The Emotional Case for Nuclear Power, And the Rational Response to Climate Change

A strange thing has happened in the response to the nuclear crisis triggered by the tragedy of the Japanese earthquake. The nuclear industry, long used to trying to marginalise its critics by claiming 'rational' high ground and trying to frame opponents as 'emotional', has ended up making a case which is more emotionally driven than rational. This, more than anything else, indicates a change in the balance of the debate over the future of the nuclear power.

It will play out in two places: In the court of public opinion - in 'the media' and online - and in market sentiment. These are the two bellwethers which politicians in power will most pay attention to when they decide what shape the future energy supply of their countries will take. They don't want to get on the wrong side of either.

Of course it was not like that when 'nuclear' started. The industry began generating electricity as a side business to its main political role of creating the material for nuclear weapons (eg Calder Hall reactors at Windscale/ Sellafield in the UK). Neither the public nor the markets were involved: the State was the only customer.

If you set aside countries like Israel or Iran which have nuclear weapon aspirations because of regional security concerns, the post-Cold War 'case' for nuclear now rests on its potential role in fighting another war - that against climate change. This is the battlefront which nuclear advocates now face, and the main enemy they perceive is renewable energy. Lacking a retail offer, nuclear finds its only customers are governments, and directly or indirectly, the voters and taxpayers who must stump up the cash. All they get out of it electricity and the attendant risks. It's a very different situation from the 1950s.

In communications terms the nuclear industry has to do two things. First, because if you analyse the potential of renewable energy (vastly in excess of possible human needs), and the associated risks (very different from nuclear and much less troubling), the nuclear industry needs to make sure that the public does not get to decide. Rather it must keep decision making elite, confined to a small community of industry players and officials. Second and this helps the first, it needs to create the impression that renewables 'don't work', in which the understanding of the media is all important, as it is a powerful framer of public understanding.

This emerged very quickly as the Fukushima crisis began to unfold. In the UK, the BBC, which is not state owned but is dependent upon government decisions for its level of funding, produced a string of reports rather helpful to the nuclear industry and the UK Government, which is (or was) planning a major nuclear expansion as a way of meeting some of its carbon reduction targets. Government spokesmen downplayed the possible radiological impacts, provided reassuring noises about the engineering solutions to the over-heating reactors, and 'independent experts' and 'science writers' echoed and amplified these, and lashed out at renewables. (This was noticeably different to the coverage for example on CNN and Russia Today and Euronews and even the UK's commercial ITN).

A case in point was Malcolm Grimston, seemingly independent because he was from Chatham House (Royal Institute of International Affairs), who appeared in a number of BBC reports. While presented as an expert, Grimston is a pedigree nuclear advocate. The RIIA website lists his bio like this:

1995 - date	Senior Research Fellow, Energy Policy and Management Group, Imperial College
1999 - 2002	Senior Research Fellow, Royal Institute of International Affairs
1992 - 1995	Information Adviser, British Nuclear Industry Forum
1987 - 1992	Information Officer, UK Atomic Energy Authority

True, the BBC also used Walt Patterson, a long time critic of the nuclear industry, and also at Chatham House. However Patterson was very guarded in what he said and almost a lone voice among the BBC's stable of 'experts' in not downplaying the risks, in not calling for things to be 'kept in proportion' or upplaying the prospect of a technical solution. The rest of the stable were mainly nuclear engineers.

While ostensibly there to inform a technical discussion, these nuclear experts made some very political and unscientific points when it came to renewables. Grimston said [1]

"clearly if Japan had been seriously dependent on offshore wind or wave or tidal power, they would simply have been ripped from the ocean bed by an earthquake of this size, let alone the effects of the tsunami, which would have left Japan without power to keep its water clean to provide medical emergency services to the people who desperately need it now".

Others in the pro nuclear lobby made very similar points. For example[2]:

"Imagine the extra devastation and loss of life that might have occurred, if Japan were circled by huge wind turbines and the Tsunami pushed hundreds, if not thousands, gigantic turbine blades into people and buildings."

So what did happen to wind energy in Japan during the earthquake? I asked some people if anyone knew and Kelly Rigg and a friend tracked down some in the Japanese wind energy industry, and posted her findings at http://huff.to/gVTu8C. She writes:

"Yoshinori Ueda leader of the International Committee of the Japan Wind Power Association & Japan Wind Energy Association [said] there has been no wind facility damage reported by any association members, from either the earthquake or the tsunami. Even the Kamisu semi-offshore wind farm, located about 300km from the epicenter of the quake, survived. Its anti-earthquake "battle proof design" came through with flying colors.

Mr. Ueda confirms that most Japanese wind turbines are fully operational. Indeed, he says that electric companies have asked wind farm owners to step up operations as much as possible in order to make up for shortages in the eastern part of the country:

Eurus Energy Japan says that 174.9MW with eight wind farms (64% of their total capacity with 11 wind farms in eastern part of Japan) are in operation now. The residual three wind farms (Kamaishi 42.9MW, Takinekoshirai 46MW, Satomi 10.02MW) are stopped due to the grid failure caused by the earthquake and Tsunami. Satomi is to re-start operations in a few days. Kamaishi is notorious for tsunami disaster, but this wind farm is safe because it is locate in the mountains about 900m high from sea level.

The largest wind farm operator in Japan, Eurus Energy with about 22% of all wind turbines in Japan, is a subsidiary of Tokyo Electric Company (TEPCO) which operates the Fukushima nuclear facility. Right now, it is likely the company is very happy about its diversified portfolio:

While shares in the Tokyo stock market have fallen during the crisis, the stock price of Japan Wind Development Co. Ltd. has risen from 31,500 yen on 11 March to 47,800 yen on 16 March".

So while a nuclear station was in crisis, renewables had been helping keep the lights on in Japan. Of course the next argument will be that there is not enough renewable energy in Japan but that's because it hasn't been built yet, not because it won't work, or, as it seems, that it won't survive earthquakes.

Mr Grimston and his followers appear to be resorting to arguments that can only be described as emotional, not to mention incorrect. It is not surprising that people do this if they have spent a lifetime in the industry, and it defines their expertise and identity. As Upton Sinclair said, "It is difficult to get a man to understand something, when his salary depends upon his not understanding it".

For instance, interviewed on BBC World Service[3], Dr Reza Hashemi-Nezhad Assistant Professor of Nuclear Physics in Sydney put the incident in Fukushima down to "bad luck", a sentiment echoed in the same report by pro-nuclear 'science writer' Angela Saini who stated:

"This reactor was earthquake proof. It was tsunami proof, it just wasn't earthquake and tsunami proof. It was incredibly rare and unlikely what happened".

Really? The Pacific has more tsunamis than any other ocean because of all the seismic activity. It is mostly earthquakes that cause tsunamis. Did she expect a tsunami without an earthquake?

Saini continued: "The danger now is that the international community looks at this single event and from that draws conclusions about the nuclear industry as a whole. That would be incredibly unfair I think".

'Unlucky'? 'Unfair'? Not very scientific arguments from the 'science' nuclear lobby. Japan, urged Saini, "needs nuclear" because it has "very few resources of its own".

The problem for the nuclear industry is that the perceived rational argument is no longer on its side. Relatively few countries have scaled up renewables to the point where they supply more than a minority of their power needs (although at times, most of the electricity in Spain for example has come from

wind) but that is a question of time and investment. And as the technologies mature, the costs are coming down - renewables are going to be cheaper than nuclear.

On 17 March the EU Climate Commissioner said in Brussels: "Some people tend to believe that nuclear is very, very cheap, but offshore wind is cheaper than nuclear. People should believe that this is very, very cheap." [4]

Even Japan has plenty of scope to convert to a renewable energy future. Various scenarios show how by cutting waste and building renewables, it would simply not need nuclear[5]. It has abundant geothermal, solar, wind and wave resources but its government has focussed principally on nuclear - it has simply not begun to do more than scratch the surface of its renewable potential.

So what's the rational response to climate change and the current energy mix?

No sensible environmentalists are suggesting that all existing nuclear stations should be closed overnight but they can be phased out. Those stations in vulnerable locations - such as on seismically active sites - ought to be closed down quickly and spent fuel should be moved from such vulnerable areas.

The main technical rather than purely emotional argument which the nuclear lobby advances against renewable energy is intermittency - the wind does not always blow, the sun does not always shine etc.

In fact evidence shows that in countries with a developed grid, this has not proved a problem, and developments such as electric cars will vastly increase the storage capacity in the system. But storage, rather than generation, needs a huge boost in advocacy in order to focus the attention of politicians upon it.

Future investment should be into renewable energy - and here the problem is not so much of money but psychology. There are some rationalistic advocates of action on climate change who have convinced themselves that we 'need nuclear' because they simply cannot imagine how we can otherwise make a swift transition away from fossil fuels. It seems to me that this mis-reads both the history of technological change and diffusion, and the likely political impact of climate change itself and the developing 'perfect storm' of limits which the world is now running into.

Those used to looking at scenarios which lay out gradual changes based on assumptions informed by 'experts' who are most often inside the existing industries, tend not to acknowledge the possibility of rapid, non-linear change. Yet this is exactly what has happened many times before. Nobody predicted the rapid spread of the telephone or mobile phones, or personal computing. Horses were not gradually replaced by automotives - it happened rapidly.

Of course energy infrastructures and markets are highly regulated. Technological change led by social and market forces only nibbles at the edges (for example Japan is one of the world's biggest users of solar power but only in domestic housing where the decisions are made by individual householders).

So what of governments? If you are interested in this issue then as soon as you can, I'd recommend getting hold of a copy of Paul Gilding's forthcoming book *The Great Disruption (How The Climate Crisis Will Transform the Global Economy)*.

An ex Australian air force officer, a sustainable business advocate and one time director of Greenpeace International, Gilding makes the case that campaigners should be focused not on making environmental arguments about the coming road crash in which we run into climate disruption, water shortages, land grab politics (eg as booming Asian economies buy up land overseas), soaring commodity prices, a suite of pollution problems, over-fishing and food shortages, but economic ones.

Many people have foreseen this suite of problems and called for a 'great transition' or alternative economic models but Gilding has something else. He has trialled the politics by spending five years touring business, academic and political gatherings, and found that the environmental case meets agreement, from CEOs to green activists but that the economic and business case - that existing businesses simply won't be possible in a few years, causes denial, consternation, rejection or, in some cases, radical change. It's one of those rare books which come along every so often, that can really change the paradigm of the political debate.

Of course Gilding, who thinks that techno-optimism simply won't have time to save the day, raises another scenario as far more likely: that governments will be forced, like the 2008 banking crisis did and as the tsunami and the nuclear crisis is now doing in Japan, to become interventionist. Campaigners don't therefore have to win that argument - sadly it will happen anyway.

Like others, he calls for mobilisation on the scale of governments in war - only he sees this more as an inevitable outcome, in awful circumstances, than as a likely pre-emptive, rational action. As Thomas Friedman wrote of Gilding's ideas in the New York Times, "The Great Disruption" will be the moment 'when both Mother Nature and Father Greed have hit the wall at once'.

Oh, and I didn't mention it, the point is that Gilding thinks the coming shocks of climate and resource limits and the political consequences that play out will render the pro- or anti-growth arguments null and void - economic growth as such, will simply be forced to stop.

(For more about Gilding's work see http://paulgilding.com/wiew/cockatoo-chronicles)

A Major Campaigner

A very different book but one that I'd also recommend to campaigners anywhere, is Des Wilson's autobiography, 'Memoirs of a Minor Public Figure' (pub Quartet). Only British political anoraks will probably be interested in the sections on UK politics but Wilson's account of his work in creating the housing NGO Shelter as a political force, in launching and ultimately winning the British Freedom of

Information Campaign and Parents Against Tobacco (also a campaign won), and perhaps most of all, CLEAR, the Campaign for Lead Free Air, are textbook examples of how meticulous planning, the building of support, the use of the media, the understanding of interests and power, and relentless, concentrated effort, can win campaigns.

Most of Wilson's campaigning he built from scratch. All campaigners should read and study his examples, for I know of none better when it comes to the execution, and the explanation, of how to put together a winning game plan so far as understanding allies, opponents and obstacles is concerned.

Wilson is a New Zealander, now retired and living in Cornwall, England. Egocentric, publicity seeking and shy and self-deprecating by turns, he has made plenty of enemies and admirers. At the end of his book he asks 'did I make a difference?' - to which the answer is "lots".

How to Win Campaigns: Communications for Change (Edition 2, pub Earthscan 2010) is available at http://www.earthscan.co.uk/tabid/102418/Default.aspx

- [1] BBC Material World, Radio 4, 17 March 2011
- [2] http://misunderstoodfinance.blogspot.com/2011/03/us-will-draw-wrong-conclusions-about.html
- [3] BBC World Service The World Today 16 March 2011

http://www.bbc.co.uk/iplayer/console/p00f887z/The World Today 16 03 2011

- [4] http://www.guardian.co.uk/environment/2011/mar/17/wind-cheaper-nuclear-eu-climate
- [5] eg http://www.wwindea.org/technology/ch04/en/4 1 5.html
- [6] to be published by Bloomsbury in April

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