

Briefing

Why Friends of the Earth opposes plans for new nuclear reactors.

Summary

In coming decades Britain's nuclear power stations are due to close and, in Friends of the Earth's opinion, they should not be replaced. New nuclear plants are not needed to keep the lights on. They are also not needed to contribute to carbon pollution reductions. Nuclear power also brings unique risks not faced by other energy technologies such as long-lived radioactive waste management.

The cost of new nuclear power stations is rapidly increasing. Meanwhile the costs of many renewable technologies such as onshore wind and solar PV are falling rapidly, with significant cost reductions possible for new technologies like offshore wind.

Despite being a 60 year old industry, new nuclear power can only be built in Britain with huge public subsidies. This will divert funding away from renewable energy and energy saving. It will also fail to provide best value for money for consumers. Subsidising nuclear power would break commitments from the Conservative, Liberal Democrat and Labour parties.

Friends of the Earth believes the Government should abandon its plans for new nuclear power and instead focus efforts on energy saving, renewable energy and energy storage.

Far-fetched nuclear plans

The Government is encouraging energy companies to build new nuclear power plants. The Government claims this is necessary because demand for electricity will soar as more people power their heating and transport electrically¹ and because some existing power stations are expected to be shut down², including every existing nuclear station, bar Sizewell B³.

For more than 40 years we've seen that the wellbeing of people and planet go hand in hand – and it's been the inspiration for our campaigns. Together with thousands of people like you we've secured safer food and water, defended wildlife and natural habitats, championed the move to clean energy and acted to keep our climate stable. Be a Friend of the Earth – see things differently.

A recent analysis for the Government suggests that, without action on energy efficiency, electricity demand could grow to up to 470 TWh per year by 2030, compared with around 370 TWh in 2010 as a result of underlying growth and electrification of transport and heating. However the analysis also showed the potential to constrain this demand to less than 400 TWh through energy efficiency measures in homes, commerce and industry⁴. However, even if electricity demand did grow to 470 TWh we would still be able to produce this electricity without needing new nuclear power stations (see below).

The Government wants new nuclear power plants to be built to replace nuclear power plants that are due to close down over the next decade or so, and increase the amount of electricity from nuclear power from 60 TWh currently to 103 TWh by 2030⁵. The pro-nuclear Birmingham Policy Commission said in their recent report on nuclear energy that even to maintain current levels of nuclear electricity by 2035 would require “*outstanding effectiveness of government policy above and beyond the performance to date*”⁶. The nuclear industry also has a poor record of constructing plants on time and on budget, with very significant delays and escalating costs in France and Finland⁷. The only way any nuclear plants will be built is if the government provides huge subsidies - that would go onto consumers’ energy bills for decades ahead – and even then it is highly unlikely that more than a few could be constructed in the timetable the government suggests. Friends of the Earth opposes this long-term subsidy arrangement for a mature technology like nuclear power. Subsidies should be time limited and focused on developing and bringing to market relatively new technologies such as offshore wind.

The Government’s plans are not just far-fetched. They could also put at risk future carbon pollution reduction targets agreed by the Coalition Government under the Climate Change Act 2008. This is because by ploughing ahead with a far-fetched idea that eight new nuclear plants will be built, and built on time, the Government may not put enough effort into renewables or energy saving. This could lead to a situation where faster to build unabated gas-fired stations are built instead. Chancellor George Osborne has already spoken out in favour of a major ‘dash for gas’. The Committee on Climate Change has already warned that this would wreck the chance of delivering carbon targets and the 2030 decarbonisation goal (50g CO₂ per kWh of electricity)⁸.

New nuclear plants are not needed

The Government claims new nuclear power plants are needed to meet electricity needs while meeting carbon emissions targets. Yet Britain can meet its power needs and its carbon targets without nuclear power.

Britain has abundant renewable energy resources which could be exploited instead, as well as substantial untapped potential for energy efficiency. The Offshore Valuation Group says our practical off-shore energy resource exceeds our current electricity consumption six times over⁹.

Even advocates of nuclear power admit that nuclear power don’t have to be part of the energy mix. Professor Dave Mackay, DECC’s Chief Scientific Advisor, says “No-nuclear

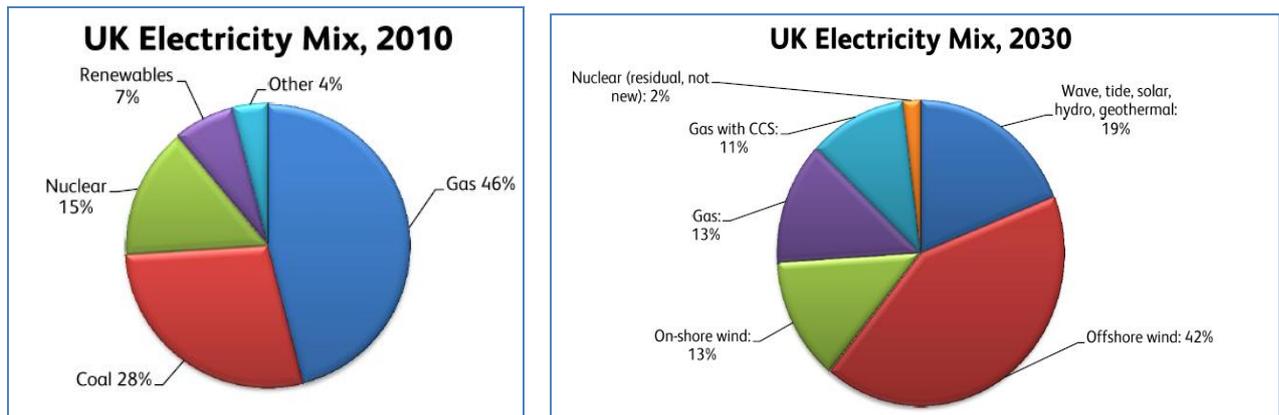
pathways are certainly technically possible¹⁰ and the Energy Secretary, Ed Davey, says Britain can survive without nuclear¹¹.

The European Climate Foundation, a respected philanthropically funded research body, commissioned international consultants McKinsey and Company and others to work closely with a range of energy companies across Europe to identify different energy scenarios for Europe to 2050. One of its scenarios was renewable energy scenario without nuclear power. It found that neither “nuclear nor coal-with-CCS is necessary to deliver decarbonisation while maintaining the current standard of reliability”¹².

In a report for the Government’s climate advisors, the Committee on Climate Change, consultants Poyry Management stress tested a number of detailed renewable energy scenarios using real historical weather data and ‘worst case’ weather data¹³. One of these scenarios was what it called a “close to maximum” penetration of renewable energy with no new nuclear power. It found that this scenario, which was 94 per cent renewable energy, was technically feasible; with back-up gas-fired stations for times when the wind doesn’t blow or sun shine. The analysis also suggested that by 2050, even with these gas-fired back-up stations, this scenario would produce only 26g of carbon per KW hour (g/KWh) of electricity demand, compared to over 440 g/KWh presently. And that this figure could be further reduced further through the use of hydrogen in the back-up plant rather than natural gas, and by having an optimised mix of renewable energy power plants.

Friends of the Earth has done its own modelling using a model developed by the Department of Energy and Climate Change (DECC), the 2050 Pathways calculator¹⁴. This shows that Britain can meet its greenhouse gas emissions target and the 2030 decarbonisation goal recommended by the Committee on Climate Change without building new nuclear plants, as well as deliver high levels of energy security. Our modelling significantly increase offshore wind generation as well as other renewables sources, such as solar, geothermal energy and tidal power but not to the maximum levels the DECC model suggests are possible (see pie graphs). It also has significant demand management which, if implemented, would reduce the need for many new electricity generating power plants thereby reducing total costs. The scenario takes advantage of better interconnectors with the continent and demand management options. Like the scenario tested by Poyry Consulting it requires gas-fired power station reserve to ensure supply in a cold snap if the wind doesn’t blow.

The Tyndall Centre at Manchester University independently reviewed evidence for and against nuclear power¹⁵ and the researchers said that Friends of the Earth’s approach was credible although challenging. However they recommended that Friends of the Earth also regularly review the plans it is advocating to take into account technological developments, particularly if higher levels of electricity are needed than modelled due to faster roll out of electric cars and heat pumps than the already very ambitious levels within our energy pathway, or if technologies such as CCS, energy storage or off-shore wind do not develop as expected. Friends of the Earth will of course do so, but given that the UK is particularly blessed with large amounts of renewable energy it is our current view that the resources are likely to be adequate to fulfil any potential extra electricity demand.



Pie-graph - Friends of the Earth energy pathway using DECC pathway model

It is clear therefore that new nuclear power plants are not essential to provide the electricity the country needs or deliver on greenhouse gas reduction targets.

Nuclear power is expensive

The Government claims that new nuclear power is cheaper than gas, coal or wind, at £74/MWh. But the reality is that new nuclear plants are far more expensive than projected. For example, construction costs have spiralled at the reactors currently being built at Flamanville in France and Olkiluoto in Finland, and both projects are years late.

The Imperial College Centre for Energy Policy and Technology (ICEPT) argues in an August 2012 working paper that the Government's figures do not reflect the realities of nuclear construction¹⁶. They state the Government under-estimates construction times, cost escalation and financing costs, as well as over-estimating plant life and load factors. Imperial argues that the levelised costs – i.e. the costs excluding the need for company profits - may be over £164/MWh.

In its independent review of nuclear evidence for Friends of the Earth, the Tyndall Centre suggested that higher estimates of the cost of nuclear power are more plausible than estimates of low costs, stating that “claims that nuclear power is cheaper than other low carbon options (including CCS and wind) are unlikely to be borne out in reality”¹⁷.

Accountants KPMG have concluded that nuclear new build is a high risk construction project with a tendency for significant delay, cost growth and investor risk¹⁸. Nuclear plants also carry high technical and regulatory risks, with World Nuclear Association figures showing very significant cost overruns for most projects, implying that utilities will only be able to pay for new plants if governments guarantee their incomes¹⁹.

The Chief Executive of General Electric, one of the largest suppliers of atomic equipment, told the Financial Times that nuclear power is now so expensive now compared with other forms of power that it is “really hard” to justify²⁰.

Direct subsidies

Nuclear power plants are likely to operate 40 years and will require a guaranteed price for the electricity they produce for a substantial period of that operation to reduce the economic risk from building a plant that is “an order of magnitude higher in terms of costs [and] complexity” than the Olympic Stadium, which was itself described as the biggest construction project in Europe²¹.

The government aims to provide the certainty needed by guaranteeing a set price – a so-called strike price - for a number of years through a contract called a Contract for Difference. This price will be above the market price for electricity requiring energy consumers to pay the difference and the contract may last for decades. This price is expected to be around £100/MWh and be guaranteed for 30 years or more.

By comparison, offshore wind is currently around £140/MWh, and a study by the Crown Estate has said this could be driven down to £100/MWh by 2020 with further reductions after that date²². Onshore wind is already well under £100/MWh and falling.

Recent spectacular falls in solar prices have seen UK costs fall below £120/MWh for larger solar installations, and they will fall further according to McKinsey and Company who say that “the cost of a typical commercial [roof-top] system could fall 40 percent by 2015 and an additional 30 percent by 2020”²³. They also said “The pace of cost reductions has been staggering. When companies are building new energy infrastructure, solar will be a competitive option within this decade. It will be cost comparable to peaking plant within two to three years in some countries and comparable with base load plants by the end of the decade”²⁴.

Nuclear is a bad bet on cost grounds compared with these renewable technologies, which are likely to be much cheaper in 10-15 years time. Nuclear power will be an economic millstone around the UK’s neck. The Government should prioritise quicker-to-build renewable energy.

Hidden subsidies

The economic case for nuclear is in reality even worse than this. Nuclear gets three major hidden subsidies:

- The industry gets a major subsidy by only having to insure itself very partially against a major accident

Operators get a huge public subsidy by having very limited liability in the case of accidents – at present this is 169 million Euro but may rise to a maximum of 1.2 billion Euros maximum. This is tiny compared with potential costs - the Fukushima catastrophe cost \$100-250 billion²⁵. Other industries take on far greater liabilities – for example BP put \$41 billion aside for the 2011 Deepwater Horizon disaster. By not having to insure itself properly, the industry is getting a huge public subsidy. If they had to insure themselves the cost of their electricity would rise by at least £40 per MWh²⁶

- Operators don't pay the full cost of waste management

They are only required to pay very small sums, with limited liability, for future decommissioning costs and waste disposal costs. The use of discount rates in the economic calculations means that any cost 50+ years into the future is ignored, despite the fact that the waste will need managing for thousands of years. In addition it is highly likely that the Government has underestimated these costs. Decommissioning and waste costs are historically major underestimates – for example, the Nuclear Decommissioning Authority estimate of total decommissioning costs have risen from £47.9bn, estimated in 2002, to a current estimate of £103.9 billion²⁷. Two-thirds of the Dept of Energy and Climate Change's budget goes on dealing with this legacy²⁸.

- Too big to fail and too big to fund

The Government has continually had to bail out the nuclear industry. Because of the risky nature of the business and the dangerous waste it generates the nuclear industry know the Government will have to come to the rescue. It is very likely that because of the huge upfront costs of a nuclear power plant the loans the companies get from financiers will need guaranteeing by the Government. Not only will this unfairly reduce the costs of the loan – as renewable companies won't get the same guarantees – it also increases the risks to UK taxpayers.

Conclusion on costs

The Government claims that nuclear power costs £74/MWhr yet true costs are likely to be much higher, and the industry will need major subsidy through a 'Contracts for Difference'. By contrast many renewable technologies are already cheaper, and will likely fall in future, which can't be said with any confidence for nuclear. In addition, if nuclear companies had to include insurance costs for the full costs of accidents and pay full waste costs then the cost would be even higher. Opting for nuclear power is an unnecessary cost burden on energy consumers.

Jobs

Nuclear proponents trumpet the jobs that could be gained through building new nuclear power plants. However both the Institute of Mechanical Engineers²⁹ and The Birmingham Policy Commission³⁰ have both warned many of these jobs may in fact go to French companies and create French jobs instead.

It is important to note however that the risk of jobs going to countries other than the UK exists for all technologies. However the UK is a leader in the development of marine renewables. When he was Secretary of State for Energy and Climate Change, Chris Huhne said, "The UK is the undisputed home of offshore wind energy. Our natural resource and competitive advantage mean we have the biggest market in the world. We're blowing away the competition...It's part of the low-carbon revolution that's under way in the UK, bringing jobs and growth in new industries and building us a future less exposed to volatile global energy prices."³¹ This would suggest that prioritising the pursuit of offshore wind over nuclear power may create more new jobs in the UK.

The Tyndall Centre review of evidence for and against nuclear power said “Nuclear power can be seen to provide a number of highly skilled jobs throughout the lifecycle of a reactor site. As with other energy technologies the peak level of employment is highest during construction. Comparisons with other technologies will depend upon a number of factors, but domestic contribution to the supply chain is of particular importance. However, the proportion of components manufactured in the UK and numbers of skilled workers brought in from outside of the UK are not currently known. As with other technologies where the UK provides a market but does not have established domestic companies providing the majority of services, such as offshore wind, a great deal will depend upon expanding the UK supply chain and building a skills base.”

The Renewable Energy Association claims that the industry already supports 110,000 jobs across the UK and could support 400,000 by 2020, and that these jobs are geographically spread across the UK³².

Safety, waste and proliferation

Safety

Nuclear power has led to costly accidents which dwarf the scale of other forms of generation. Although in terms of health impacts, the Tyndall Review suggests the health impacts of coal are worse than nuclear power and states that recent life-cycle research³³ also suggests this is the case for gas, including gas with CCS.

The Tyndall Review also suggests that currently life-cycle health impacts for renewables are broadly comparable to nuclear, but cautions that the life-cycle assessments have not accounted for all the health impacts resulting from nuclear accidents (e.g. mental health impacts as a result of relocation). There is unfortunately a paucity of quality life-cycle assessments that fully compare health impacts between the different low carbon energy supply options³⁴.

In terms of economic impact from accidents:

- The Chernobyl disaster led to the evacuation of over 330,000 people³⁵ and the creation of an exclusion zone the size of Oxfordshire³⁶. Its cost ran into hundreds of billions of dollars³⁷.
- More recently, the Fukushima accident led to the evacuation of 150,000 people from a zone 20km around the plant³⁸. A report for the Japanese Parliament has concluded Fukushima was a “profoundly man-made disaster”³⁹ citing evidence of complacency and collusion between regulators and industry⁴⁰. The clean-up could cost up to \$250 billion⁴¹.

New designs of plants are said to be much safer than both of these. Proponents say that theoretically they have probably a one in a million year chance of a dangerous core damage incident per reactor and that they are also designed to withstand the impact of a Boeing 747. To date the safety record is much worse, with dangerous core damage incidence of 1 in a thousand years⁴². Proponents also say that nuclear plants are designed to withstand earthquakes⁴³ and flooding⁴⁴. The UK Institute of Mechanical Engineers has said that “Nuclear sites, based on the coastline, need considerable investment to protect them against rising sea levels, or even abandonment or relocation in the long term”⁴⁵. The Tyndall Review

suggested that “Climate change does not appear to present a severe risk to the safety of reactors on the UK’s coasts. However, in the long-term, changes to sea level, erosion rates and storm surges may have implications for site stability, particularly during decommissioning phases. More research in this area is required.”⁴⁶ It is likely that adapting nuclear power to climate change will entail increased expense for construction, operation, waste storage and decommissioning⁴⁷.

However there are other issues that are not easy to eliminate, including: cyber attacks, terrorists inspired insider sabotage⁴⁸ and as the Japanese accident demonstrated human error.

Even with new nuclear power designs there remains a risk, even if it is extremely small, of a catastrophic accident forcing the evacuation of tens of thousands of people, costing hundreds of billions of pounds and having significant impacts on people’s mental well-being⁴⁹. Given that currently there are other ways to produce the energy we need and cut carbon emissions quickly Friends of the Earth believes it is a risk not worth taking.

Waste

Nuclear power produces radioactive waste that is dangerous for tens of thousands of years. Tackling Britain’s existing waste problem is expected to cost £103.9 billion⁵⁰. Even though new reactors will produce less waste per unit of electricity produced than older reactors, they will still add to the problem⁵¹. The Tyndall Centre report stated that nuclear waste management remains an “unresolved issue” in the UK with no safe repository in place. Although a new build nuclear programme would not add significantly to the quantity of waste but could increase the overall radioactivity of the waste inventory by around 265 per cent⁵².

The Royal Commission on Environmental Pollution said that *“there should be no commitment to a large programme of nuclear fission power until it has been demonstrated beyond reasonable doubt that a method exists to ensure the safe containment of long-lived, highly radioactive waste for the indefinite future”*⁵³. This recommendation has been ignored.

Six years ago, the Committee on Radioactive Waste Management (CoRWM) recommended that waste be buried deep underground at a suitable location where the local community was willing to take it⁵⁴. The Government accepted this recommendation but has yet to identify a suitable site. Even if a site is found it may not be ready to accept existing high level waste till 2075⁵⁵ and the waste from new reactors before 2130⁵⁶.

Britain remains decades away from having a solution for the waste we have already created. It may never do so. To create more waste through building new nuclear plant is a folly, unless nuclear power is critical to meeting carbon dioxide reduction requirement which, as discussed above, they are not.

Proliferation

The Tyndall Centre review stated that “The proliferation risk of a new build nuclear programme in the UK is considered low in the literature. This is because the UK already has a nuclear weapons arsenal, and the ‘once through’ fuel cycle expected for new build does

not produce material that can be easily used by other nations or organisations to develop an effective nuclear bomb”.⁵⁷ It did not consider “the political legitimacy that civilian nuclear programmes may lend to weapons programmes now or in the future “ although with 65 plants under construction across the World, 167 planned and 317 proposed the impact of 8 plants in the UK on legitimacy should not be over-stated.

Conclusion

All the evidence is that we are facing a planetary emergency, especially with rapidly rising greenhouse gases and warnings from scientists of the potential breaching of tipping points that could lead to runaway climate change. This isn't a reason to panic but it is a reason to take a hard-headed approach in assessing technologies and practices. It also requires an ability to think out of the box and imagine a different future; or as Friends of the Earth's strap-line says, see things differently.

It was with this hard-headed, seeing things differently, approach that Friends of the Earth has reviewed the evidence for and against new nuclear power stations in the UK, aided by the Tyndall Centre at Manchester University. The review could have thrown up information or evidence that would require us to change our long-standing opposition to new nuclear power, but we undertook this review because we consider, objectively and without prejudice, the facts on the issues we work on. This is an important guiding principle given the planetary emergency context we are operating in. After receiving the Tyndall Report, and after considering it properly, we are of the view that continued opposition to new nuclear power stations in the UK is still the right position.

Britain does not need new nuclear power to meet its power needs, meet carbon reduction and electricity decarbonisation targets, or keep the lights on. Conventional nuclear power is expensive and will remain so in the future whereas the cost of renewable energy is plummeting and will do so for some time to come. It brings unique risks not faced with other energy technologies, particularly with regards waste. The Government should abandon its fanciful plans for new conventional nuclear power.

The Government should back clean British Energy based on renewable power and energy saving. It should invest in research for newer forms of energy generation, such as deep-water off-shore wind and wave. Friends of the Earth also supports research into newer forms of nuclear power such as molten-salt thorium reactors in case of the unlikely event that they may be needed in future decades. Energy storage should be a high priority for Government funding.

- ²⁸ Chris Huhne (2011) Chris Huhne speech to the Royal Society: Why the future of nuclear power will be different http://www.decc.gov.uk/en/content/cms/news/ch_sp_royal/ch_sp_royal.aspx
- ²⁹ Institute of Mechanical Engineers (2012), press release, Nuclear Deal with France in not necessarily the best deal for securing UK jobs, http://www.imeche.org/news/archives/12-02-17/Nuclear_deal_with_France_is_not_necessarily_the_best_deal_for_securing_UK_jobs.aspx
- ³⁰ The Birmingham Policy Commission (2012), op cit, p22
- ³¹ The Guardian (2011), UK sails ahead in offshore wind power generation, July 27, 2011 <http://www.guardian.co.uk/environment/2011/jul/27/uk-offshore-wind-power>
- ³² Renewable Industry Association (2012), Renewable Energy: Made in Britain http://www.r-e-a.net/resources/pdf/61/Renewable_Energy_-_Made_in_Britain_Executive_Summary.pdf
- ³³ For example, Spring (2011), assessing the sustainability of nuclear power in the UK, at <http://www.springsustainability.org/downloads/SPRIngReport.pdf> and Markandya and Wilkinson (2007) Electricity generation and health, The Lancet, <http://www.lancet.com>, Volume 370, Issue 9591, Pages 979 - 990, 15 September 2007, available at [http://www.bighunderwindpower.ca/files/resources/Electricity_generation_and_health_\(The_Lancet_2007\).pdf](http://www.bighunderwindpower.ca/files/resources/Electricity_generation_and_health_(The_Lancet_2007).pdf)
- ³⁴ The Tyndall Evidence Review found that only one of the life cycle comparisons considers nuclear accidents. However this concludes that even after incorporating the health impacts of past nuclear accidents per MWh of electricity generated, nuclear performs better than coal and natural gas in this index. It has however been shown that mental health impacts may be the biggest legacies of nuclear accidents and these are not easily accounted for in life cycle approaches. The methodology used in life cycle comparisons means they may be contested by some. The Evidence Review states that it is difficult to establish causal links between radiation doses that results from day to day operations of nuclear power plants and health impacts because it is difficult to disaggregate from the array of background causes of cancer (from what we eat, chemicals in plastics, lifestyle, etc). Radiation doses associated with nuclear power operations are low and in the same dose category as radiation from numerous sources, for example through living near coal-fired power stations, smoking, flying, etc. The Evidence Review looks at numerous studies on this issue and, although it is a contested area, the broad conclusion that it draws is that the impacts of low dose radiation appear minimal. It also finds that there is insufficient evidence to support a 'safe dose' threshold and that minimising human doses remains prudent.
- ³⁵ The Chernobyl Forum 2003-2005 (2006) Chernobyl's Legacy: health, environmental and socio-economic impacts <http://www.iaea.org/Publications/Booklets/Chernobyl/chernobyl.pdf> p. 35
- ³⁶ Personal calculation – the zone is 2,600 km² – see http://en.wikipedia.org/wiki/Chernobyl_Exclusion_Zone
- ³⁷ The Chernobyl Forum 2003-2005 (2006) op cit, p. 33
- ³⁸ The National Diet of Japan (2012) "The official report of the Fukushima Nuclear Accident Independent Investigation Commission" p. 38 http://naic.go.jp/wp-content/uploads/2012/07/NAIC_report_lo_res2.pdf
- ³⁹ Ibid p9
- ⁴⁰ Ibid p. 16
- ⁴¹ Burke et al (2012) subsidising the nuclear industry http://tomburke.co.uk/wp-content/uploads/2012/03/subsidising_nuclear_26March.pdf
- ⁴² The Birmingham Policy Commission (2012), op cit, p40
- ⁴³ World Nuclear Association (2012) Nuclear Power and Earthquakes <http://www.world-nuclear.org/info/inf18.html>
- ⁴⁴ World Nuclear Association (2012) Safety of Nuclear Power Reactors, <http://www.world-nuclear.org/info/inf06.html>
- ⁴⁵ Institution of Mechanical Engineers (2009): Climate Change: Adapting to the inevitable, Institution of Mechanical Engineers, Westminster, London.
- ⁴⁶ Tyndall Centre, op cit, p16
- ⁴⁷ Kopytko N. & Perkins J. (2011): Climate change nuclear power, and the adaptation-mitigation dilemma, Energy Policy, Vol. 39, Issue 1, pp. 1-494.
- ⁴⁸ Versicherungsforen Leipzig (2011). Calculation of a risk-adjusted insurance premium to cover the liability risks resulting from the operation of nuclear plants. http://www.mng.org.uk/gh/private/20111006_NPP_Insurance_Study_Versicherungsforen.pdf.
- ⁴⁹ There remains much debate about direct health impacts from nuclear accidents but according to The Birmingham Policy Commission – op cit, p43 - it is widely believed that the indirect impacts on mental health far outweigh the direct impacts.
- ⁵⁰ The Birmingham Policy Commission, op cit, p20
- ⁵¹ Ibid, p88
- ⁵² Tyndall Centre, op cit, p22
- ⁵³ Royal Commission on Environmental Pollution (1976) Nuclear Power and the Environment, 6th Report, 1976 p. 80
- ⁵⁴ Committee on Radioactive Waste Management "Managing our Radioactive Waste Safely (2006) CoRWM's recommendations to Government". <http://corwm.decc.gov.uk/assets/corwm/post-nov%2007%20doc%20store/documents/reports%20to%20government/nov%20and%20dec%202007/700%20-%20corwm%20july%202006%20recommendations%20to%20government.pdf>
- ⁵⁵ DECC (2011) National Policy Statement for Nuclear Power Generation (EN-6) <http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/consents-planning/nps2011/1943-nps-nuclear-power-annex-volIII.pdf> [B.3.2]
- ⁵⁶ Ibid [B.4.3]
- ⁵⁷ Tyndall Centre, op cit, p23