept gifts from either energy companies or anyone with a significant interest in an energy company.

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