

The 2007 Energy White Paper – Media briefing

“It would have been foolish to announce that we would embark on a new generation of nuclear power stations because that would have guaranteed that we would not make the necessary investment and effort in both energy efficiency and in renewables. That is why we are not going to build a new generation of nuclear power stations now.”

- Secretary of State Patricia Hewitt, in Commons debate on 2003 Energy White Paper.

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Part One – The Political Context

What is the Government about to announce on energy?

Next week the Government is going to deliver the next stage in its review of energy policy.

This will include:

- A Planning White Paper (published Monday)
- A new Energy White Paper (Wednesday)
- The launch of a new consultation regarding the role of nuclear power (Wednesday)
- A 'siting report' detailing where new nuclear power stations would be built (Wednesday)

Doesn't nuclear power provide 20% of the UK's energy?

NO. Nuclear provides 19% of our ELECTRICITY, but only 3.6% of the nation's energy. Replacing our entire existing fleet of nuclear power stations will cost us tens of billions of pounds and leave a legacy of radioactive waste for hundreds of thousands of years, while reducing our carbon emissions by a mere 4% sometime after 2024. It is hard to think of a worse way to spend the nation's finite climate budget. That 4% reduction will be wiped out by aviation expansion alone.

Haven't we had a consultation on nuclear before?

In 2006 the Government initiated an Energy Review with the aim of producing a new Energy White Paper (EWP) by the end of that year. The issue of whether or not the UK should build new nuclear power stations was high up the agenda for consideration.

However, the way in which the Government then proceeded to consult on nuclear power received criticism from a range of parties (including the Trade and Industry Select Committee, the

Environmental Audit Committee, the Environment Agency and the Sustainable Development Commission). It looked as though the Government had already made up its mind on the issue of nuclear power and the consultation was window dressing. It was light-weight and full of misleading information. Fundamentally the process was not viewed as the “fullest public consultation”¹ which the Government had previously promised to conduct in 2003 before giving the go-ahead on new nuclear power.

On this basis, last summer Greenpeace challenged the legality of the Government’s conclusion - that nuclear power had a “role to play” in the UK’s future energy supply. In February Greenpeace won its case in the High Court. The judge said that the Government’s decision to support new nuclear power was “unlawful”. As a result the Government must re-consult comprehensively on nuclear power prior to any renewed support for its future role.

Therefore to comply with the ruling of the High Court the EWP cannot include a Government decision on nuclear power. As a matter of law the Government must keep an open mind on the subject until after it has carried out and considered the “fullest public consultation”.

Will the change in Prime Minister affect this?

An excellent question. Tony Blair was well-known to be enthusiastic about new nuclear power. Although Gordon Brown was reported to be ‘backing’ new nuclear power² his only statement has been to provide ‘enhanced flexibility and reforms’ which was not the ringing endorsement of new stations which it was heavily spun as. Aside from the opposition within the Labour Party, Brown will have to contend with a new Scottish Parliament led by a SNP/Green coalition. The first bullet point of their joint agreement was that they would not support new nuclear power in Scotland. Aside from the practical difficulty of finding suitable sites for new reactors if Scotland is excluded, how difficult will it be for the MP for Kirkcaldy & Cowdenbeath to push nuclear power in his home patch where both the Executive and the population are opposed?

Do we know much about the content of the Government announcements?

This round of announcements will include:

- A Planning White Paper – aimed at streamlining the planning system for major national infrastructure projects, including new nuclear power stations. It will decrease the remit of public planning inquiries to consider on a case by case basis wider issues such as whether or not the project meets national need. This will be released on Monday 21st May.
- An Energy White Paper – outlining how the UK can cut its climate change emissions and meet the energy gap which some predict will occur in the next decade.
- A Consultation on Nuclear Power – this will consider whether new nuclear power has a role to play in the UK’s energy portfolio.

Wasn’t this issue resolved already?

Indeed. There was an Energy White Paper in 2003 which followed in-depth research and the most extensive public consultation imaginable. It concluded that renewable energy and energy efficiency should be the cornerstones of future UK energy supplies. It proposed a policy whereby the UK would only consider building new nuclear power stations if there had been the fullest public consultation and there was a further White Paper.

Why did Greenpeace challenge the Government over the public consultation in 2006?

The 2003 Energy White Paper put nuclear power on the backburner, stating that it was a dangerous and expensive source of energy. At this time the Government decided against nuclear power and committed to the "fullest public consultation" before any future decision was taken to support new nuclear power stations.

Greenpeace argued that the Review process conducted last year did not fulfill this promise since it was rushed, failed to present proposals and information on key issues surrounding a new generation of nuclear power stations and included statements which were inaccurate and misleading. These included how radioactive waste would be stored and what the financial costs would be.

What was the outcome of the High Court decision?

On 15th February 2007 Mr. Justice Sullivan found in favour of Greenpeace and ruled that the Government's pro-nuclear decision was "unlawful". In his Judgment he described the consultation as "seriously flawed", "misleading" and "manifestly inadequate and unfair".³

What must the Government do now?

In light of the unlawful nature of the Government's previous consultation, there must be a full public consultation before any change in Government policy on new nuclear power stations. This means that the Government cannot pre-determine whether or not there should be nuclear power.

The Government's own think-tank, the Sustainable Development Commission, has outlined the critical steps that Government must take to ensure that, as part of the consultation programme, information on key issues such as waste, costs, siting, security and alternative energy sources is given to enable the public to fully understand the issue.

Part Two: Why nuclear power won't stop climate change

In response to the threat of climate change, the Government's 2003 Energy White Paper announced that the UK needed to cut its CO₂ emissions by 60% by 2050. The best way of doing this, it concluded, was to concentrate on energy efficiency and renewables. It was also very clear that, "its current economics make new nuclear build an unattractive option."¹

But by 2005 the nuclear option was, according to Tony Blair, back on the table⁴ "with a vengeance."⁵ A new Energy Review was undertaken in 2006⁶ but this turned out to be little more than a thinly veiled attempt to push the construction of a new generation of nuclear power stations. Despite being defeated in February this year in a Judicial Review over the legality of this review,³ Tony Blair still sees it as a key tool in spearheading the UK's attempts to tackle climate change and deliver fuel security. Gordon Brown has been less vocal but has voiced support for new nuclear power stations⁷.

Despite the UK having Europe's best renewables resources⁸ and having committed the country to a binding target of generating 20% of our energy (electricity, heat and transport) from renewables by 2020⁹, there are concerns that the Government's rhetoric on renewables is still not being matched by tangible action¹⁰, in contrast to other countries like Germany or Spain. This Energy White Paper cannot deliver on the new target.

But isn't nuclear a carbon free answer to our energy problems?

- Nuclear power only delivers around 3.6% of the UK's total **energy**, which means that nuclear's potential contribution to reducing CO₂ emissions is small.¹¹
- Nuclear power stations only produce electricity. The bulk of our energy needs are for heat and transport – nuclear only marginally addresses our need for hot water and central heating and hardly meets our needs for transport at all.
- The Government's own Sustainable Development Commission – the think tank charged with advising Number 10 on sustainability issues - says that replacing our existing nuclear fleet could achieve only a 4% cut in CO₂ emissions from 1990 levels and that it would take until at least 2024 to achieve it.
- These reductions would be wiped out by the emissions created by the predicted increase in UK airport expansion alone¹² - as a direct consequence of the 2006 Aviation White Paper.

Dr Catherine Mitchell and Dr Bridget Woodman of Warwick Business School point out that:

“Supporting nuclear power would allow the Government to appear to be doing something to combat climate change while avoiding the need to make the much harder but more important policy choices which are central to any serious attempts to reduce CO₂ emissions....Support for a nuclear programme will not address the real problem of the UK's climate emissions or the government's other energy policy goals, but will ultimately strengthen the characteristics and problems of the 'old' energy system, thereby making it even harder to dislodge.”¹³

Isn't nuclear power a necessary evil to avoid the lights going out in the next few years?

- The most optimistic estimate from the industry itself suggests that the first nuclear reactor in any UK new build programme would not come on-line until 2017-2018, with the main delivery of a new build programme not 'taking effect' until 2025-2030.
- New nuclear power is simply not a suitable response to the immediate need to reduce CO₂ emissions or address the 'Energy Gap' – more accurately called an 'Electricity Gap'. Even Tony Blair has admitted that “We have a window of only 10 to 15 years to take the steps we need to avoid crossing catastrophic tipping points.”¹⁴
- This could be because, bizarrely, “Whitehall insiders” think that nuclear power can be brought on stream in 2015¹⁵, significantly faster than even industry estimates of the likely timescale.¹⁶ The Government's cost-benefit analysis for the 2006 Energy Review said that “It is likely that the first new nuclear plant could be added by around 2021.”
- Less than two years ago Margaret Beckett said: “Now there is nothing nuclear power can contribute to [20% CO₂ reduction target by 2010] because in fact that has to be done before 2010 and you couldn't - if you started tomorrow - you couldn't build a nuclear power station in time.”¹⁷
- US researchers have estimated that for the same investment, energy efficiency can achieve up to 10 times more carbon savings than nuclear power.¹⁸
- A study of the UK electricity system by a group called The World Alliance for Decentralised Energy, (who have been consultants to the Foreign Office, Canadian and German Governments), suggests that compared to a business-as-usual scenario that includes new nuclear power stations, a programme of decentralising UK power supply

would, over 20 years cut CO₂ emissions by 17%, save 14% on gas use and be cheaper than the conventional gas and nuclear approach.¹⁹

Part Three – Economic and construction issues

- According to Amory Lovins of the respected Rocky Mountain Institute: *“If climate matters then we must buy the most solution per dollar...on the criteria of both cost and speed, nuclear power seems the least-effective climate stabilizing option on offer.... Why incur the opportunity cost of buying a costlier option that both saves less carbon per dollar and is slower per megawatt to deploy?”*¹⁸
- Around the world, nuclear construction projects consistently run considerably over budget. A recent study of ten nuclear reactors under construction in India found them to be on average 300% over budget²⁰. In the United States, an assessment of 75 of the country’s reactors showed predicted costs to have been \$45 billion (€34bn) but the actual costs were \$145 billion (€110bn).²¹
- Average construction delays of up to four years are contributing to huge costs and investor anxiety. Analysis undertaken by the World Energy Council has shown that worldwide construction times have increased from 66 months for completions in the mid 1970s, to 116 months (nearly 10 years) for completions between 1995 and 2000.²²

How much would it cost to dispose of the UK’s existing radioactive waste?

- Current estimates put the figure in the tens of billions of pounds. Industry is not liable for this bill: it will be met by the public purse. Moreover, this expense does not guarantee safe disposal of the waste. The Government’s own committee on radioactive waste acknowledged that there is still no safe solution for dealing with hazardous nuclear waste that remains harmful for hundreds of thousands of years.

If renewables are so economically viable, why can’t they just compete with nuclear for funding?

- At present the playing field is not level, but rather tipped against renewables. Nuclear power is a mature technology that has benefited from billions of pounds of subsidy since its inception half a century ago. Modern renewables are pioneering new technologies being asked to compete in a market already dominated by established technologies with infrastructure such as the national grid designed to favour them. To illustrate: just considering R&D investment by government, since the 1970s over £13 billion has been given to nuclear power while only around £1 billion has benefited all the renewable energy technologies combined.
- The expense, political time and energy absorbed by a controversial nuclear programme fatally undermines development of the more effective alternatives
- In the words of DTI chief Patricia Hewitt in 2003: *“It would have been foolish to announce that we would embark on a new generation of nuclear power stations because that would have guaranteed that we would not make the necessary investment and effort in both energy efficiency and in renewables. That is why we are not going to build a new generation of nuclear power stations now.”*²³

What are the problems associated with siting nuclear power stations?

- A 2007 report for Greenpeace by the Flood Hazard Research Institute at Middlesex University²⁴ shows that favoured sites for nuclear new-build – sites on the coast that already have nuclear reactors - face flooding problems as a result of sea level rise arising from climate change. If these sites are sensibly ruled out, finding alternative 'host' communities will be a considerable political challenge for Government and industry.
- The SNP, having recently taken power in Scotland with support from the Green Party, is committed to opposing new nuclear power stations in Scotland. Several Scottish sites favoured by the Government in Westminster are therefore likely to be off-limits.

Is Greenpeace alone in opposing new nuclear power stations?

- No. Many other respected bodies have recognised the fact that irrespective of the climate impact, there are unique problems with nuclear power. The Intergovernmental Panel on Climate Change has recently looked at low-carbon technologies and concluded that for nuclear power, "safety, weapons proliferation and waste remain as constraints."²⁵
- The Environment Agency warns that a decision to proceed with new reactors could seriously undermine the development of a low carbon energy system because resources are drained away²⁶.
- According to a recent report by the Sustainable Development Commission – the Government's own environmental advisors: *"There's little point in denying that nuclear power has benefits, but in our view, these are outweighed by serious disadvantages. The government is going to have to stop looking for an easy fix to our climate change and energy crises - there simply isn't one."*²⁷

Case Study – Europe's New Reactor at Olkiluoto, Finland

Construction of Europe's only new nuclear reactor, at Olkiluoto in Finland is rapidly becoming an example of all that can go wrong in economic terms with nuclear new build. It demonstrates the key problems of construction delays due to safety concerns, cost overruns, as well as hidden state subsidies that are now facing various legal challenges.

Areva, the company building the new station, have admitted the project is already €700 million over budget and has now fallen almost two years behind schedule, despite construction having only started in September 2005.²⁸

The decision to go nuclear in Finland appears to be undermining alternative low carbon energy strategies. After falling in 2001 and 2002, Finland's carbon emissions are now rising. Measures, promised in a 2001 climate report, such as energy taxation, have not been implemented.²⁹ According to Finland's former environment minister, Satu Hassi MEP, once the decision was made to build the fifth reactor, the country lost interest in alternative energy sources.³⁰

The International Energy Agency highlights the risk to Finland of relying on carbon dioxide reductions coming from the operation of the new reactor. It says this may inhibit Finland's ability to meet its greenhouse gas reduction targets under Kyoto, if the operation of the plant is in any way delayed.³¹

Part Four: The real solutions

Greenpeace believes that the implementation of the following policies could address the priorities identified in the 2003 EWP (tackling the challenges of climate change, fuel security and fuel poverty) without the need for new nuclear power.

1. Cut out wasteful, unnecessary carbon emissions

As the last Energy White Paper noted: “The cheapest, cleanest and safest way of addressing all our goals is to use less energy. We have to improve energy efficiency far more in the next 20 years than in the last 20.”¹

A government committed to ending the wasteful use of energy would, at the very least, introduce legislation to:

- Ban incandescent lightbulbs by the end of the 2007. Traditional incandescent bulbs waste 95% of the energy they consume as heat. Energy saving lightbulbs (Compact Fluorescent Lamps or CFLs) have been available for 30 years. They require five times less electricity to do much the same job, save users approximately £9 per bulb each year and last up to 12 times as long as incandescent bulbs. Legislation to ensure that all UK domestic lighting is provided by CFLs could achieve significant carbon and energy savings within a very short time frame. This simple move alone would save 5 million tonnes of CO₂ a year and enough energy to shut two medium sized power stations.³²
- Impose tough minimum efficiency standards that are urgently needed for all energy using products. The government could ensure for example that retailers are able to sell only ‘A’ rated white goods and electrical goods.
- Require ‘heat capture’ from all new power stations. Currently Britain’s centralised power station system wastes two-thirds of the energy put into it, in the form of waste heat that escapes up cooling towers or as cooling water. So-called ‘decentralised energy’ schemes, popular in Scandinavia and northern Europe, employ super-efficient electricity generation systems that slash emissions. Woking council cut carbon emissions by 77% using decentralized energy technology.
- Demand strong fuel efficiency standards for vehicles. European proposals to limit car-makers fleets to an average CO₂ output of 120 grams per km by 2012 appear to have foundered. New proposals for 130g/km are currently under consideration, with German manufacturers lobbying to prevent their adoption. The UK Government should ensure the original target is adopted as a mandatory measure. The industry have had a decade to adopt to voluntary targets and failed. Government action is now required.
- Make existing UK homes low-carbon and new homes zero-carbon. Britain’s housing stock accounts for 28% of the nation’s carbon emissions. By introducing new building regulations requiring high standards and micro-generation, new developments can become zero-carbon. Gordon Brown has proposed building 100,000 affordable so-called ‘eco-homes’. But all new homes should be built to the same standard. Britain’s existing primarily Victorian housing stock is notoriously energy inefficient. But there are a range of measures that government should be taking to improve the efficiency of the nation’s existing homes. These are primarily demand side incentives - a reduction in VAT on all energy efficiency goods to 5%; Local Authorities (and all public bodies) to be given Best Value Performance Indicators related to energy efficiency; the adoption of a reduction in stamp duty linked to a buildings performance at the time of sale; council tax rebates directly linked to a property’s performance (as is being piloted in Braintree, Essex); and

support for the development of attractive mortgages linked to energy performance. The Government's grant system for home-owners seeking to install micro-generation systems is in a mess and has delivered a fraction of what has been achieved in Germany.

- Drive savings through standards forcing uptake of new technologies as outlined in the findings of the Market Transformation Programme³³ which covers electric motors (e.g. fans, pumps, air conditioners), information technology, transformers (e.g. phone or laptop chargers) and other power-using technologies.
- Cap all aviation expansion. The Tyndall Centre warns that if aviation expands to the extent predicted, the UK will have to de-carbonise the rest of its economy if it is to meet its long-term emissions targets.

In summary, huge carbon savings can be made by employing simple, effective measures that don't generate the headlines nuclear power does but actually slash greenhouse gas emissions. Any government serious about tackling climate change and energy security would implement these measures before even considering the nuclear option. Reaching for nuclear to fight climate change is like taking up smoking to give up weight. Simple? Yes. Sensible and effective? No.

2. Deliver on renewable energy

The Government needs to level the playing field to allow the rapid development of clean energy technologies by giving proper support for early stage renewable technologies where the UK could lead the world.

There is currently 2GW of wind power installed in the UK. In contrast, the total amount of capacity held up in the planning queue – some of which has been delayed for 3 years or more – now totals 10.7GW of on and offshore wind energy capacity³⁴. Resolving just one quarter of this capacity that is stalled in the planning process would enable the Government to meet its 2010 renewable energy target. In addition the Government needs to develop:

- Enough wind power, onshore and offshore, to meet at least 25% of the UK's electricity consumption at current projected levels by 2025. The proportion increases if efficiency measures are delivered at the same time (since the overall demand is smaller so the renewables make up a bigger portion of it).
- Enough marine renewable power (wave and tidal stream) to meet at least 12.5% of the UK's electricity needs by 2025. As with wind, the proportion increases if efficiency measures are delivered at the same time.
- Just these large scale technologies combined can deliver much more clean electricity, with no danger and no radioactive waste, in the same timescale as a nuclear replacement programme. The combined total of 38% by 2025 (the soonest likely date for a complete nuclear replacement programme) is easily in line with the expected renewable electricity portion of a legally binding renewable energy target (covering electricity, heat and transport) recently agreed in the European Union. To be clear, this committed the UK to providing 20% of the nation's energy – not just electricity - from renewable sources by 2020. This EWP simply will not do that.
- The government's own figures state that, it would be well within both practical and economical reach to develop this capacity, in the same time it would take for a nuclear replacement programme.

3. Deliver Decentralised Energy (DE)

Decentralising the energy system will be essential to meeting the Government's carbon reduction targets. Since the privatization of the gas and electricity industries in the late 1980s the focus of regulation of the energy industries in the UK has been relentlessly to drive down the retail cost to consumers. What is clear in the 21st century is that regulation must also address increasingly well established environmental, social and economic challenges. The role of Ofgem – the Government's energy regulator - must be to meet the pressing demands of the energy review: climate change, fuel security, and fuel poverty. Government should act to ensure that:

- No new fossil fuel generation plant is allowed unless it utilizes Combined Heat and Power (CHP) technology.
- Ofgem is reformed so that it has an obligation to save carbon as a primary duty
- A nationwide network of biomass and biogas CHP plants should be developed with support from Regional Development Agencies. Industrial sites alone in the UK easily provide the potential for enough high quality CHP capacity to deliver the same electricity output as the entire fleet of new nuclear reactors while also meeting those sites' heat needs at the same time. A similar scale of potential exists for huge capacity in cities, meeting heat and cooling needs in buildings while generating as much electricity again nationwide as the entire nuclear fleet. The government must take action to ensure its 10GWe target for CHP by 2010 is met and that it is at least doubled by 2020.
- All new buildings should be required to incorporate DE technologies and be linked wherever possible to district heating systems
- All new buildings should be required to incorporate DE technologies and be linked wherever possible to district heating systems provided by Combined Heat and Power plants
- All electricity suppliers should be required to purchase surplus electricity from DE generators at rates that will ensure the take-off of DE
- The tax system should be used to reward energy efficient buildings and those which have DE technologies such as CHP systems and micro-wind turbines installed. Tax incentives should include reduced stamp duty, council tax and business rates.

Part Five - Conclusions

In 2003 the government recognised that energy efficiency and renewable power were better options than nuclear. Nothing has changed since then except a botched and unlawful consultation, widely seen by experts and by the High Court as a stitch-up.

Nuclear energy would not tackle climate change because:

- It's a bad investment – unless it is unlike virtually any other nuclear power station built to date, the programme will run over budget and take far longer to construct than the developers promise. Government support will be required; a nuclear power station has never been built in a liberalised energy market.

- It promotes a “business-as-usual” approach, just at a time when energy efficiency measures and an entirely new energy strategy are needed.
- It allows Government to escape more challenging decisions elsewhere – nuclear can only deliver 4% CO2 emissions cuts.
- A nuclear programme sucks time and energy away from better options. The displacement of political will and investment in non-nuclear, decentralised and renewable energy low-carbon solutions evident in Finland is a disturbing precedent for the UK.

Instead of focusing on electricity production and looking to one big technology to meet our energy challenges, the government needs to address the energy system as a whole. A decentralised energy system which uses fossil fuels more efficiently, and uses the heat properly instead of wasting it, can provide a cheaper, cleaner and far more secure energy system for the UK.

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² *Brown’s backing clears way for a nuclear future*. The Times, 10th June 2006 <http://www.timesonline.co.uk/tol/news/politics/article673368.ece>

³ *The Queen on the application of Greenpeace Limited -v- Secretary of State for Trade and Industry*. 15th February 2007 <http://www.greenpeace.org.uk/MultimediaFiles/Live/FullReport/ERJRSullivanJudgement.pdf>

⁴ *PM ‘convinced’ on nuclear future 29 November 2005*. <http://news.bbc.co.uk/1/hi/business/4454468.stm>

⁵ *Blair backs nuclear power plans*. BBC News, 16th May 2006 http://news.bbc.co.uk/1/hi/uk_politics/4987196.stm

⁶ *The Energy Challenge*. Department of Trade and Industry, July 1006 <http://www.dti.gov.uk/files/file31890.pdf>

⁷ *Brown supports new nuclear plants 10 June 2006*. http://news.bbc.co.uk/1/hi/uk_politics/5066692.stm

⁸ *Sweden plans to become the world’s first oil-free economy*. The Guardian, 8th February 2006 <http://www.guardian.co.uk/oil/story/0,,1704954,00.html>

⁹ *EU agrees renewable energy target*. BBC News, 9th March 2007 <http://news.bbc.co.uk/1/hi/world/europe/6433503.stm>

¹⁰ *Green energy industry attacks government rationing of grants*. The Guardian, 2nd March 2007 <http://business.guardian.co.uk/story/0,,2024685,00.html>

¹¹ *Nuclear power ‘cannot tackle climate change.’* The Guardian, 17th January 2006 <http://www.guardian.co.uk/science/story/0,3605,1688034,00.html>

¹² *Aviation ‘huge threat to CO2 aim.’* BBC News, 21st September 2005 <http://news.bbc.co.uk/1/hi/sci/tech/4266466.stm>

¹³ *New nuclear power: implications for a sustainable energy system*. C Mitchell & B Woodman, University of Warwick, March 2006. <http://www.wbs.ac.uk/downloads/news/2006-03-nuclear-energy.pdf>

¹⁴ <http://environment.guardian.co.uk/climatechange/story/0,,1927416,00.html>

¹⁵ *Ministers act to stop lights going out in 2015, 2 May 2007* <http://business.guardian.co.uk/story/0,,2070133,00.html>

¹⁶ *Activities to underpin a Predictable Timeline for Replacement Nuclear Build*. Supplementary information to accompany BNFL’s submission to the House of Commons Environmental Audit Committee Inquiry into Keeping the Lights On: Nuclear, Renewables and Climate Change. 15 Jan 2005.

¹⁷ Margaret Beckett, The Jonathan Dimbleby Programme, 26th June 2005

¹⁸ *Nuclear power: economics and climate-protection potential*. Rocky Mountain Institute, 11th September 2005 http://www.rmi.org/images/other/Energy/E05-08_NukePwrEcon.pdf

¹⁹ *Cleaner, Cheaper, More Secure Energy for the 21st Century, a report to Greenpeace by WADE, 2006* <http://www.greenpeace.org.uk/blog/climate/de-the-real-answer-to-uk-energy-needs>

²⁰ *The Economics of Nuclear power, a report to Greenpeace International by Stephen Thomas, Antony Frogatt, Peter Bradford and David Milborrow, May 2007*. <http://www.greenpeace.org/international/press/reports/the-economics-of-nuclear-power>

²¹ *An analysis of nuclear power construction costs, energy information*. US Department of Energy, DOE/EIA-0411, 1986

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- ²² *The future role of nuclear energy in Europe*. World Energy Council European regional study group, 13th June 2006
- ²³ Patricia Hewitt, Secretary of State for Trade and Industry, 24 February 2003, House of Commons debate on Energy White Paper 2003. Hansard; 24 February 2003: Column 32
<http://www.publications.parliament.uk/pa/cm200203/cmhansrd/vo030224/debtext/30224-07.htm>
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- ²⁶ *Don't Rush to Nuclear Power Warns Blair's Environment Advisor*. Independent on Sunday, 21st May 2006 <http://news.independent.co.uk/uk/politics/article549529.ece>
- ²⁷ *Nuclear Power Won't Fix It*. Sustainable Development Commission, <http://www.sd-commission.org.uk/presslist.php?id=51>
- ²⁸ <http://news.moneycentral.msn.com/provider/providerarticle.aspx?Feed=AP&Date=20061204&ID=6245665>
- ²⁹ *Deciding on Nuclear*. UK Parliamentary and Sustainable Energy Group (PRASEG) briefing. Satu Hassi MEP, Finnish Environment Minister 1999 – 2002, November 2005 <http://www.satuhassi.net/puheet/praseg.pdf>. See also <http://www.satuhassi.net/puheet/kyoto181005.htm>
- ³⁰ Guardian 14th April 2006, <http://politics.guardian.co.uk/green/story/0,,1753914,00.html>
- ³¹ *International Energy Agency, Energy Policies of IEA Countries: Finland 2003 Review*. IEA, 2004.
<http://www.iea.org/textbase/nppdf/free/2000/finland2003.pdf>
- ³² http://www.mtprog.com/ReferenceLibrary/MTP_SP06_web.pdf p126-7
- 2006: number of bulbs in stock in UK households 599.83million 479.79m are GLS (incandescent), consuming 14788 GWh/yr Using an average elec mix of 0.43kg/CO2 per kwh GLS bulbs are responsible for: 6,358840 tonnes Co2 a year (Or 6.4m tonnes a year) Replacing all these with CFLs would reduce energy, and thus CO2 by 80%
- ³³ The Market Transformation programme is a consortium of energy consultancies managed by DEFRA that informs Government policy on sustainable products. It's latest findings were publish in March 2006
- ³⁴ 'UK Wind Planning Status Report' – BWEA, March 2006