

Nuclear Free Local Authorities new nuclear monitor



Number 13, August 2007

The Government Consultation on *The Future of Nuclear Power*[†]

1. Introduction

On 23rd May 2007 the DTI (now the Department of Business, Enterprise and Regulatory Reform) launched an Energy White Paper along with a new consultation document on the future of nuclear power.

The White Paper: Meeting the Energy Challenge, A White Paper on Energy, May 2007, can be downloaded at: <http://www.berr.gov.uk/files/file39387.pdf>

The consultation document: The Future of Nuclear Power: The role of nuclear power in a UK carbon economy, May 2007: <http://www.berr.gov.uk/files/file39197.pdf>

There is an online consultation at <http://www.direct.gov.uk/nuclearpower2007>

And responses can also be submitted by letter, fax or email to:

Response – Nuclear Power Consultation 2007

FREEPOST SEA 12430

Thornton Heath

CR7 7XT

Tel: 020 7215 3331

Fax: 020 8683 6601

Email: response@nuclearpower2007.org.uk

There is also a consultation on the proposed processes for Justification and Strategic Siting Assessment available at: <http://www.berr.gov.uk/files/file39199.pdf> (NB – the first page of this document looks almost exactly the same as “The Future of Nuclear Power” document). Responses can be submitted to “Response – Nuclear Technical Consultation 2007” at the same address, fax or e-mail address.

Responses to both consultations are due by 10th October 2007.

Cont...

[†] This briefing was prepared by Pete Roche, NFLA (Scotland) Policy Adviser

THE LOCAL GOVERNMENT VOICE ON NUCLEAR ISSUES

2. Background

The Government was forced to hold this second consultation, after a successful legal challenge in the High Court by Greenpeace. Mr Justice Sullivan, said the first was not the 'fullest public consultation' promised in the 2003 Energy White Paper; it was "seriously flawed", "manifestly inadequate and unfair", as well as "misleading", and "procedurally unfair", because insufficient information had been made available for consultees to make an "intelligent response". (1)

Unfortunately, the new Prime Minister, Gordon Brown, at his first Prime Minister's Questions (PMQs) on 4th July pre-empted the consultation when he said: "We have made the decision to continue with nuclear power". (2) Greenpeace lawyers wrote to the Prime Minister demanding he "immediately and unreservedly withdraw the government's decision to support the building of a new generation of nuclear power stations," and that the new consultation be abandoned. (3) The Prime Minister attempted to salvage the situation at PMQs on 11th July, by saying he would only decide about new reactors after the consultation. (4)

3. The Government's Argument

The Government says its "preliminary view is that preventing energy companies from investing in new nuclear power stations would increase the risk of not achieving our long-term climate change and energy security goals, or achieving them at higher cost". It says "nuclear power is the only low-carbon form of baseload generation, which is proven on a commercial scale". Without nuclear power the alternative would be to build more fossil fuel capacity, possibly with carbon capture and storage technology, and to build renewable capacity over and above existing targets.

The consultation document argues that the UK will be increasingly dependent on imported oil and gas at a time when almost one third of our fossil-fired power stations are likely to close and all but one nuclear station will have closed by 2023. If our existing nuclear stations were replaced with fossil-fired stations, our emissions would be 8-16MtC/yr (million tonnes of carbon per year) higher – the equivalent of about 30-60% of the total carbon savings expected from all the measures in the White Paper. Although new reactors are unlikely to be ready before 2020, they could make a significant contribution up to and beyond 2050.

The Government argues that since the 2003 White Paper significant progress has been made on nuclear waste. The High Court Judgment criticized the Government for not correctly representing the Committee on Radioactive Waste Management's [CoRWM's] position on new waste - that it raised different political and ethical issues to legacy waste. This consultation is supposed to provide the opportunity to discuss the ethical issues associated with generating new waste.

The Government says it is developing proposals to ensure that nuclear operators meet the full decommissioning costs and full share of waste management costs. It also says its economic analysis suggests that nuclear power can offer general economic benefit, and the interest shown by some utilities in nuclear power reflects assessments that with carbon being priced to reflect its impacts and gas prices likely to be higher than previously expected, the economics of new nuclear power stations are becoming more favourable.

4. Future of nuclear power – consultation questions

The main "Future of nuclear power" consultation includes a number of questions. These are included below with suggested responses.

Question 1: To what extent do you believe that tackling climate change and ensuring the security of energy supplies are critical challenges for the UK that require significant action in the near term and a sustained strategy between now and 2050?

The importance of tackling climate change and ensuring energy security is not disputed. However, NFLAs believes that supporting the construction of new reactors will at best make only a very minor contribution to

tackling climate change but will most likely be counterproductive. It is the risk of diverting attention and resources from the urgent programmes which must be implemented in order to effectively tackle climate change – renewable energy and energy efficiency, which is most worrying. If attention, political effort and resources are diverted to a new nuclear programme, past experience suggests that problems and delays will mean that by 2025 carbon emissions will still be rising but too much time will have been wasted to start implementing alternative strategies. (5)

Worse still, nuclear would set the UK on the wrong energy path for the future – one where energy is produced in a few large centralized power stations. By decentralising our energy system and producing energy locally, the UK can meet its energy needs in a much cheaper, cleaner and safer way, slashing our climate change contributions. (6)

The Oxford Research Group calculates that for nuclear power to be able to make a reasonable contribution to combating climate change, and, at the same time taking into account the global increase in population and electricity demand, then around four reactors would have to begin construction every month between now and 2075 – a task of Herculean proportions. (7)

Carbon dioxide is emitted from the whole energy system, not just the electricity sector, so we also need to look at transport and how we supply our heat. Nuclear power can only supply electricity, so can only ever have a small role in reducing carbon dioxide emissions. (8) In the UK nuclear power provides around 20% of electricity, but only about 8% of total energy. If you allow for losses at the power station, nuclear power's current contribution to the UK's final energy consumption is only 3.6 % (80 TWh/y out of a final consumption of about 2,250 TWh/y). (9)

We also need to make sure that spending on the electricity sector, such as building new reactors, does not hinder our efforts to reduce carbon emissions from the rest of the energy system which provides the other 96.4% of final energy consumption. The UK Government's Sustainable Development Commission (SDC) (10), Warwick Business School (UK) (WBS) (11) and the Environment Agency (12) have all warned that a decision to proceed with new reactors could seriously undermine the development of a low carbon energy system. If reactor construction fails to result in the replacement of existing capacity because of construction delays or public opposition, we could end up in a worse position than we are today. (13)

It will probably take until around 2020 before the first new reactor comes on stream. (14) To tackle climate change the speed with which carbon abatement measures can be introduced is important, and the later we leave it to start making major reductions the harder it will be for us to make significant progress. The Association for the Conservation of Energy, for example, says if one new nuclear reactor is operating by 2020, it could be delivering perhaps just over one million tonnes of carbon saving. In contrast energy efficiency "could save around 25 million tonnes of carbon through cost-effective energy efficiency measures" by that date. (15)

Advocates of nuclear power say, because climate change is serious we need to promote renewables, energy efficiency *and* nuclear power. This suggests we have infinite sources of finance to spend on energy projects, which is obviously nonsense. A scarcity of resources means we need to maximize carbon reductions for every pound spent. Investing in expensive nuclear power is just about the worst thing we can do. Energy efficiency can be up to seven times more cost effective. So investment in new reactors will, in effect, worsen climate change because each pound spent is buying less solution than if it were spent it on energy efficiency measures. (16)

Question 2

Do you agree or disagree with the Government's views on carbon emissions from new nuclear power stations? What are your reasons? Are there any significant considerations that you believe are missing? If so, what are they?

The Government says we need to build around 30-35 GW of new generating capacity over the next two decades - two-thirds by 2020. Around 20GW fossil-fired plant and 10GW nuclear is likely to close over the next twenty years. If all existing nuclear stations were replaced with fossil fuel stations, emissions would be between 8 - 16 MtC/yr higher - equivalent to about 30-60% of the total carbon savings expected from all the

measures in the Energy White Paper. Our gas demand would also be higher, at a time when we are becoming more dependent on imports.

The White Paper actually gives a range of carbon savings estimated from measures announced since the Energy Review of between 23.3 and 33MtC. If we make sure that sufficient measures are implemented to achieve a result at the higher end of this range, there would be no need for replacement nuclear power stations. (17) (See also Question 5).

The Government says nuclear power emits low amounts of carbon dioxide across the whole lifecycle (7-22g/kWh) – similar to the emissions from wind power. Unfortunately it has failed to look at several other studies which suggest emissions could increase to around 130g/kWh. (18) The important point is that as good quality uranium reserves run out, a move towards lower quality uranium ores could significantly increase carbon emissions. (19) So, while emissions may be low at the moment, this may not remain the case. The nuclear industry has fiercely attacked this idea perhaps because of a conviction that further high quality uranium reserves will become available. But this needs to be examined. The House of Commons Environmental Audit Select Committee recommended in 2006 that the Royal Commission on Environmental Pollution be asked to report on carbon emissions associated with all generating technologies, but, so far, the Government has failed to do this. (20) (See also Question 12).

Question 3

Do you agree or disagree with the Government's views on the security of supply impact of new nuclear power stations? What are your reasons? Are there any significant considerations that you believe are missing? If so, what are they?

The Government says the UK will be increasingly reliant on imports of oil and gas, at a time of rising world demand, and it will require substantial private sector investment over the next two decades in new gas import infrastructure and electricity generating capacity. It argues the best way to achieve security of supply is by encouraging a diversified mix of generating technologies.

The Government promotes the myth that the UK will become increasingly dependent on Russian gas. This is simply a scare tactic, with three aspects. First, gas is used mainly to provide heat. Only a quarter of the gas Britain burns is used to produce electricity, and much of that is used at peak times because gas turbines can be switched on and off easily. Nuclear power stations must be run constantly to be economic so they can only replace a small proportion of the gas we use for electricity generation. Second, most of Britain's gas now and in the future comes from Norway. Third, Russia is more dependent on Europe's revenues than the other way round. (21) An analysis for the Liberal Democrats shows that by 2050 the effect of allowing nuclear power to operate alongside carbon capture and renewables is to reduce the contribution of wind and wave power, rather than making any difference to the amount of gas imported, largely because nuclear cannot compete economically in the role of flexibly balancing the electricity grid. (22)

The argument that large inflexible nuclear power stations which must be run as base-load stations somehow increases our security of supply is entirely bogus. During the late summer of 2002, at the height of British Energy's financial difficulties, five of its eight stations had either one or both reactors closed. If our current fleet is replaced by several reactors all of the same design they could suffer from generic faults requiring closure all at the same time for repair. A focus on reducing our gas requirements for heating by implementing energy efficiency programmes, and by making sure gas is used in efficient combined heat and power stations which can produce electricity and heat, rather than large electricity-only generating stations, would be a more effective way of improving security of supply.

A number of companies in the UK are already marketing domestic micro-CHP boilers, which can replace domestic central heating boilers and generate electricity as well as heat, using less energy than the standard heating boilers of today. (23) Projections suggest a rapid take-up of micro CHP, with some 5-12 million units installed by 2020. This scale of market penetration could replace over half of the UK's nuclear capacity, and generate electricity more cheaply. (24)

Question 4

Do you agree or disagree with the Government's views on the economics of new nuclear power stations? What are your reasons? Are there any significant considerations that you believe are missing? If so, what are they?

The Government says it is up to the private sector to propose and fund the construction and operation of any new reactors, including meeting the full costs of decommissioning and full share of waste management costs. However, the Government is proposing facilitative action, which it says, will be important in reducing uncertainty during the preconstruction period.

The 2003 Energy White Paper said that the economics of nuclear power were unattractive. (25) Dr Catherine Mitchell of Warwick Business School and member of the Government's Policy and Innovation Unit (PIU) Energy Review Team, which produced the research which formed the basis of the 2003 White Paper, speaking in Edinburgh on 21st May 2004 said:

"The PIU examined the cost of nuclear power, both current and future, in great depth. It concluded that the figures put forward by the nuclear industry are extremely optimistic and PIU's own figures were much higher ... It is extremely depressing that after 2 years of evidence based analysis by the Government, energy institutions continue to provide out of date and probably wrong information".

In 2003 the Massachusetts Institute of Technology said that although the cost improvements suggested by the industry for new reactor types are "plausible but unproven" even if they were all somehow achieved, which is highly unlikely, coal would remain cheaper and natural gas would only exceed the price of nuclear power in the highest fuel price scenario. Since costs are expected to reduce if more reactors of the same type are ordered, the University of Chicago looked at the cost of the eighth plant – when cost savings due to learning would be complete – the cost of electricity would still remain higher than fossil fuels. (26)

The Government gives the impression that nuclear generators are waiting for permission to build new reactors – they are not. The only thing preventing construction is economics. The real barrier to investment is the uncertainty about future electricity prices. If Government is intent on having new reactors it will either have to abandon liberalised electricity markets or find a way to cheat on its pledge to provide no subsidies, for example by offering a very high price for carbon or by making the taxpayer bear an unspecified share of the cost of waste disposal. (27)

But if the Government guarantees a high price for carbon to allow nuclear power to compete, the resultant increase in electricity costs will lead to an increased focus on efficiency and reductions in demand growth. The Policy and Innovation Unit suggested that for a cost of between £130 per tonne and minus £640 per tonne, energy efficiency measures could reduce carbon emissions by 65 million tonnes by 2050. In contrast, nuclear power would cost between £70 and £200 per tonne of carbon and could only reduce emissions by 20 million tonnes by 2050. (28) If the Government does cheat on its commitment not to subsidise new reactors, investments in more expensive reactors will, in effect, worsen climate change because each pound spent is buying less solution than it would do if it were spent on energy efficiency. (29)

Question 5

Do you agree or disagree with the Government's views on the value of having nuclear power as an option? What are your reasons? Are there any significant considerations that you believe are missing? If so, what are they?

The Government says there are uncertainties about the future price of fossil fuels and the speed at which renewables can be introduced. There could be significant increases in electricity demand if we start using it for transport for example. It might prove necessary to reduce carbon emissions by more than 60% by 2050.

There is no need to keep nuclear power as an option with all the risks and dangers that this would entail. There are particular reasons for treating nuclear power differently to other energy technologies. Unlike other energy sources nuclear power presents some of the most challenging threats. Even a small expansion in the use of nuclear power for electricity generation could have serious consequences for the spread of nuclear weapons and for nuclear terrorism. And there are important ethical reasons why we should not continue to make dangerous nuclear waste which future generations will have to look after, when we have yet to find an acceptable long-term way of managing such waste.

In contrast energy efficiency represents an economic bonanza, which could enable a significant share of energy demand to be provided by renewable sources and allow nuclear power to be phased out. We have barely begun to tap its economic potential. Converting coal into incandescent light, for example, uses energy at an efficiency of about 3%. (30) But we no longer need to use incandescent light bulbs. The average British household has three low-energy lightbulbs and 22 incandescent bulbs. The energy saved by changing all the bulbs would render two nuclear power stations redundant. (31) On top of this we could design our appliances to make better use of electricity. Within the 25 (pre-2007) European Union nations primary energy demand could be reduced by at least 30% by 2050. (32) The biggest single obstacle to improving efficiency is that utilities are rewarded for selling more energy and penalized for cutting customers' bills. This could be fixed by decoupling profits from energy sales, and allowing utilities to profit from reducing consumers' bills.

Energy scenarios produced for Greenpeace show that it is perfectly feasible for Europe to phase out nuclear power and dramatically reduce fossil fuel consumption. Energy demand for heating could be reduced in existing buildings by 30-50% and by 90-95% in new buildings. By 2050, more than 70% of electricity could be from renewable sources. (33) Combined Heat and Power (CHP) plants, which produce heat as well as electricity can use fossil fuels much more efficiently than large centralised plant, and can be converted to run on other fuels such as biomass, geothermal energy, or solar collectors in the future. Renewables could contribute more than 50% by 2050 to European heat supply.

Wind energy is one of the most effective and cheapest renewable technologies available. It can be installed far quicker than conventional power stations. 12% of the world's electricity needs could be supplied by wind power alone by 2020 - and this against the challenging backdrop of a projected two thirds increase in electricity demand. (34) Offshore wind is ideally placed to replace the 75 to 100 European coal-fired plants, which will need to be retired over the next twenty years. With the right political action offshore wind could pave the way for the phasing out of fossil and nuclear fuels. (35) Almost a third of Europe's total electricity demand could be met from offshore wind by 2020. (36)

In much of the world the solar electricity market is booming. The photovoltaics industry is one of the fastest growing worldwide. (37) By the end of 2003 enough photovoltaic (PV) systems had been installed around the world to supply electricity for 700,000 households. At the same time global output has been growing at around 35% for the past few years. (38) It is a business worth more than €3 billion in annual sales, providing jobs for over 10,000 people. Germany, Japan and the United States, have largely driven the success of the industry leaving the UK behind. Photovoltaics could be providing more than 1.1% of global electricity demand by 2020 replacing the output of 75 coal-fired power stations.

Systems designed to harness energy from waves and tides could provide up to 20% of the UK's current electricity demand, with perhaps 3% installed by 2020. (39) The UK could develop wave and tidal stream energy into a world-scale manufacturing industry. The industry is now at a critical stage of development. It faces a number of hurdles that must be overcome for its potential to be realized. (40) Government support is required or the industry will move to other countries such as Portugal where support is more enthusiastic. (41)

There are a wide-range of other renewable technologies, which can be economically harnessed to provide heat and electricity. Solar thermal energy can be collected on an individual building-scale to provide domestic hot water and space heating. Biomass can be used for heating, electricity generation or transportation, perhaps replacing the use of fossil fuels in combined heat and power plants, and helping to balance the use of intermittent sources such as wind. Ground source heat pumps can also be used to make use of heat stored by the earth. (42)

Question 6

Do you agree or disagree with the Government's views on the safety, security, health and non-proliferation issues? What are your reasons? Are there any significant considerations that you believe are missing? If so, what are they?

The Government's view is that nuclear power stations pose safety, security, health and non-proliferation risks, but these risks are very small and there is an effective regulatory framework in place to ensure risks are minimised and sensibly managed by industry. It does recognize that the consequences of a nuclear accident

are potentially severe with wide-ranging consequences, although it believes the probability of such an accident is acceptably low.

Twenty-one years since Chernobyl the fact that there has not been another accident with a core meltdown may be lulling us into a false sense of security, according to a new analysis by a group of experts from the Institute of Risk Research, Union of Concerned Scientists and the Oko Institute. Every year there are thousands of incidents, but because there is no catastrophic radioactive leakage, the world reacts as if there is no problem. The incident at the Swedish Forsmark reactor in summer 2006 should have shattered this complacent approach. An accident on the scale of Chernobyl was probably only avoided by minutes. (43)

A major study of reactor hazards by two leading scientists and an international energy specialist, published by Greenpeace in April 2005, concluded that risks from reactors in the West have been significantly increasing over the last few years and the likelihood of accidents occurring is now higher than ever. (44) All operational nuclear reactors have very serious inherent safety flaws, which cannot be eliminated by safety upgrading, and a major accident in a reactor today could be far more severe than Chernobyl. New reactor types that are heralded as fundamentally safe have their own specific safety problems. No reactors – old or new - can be sufficiently protected against a terrorist threat. There are several scenarios – aside from a crash of an airliner on the reactor building – that could lead to a major accident. (45)

The UK relies on an international non-proliferation regime that attempts to prevent the spread of nuclear weapons, at the same time as promoting nuclear power. This ‘finger in the dyke’ approach is simply not a sustainable solution. Promoting ‘peaceful’ nuclear power has accelerated nuclear weapons proliferation. Nuclear reactors in India, Pakistan, Israel, and North Korea have produced nuclear materials, which have been used to make nuclear weapons. The UK should work with the United Nations to establish a body which can lead the way in tackling the twin threats of climate change and nuclear proliferation by phasing out nuclear power and replacing it with a sustainable energy strategy which promotes world peace. (46)

Question 7

Do you agree or disagree with the Government’s views on the transport of nuclear materials? What are your reasons? Are there any significant considerations that you believe are missing? If so, what are they?

The Government says it is assuming that spent fuel will not be reprocessed and that developers would be expected to provide appropriate storage arrangements capable of being maintained safely until the spent fuel is ultimately removed for disposal. In other words the construction of new reactors would not create the need to transport spent fuel through our towns and cities on the way to the reprocessing facility at Sellafield, as it is today. Instead, spent fuel would be held in interim storage at reactor sites. However, there do not appear to be any guarantees that this will be the case. (See Question 14)

A terrorist attack on a train carrying waste nuclear materials across Britain could spread lethal radioactivity across an area of 100 sq kilometres, and result in the deaths of up to 8,000 people. The technology and resources needed to mount a successful attack are well within the capabilities of determined terrorists. (47)

Question 8

Do you agree or disagree with the Government’s views on waste and decommissioning? What are your reasons? Are there any significant considerations that you believe are missing? If so, what are they?

The Government says it agrees with the Committee on Radioactive Waste Management (CoRWM) that the creation of new waste involves ethical considerations. CoRWM says decisions on new build raise different political and ethical issues when compared with the consideration of wastes that already exist. The key question that needs to be considered is whether a deliberate decision to create new waste is ethical given that (a) we have yet to deal adequately with the dangerous waste already produced and (b) new build wastes will extend the timescales for implementation of any potential solution, possibly for very long, but essentially unknowable future periods. (48)

Although CoRWM recommended deep geological disposal, it also stressed the vital role of interim storage - possibly for more than 100 years - because of the uncertainties involved in the implementation of deep

disposal. This heavily qualified aspect of CoRWM's recommendations is being ignored. The concept of deep disposal is certainly not proven for the many thousands of years that containment and isolation of wastes would be required. (49) CoRWM's final recommendations in July 2006 included the need for a major R&D programme to reduce the uncertainties of geological disposal and interim storage. Chair, Gordon MacKerron, has recently highlighted the lack of any visible progress in this area. (50)

There seems to be a general assumption that West Cumbria will end up hosting a nuclear waste dump. (51) Yet Chris McDonald, the lead inspector of the 1995-96 public inquiry into the proposed nuclear waste facility near Sellafield, writing in *The Guardian*, says that the evidence from the Inquiry was that the safety case for a nuclear waste repository at the Gosforth was that the site is not suitable and investigations should be moved elsewhere. (52) Clearly, a report from CoRWM does not represent a solution to the problem of what to do with nuclear waste. The UK should not be contemplating building new reactors whilst we have yet to solve this problem.

Question 9

What are the implications for the management of existing nuclear waste of taking a decision to allow energy companies to build new nuclear power stations?

It is the responsibility of the generation that has created this highly dangerous radioactive waste to manage it in a responsible way. Disposing of waste underground passes on a burden to future generations. It removes choices from future generations about how best to manage that waste and leaves them with a leaking nuclear waste dump. There is no fail safe solution to the problem of how best to manage radioactive waste – only least bad options, such as storing it in securely managed terrorist-proof stores. Creating more waste, under these circumstances is not an ethically sound way of generating our energy.

It is quite possible that communities which might have been interested in hosting a nuclear waste store or repository will not be willing to host a facility to house an unknown future inventory. NFLAs share CoRWM's concern that the prospect of a new nuclear programme might undermine support for the Managing Radioactive Waste Safely process from some stakeholders and citizens and make it more difficult to achieve public confidence. (53)

Question 10

What do you think are the ethical considerations related to a decision to allow new nuclear power stations to be built? And how should these be balanced against the need to address climate change?

It is not ethical to continue generating radioactive waste while we have no solution to the problem of how to manage it. Building new reactors would be the worst way we could choose to tackle climate change and would most likely be counterproductive, so there is no need to balance ethical considerations against the need to tackle climate change. As one member of CoRWM has warned:

“[Nuclear power] would provide the illusion of a solution to the problems of global warming and energy security which required no fundamental changes in production or consumption. It is this business-as-usual aspect of nuclear that is its most insidious characteristic. ... The danger is that by focusing on nuclear we refrain from recognizing the scale of the challenge we face and shirk our responsibility for dealing with it”. (54)

Question 11

Do you agree or disagree with the Government's views on environmental issues? What are your reasons? Are there any significant considerations that you believe are missing? If so, what are they?

We all want to live within environmental limits and achieve a just society by means of sustainable economy. The UK Government has set out its principles of sustainable development that say that for a policy to be sustainable, it must respect five principles. One of those principles is to promote good governance, which means actively promoting effective participative systems of governance in all levels of society. (55)

The Government has described its planning white paper as designed to strengthen local democracy. (56) The Campaign to Protect Rural England (CPRE) says this is the 'opposite of the truth'. The very purpose of the

paper is to reduce local control in order to accelerate the consent procedure for major infrastructure projects (MIPs) such as nuclear power stations (and see NFLA Briefing Paper No.62, July 2007). The right of local people to participate fully in the inquiry process, including by giving evidence and cross-examining the developer's witnesses, is replaced by the sop of a right to be consulted by the developer, and an "open floor" soap box to permit them to voice their grievances. The Civic Trust says the intention of the planning white paper could not be clearer. It will cripple the ability of local communities to have any effective role in the holistic planning of their areas. (57) The Government should withdraw the planning white paper, and then implement an open and transparent debate on environmental issues.

Question 12

Do you agree or disagree with the Government's views on the supply of nuclear fuel? What are your reasons? Are there any significant considerations that you believe are missing? If so, what are they?

The Government says it believes there is significant evidence that there are sufficient high-grade uranium ores available to meet future global demands, and to fuel any new nuclear power stations constructed in the UK.

Neither the International Atomic Energy Agency (IAEA) (58) nor the OECD-NEA (59) addresses the uranium ore quality question. As the richer ores become exhausted and poorer and poorer ores are used, the continuing use of nuclear reactors could finally result in the production of more CO₂ than if fossil fuels were to be burned directly. According to Van Leeuwen after about 2016 the mean grade of uranium ore will fall significantly from today's levels. Whether large and rich new uranium ore deposits will be found or not is unknown. Within the lifetime of new reactors built today, sufficiently high-grade uranium resources could become severely depleted. The use of lower grade uranium would increase nuclear CO₂ emissions to the level of a gas-fired power station by 2070. (60) Clearly, this needs to be examined. (See Question 2) The Government says simply, there is no evidence we will have to mine lower grade ores. Surely if private investors are considering investing in up to ten power stations each costing around £2bn, and the Government is expecting these stations to make a major contributions to reducing the UK's carbon emissions, we will need more assurance that adequate resources exists than simply a 'lack of evidence' that they don't.

Question 13

Do you agree or disagree with the Government's views on the supply chain and skills capacity? What are your reasons? Are there any significant considerations that you believe are missing? If so, what are they?

The Government says the Sector Skills Council is supporting skills development Initiatives such as the Nuclear Skills Academy and new higher-education programmes should also help to maintain the UK's skills base in nuclear science and technology. However, it also points out that as nuclear power stations have a long lead time there is time for the industry to develop the necessary skills.

Far more urgent is the need for the Government to investigate any potential skills deficits that may be required to implement a sustainable energy strategy. The growth in demand for renewable technology has already led to concerns in the construction industry that contractors do not have the required skills for the installation of, for example, photovoltaic cells. (61) The Irish Government, for example, funds a Renewable Energy Skills project (RES) which is an independent organisation established to teach trades people how to install micro-renewables in an effort to promote clean energy in the country. (62)

Question 14

Do you agree or disagree with the Government's views on reprocessing? What are your reasons? Are there any significant considerations that you believe are missing? If so, what are they?

The Government says it has concluded that any nuclear power stations should proceed on the basis that spent fuel will not be reprocessed. This is not clear or strong enough. Reprocessing should be ruled out altogether. Although the consultation document appears to signal ministers' intention to abandon reprocessing, UK officials have said it simply gives guidance on "how to budget for" a potential new reactor, because the government "can't guarantee" that reprocessing facilities will be available. One UK source said the

government does not want to raise the issue of reprocessing because it fears that doing so would “derail” efforts to build support for construction of new reactors in the UK. When asked why the government was ruling out future reprocessing when the US “is starting to take steps toward recycling,” a DTI official said “ruling out” was probably “too strong” an expression - “it doesn’t close off [reprocessing] for all time ... If at some stage in the future, nuclear operators come forward proposing some different way of handling [spent fuel], things may change”. (63)

Question 15

Are there any other issues or information that you believe need to be considered before taking a decision on giving energy companies the option of investing in nuclear power stations? And why?

The NDA is currently carrying out a review of spent fuel management options, and on options for use or disposal of stocks of uranium and plutonium. It is unfortunate that the results of these reviews are not available to consultees. The consultation document says stocks of uranium and plutonium which have arisen from historic nuclear programmes could be used to produce MoX fuel.

The NDA has published a summary of the "Uranium and Plutonium: Macro-Economic Study". (64) The Study provides the NDA with a wide-ranging analysis of the possible options for the UK's embarrassing stocks of uranium and weapons-useable plutonium. It sets out the financial, socio-economic and environmental impacts of different options. The NDA says it will take these findings into account in its discussion with Government on the options for the future. The report says the UK has enough uranium and plutonium stockpiles to fuel three 1000 MWe reactors for their entire 60-year lives. (65) However, using this material as MoX fuel is subject to “significant downside risks”.

Transports of MoX fuel containing weapons-useable plutonium present a serious threat of nuclear terrorism. The consultation document points out that the Sellafield MoX plant is devoted to overseas customers, so the NDA may even be tempted to transport plutonium oxide to other MoX manufacturers, such as in France. In 2004 140kgs of weapons-grade plutonium was transported across the Atlantic from the USA, and then more than a thousand kilometres across France to Cadarache where it was fabricated into MoX fuel, before being transported back to the US in 2005. (66) The convoy’s journey across France was assessed by a U.S. nuclear security expert who concluded that it was at "high" risk from terrorist attack, with inadequate security protection. (67) This experimental shipment was a one off, but in France, MoX and plutonium shipments are routine and predictable. Each shipment contains the equivalent of 40 Hiroshima bombs per convoy that cross France every week to ten days. (68) A report, by Large and Associates, evaluates several scenarios, including road collisions, tunnel fires, and terrorist attacks, which might accidentally or intentionally release plutonium into the atmosphere. A hypothetical attack could result in 11,000 deaths from radiation exposure. (69)

The Government should rule out UK transports of MoX fuel and the use of MoX in new reactors before the end of the current consultation.

Question 16

In the context of tackling climate change and ensuring energy security, do you agree or disagree that it would be in the public interest to give energy companies the option of investing in new nuclear power stations?

Disagree. Investing in this dangerous, expensive technology would be counterproductive, as it would distract attention from what we really need to be doing – investing in energy efficiency and renewable energy. (70)

Question 17

Are there other conditions that you believe should be put in place before giving energy companies the option of investing in new nuclear power stations? (for example, restricting build to the vicinity of existing sites, or restricting build to approximately replacing the existing capacity)

It is unethical to build any new reactors and generate more dangerous nuclear waste when we still have to work out what to do with existing waste.

Question 18

Do you think these are the right facilitative actions to reduce the regulatory and planning risks associated with such investments? Are there any other measures that you think the Government should consider?

As indicated in answer to question 11 the whole tenor of moves to reduce regulatory and planning controls are moving in the wrong direction, and appear to be the opposite to the Government's stated intention of deepening democratic accountability in general by improving openness and transparency. Rather than reducing opportunities for public participation in the planning process, the Government should be looking at ways to increase the statutory duties of the Nuclear Installations Inspectorate to consult.

5. The justification process

As well as the main consultation, the Government is also consulting on the Justification process, Strategic Siting Assessment and Strategic Environmental Assessment. These are all dealt with together in a second document. The Government thinks it is prudent to start working on this 'facilitative' action now – even though theoretically it hasn't decided to definitely go-ahead with new reactors – so no time is wasted.

The justification process is meant to determine whether the benefits associated with a particular class or type of nuclear practice, outweigh the health detriment. In other words, applicants seeking justification for new reactor technologies will need to demonstrate that any health detriment is offset by the benefits associated with the practice. Benefits can cover economic, social or other benefits.

The Government expects to produce guidance for applicants seeking justification for new nuclear power station technologies and call for applications in early 2008. The timetable set out in the consultation document does not appear to allow for any consultation on the guidance document. However, Appendix A of this consultation document does give an indicative list of the information an applicant will be expected to provide, and the consultation asks if the list is "appropriate", and whether it is appropriate to consider several different reactor types together.

The Government expects to publish a decision in early 2009. If the Government receives applications for several different reactor technologies at the same time, it is expected that these will be dealt with together in the same draft decision document. (71)

The Government is proposing to curtail the role of planning inquiries in England and Wales. (72) Although the Generic Design Assessment (GDA), to be carried out by the Nuclear Installations Inspectorate (NII) and other regulators, is supposed to encourage public participation, there is only a limited statutory requirement for consultation on technical issues related to nuclear safety. (73) Four reactor types have been approved for entry into the first phase of the GDA. (74) None of these have ever been built in this country before. Only the European Pressurised Water Reactor (EPR) is being built anywhere else in the world and none of them have any operating experience. It is, therefore, essential that public scrutiny is maximised at as early a stage as possible. Respondents to the justification consultation should demand that (a) a consultation is held on the guidance to applicants and (b) each reactor-type is dealt with separately.

6. Strategic Siting and Environmental Assessments

The Strategic Siting Assessment (SSA) will determine the suitability of potential sites for new reactors. It will conclude with the publication of a Policy Statement on siting, setting out detailed criteria together with a

list of any proposed sites that have been assessed as meeting the criteria. Such a list would not preclude others from being put forward in future. The results of the SSA will inform a subsequent National Policy Statement (NPS) on new nuclear stations.

This consultation is just about the process. The first stage of the process proposed would be to consult in early 2008 on draft exclusionary and discretionary criteria to be applied, followed by publication of finalized criteria later in 2008, along with an invitation seeking nominations for sites. A draft list of nominated sites is then likely to be published for consultation in the early part of 2009. The SSA policy statement will then be expected to be published around mid-2009. Since this will then feed into the National Policy Statement on new nuclear power stations, it would be almost impossible for a local authority, or members of the public, to halt a proposal for a nuclear power station on the nominated list of sites after publication of the SSA policy statement. The independent “infrastructure planning commission” (“IPC”) would vet applications and take the decision on whether or not to approve the reactor, but the Commission will be obliged to approve the project if it has “*main aims* (sic) consistent with the relevant national policy statement.”

There clearly needs to be widespread local and regional consultation before nominated sites are cast in concrete in a National Policy Statement with limited opportunities for even the undemocratic IPC to halt the development of new reactors on approved sites.

References

- (1) Greenpeace Press Release 15th Feb 2007.
<http://www.greenpeace.org.uk/climate/climate.cfm?ucidparam=20070215133454&CFID=712028&CFTOKEN=90306941> Full High Court Judgement available at:-
<http://www.greenpeace.org.uk/MultimediaFiles/Live/FullReport/ERJRSullivanJudgement.pdf?&CFID=4713382&CFTOKEN=17459695>
- (2) Hansard 4th July 2007, Cmn 955
<http://www.publications.parliament.uk/pa/cm200607/cmhansrd/cm070704/debtext/70704-0003.htm>
- (3) Letter from Greenpeace lawyers to Gordon Brown dated 5th July 2007
<http://www.greenpeace.org.uk/files/pdfs/nuclear/gplettertobrown050707.pdf>
- (4) Hansard 11th July 2007, Cmn 1444
<http://www.publications.parliament.uk/pa/cm200607/cmhansrd/cm070711/debtext/70711-0003.htm>
- (5) For a longer discussion see for example: Nuclear Power is not the Answer to Climate Change, by Pete Roche.
http://www.nuclearspin.org/index.php/Nuclear_is_not_the_Answer_to_Climate_Change
- (6) Greenpeace has produced a suite of documents on Decentralised Energy:
See: http://www.no2nuclearpower.org.uk/reports/other_publications.php
- (7) Frank Barnaby and James Kemp, Too hot to handle? The future of civil nuclear power, Oxford Research Group, June 2007, http://www.oxfordresearchgroup.org.uk/publications/briefing_papers/pdf/toohottohandle.pdf
See also The Los Angeles Times 23rd July 2007, <http://www.latimes.com/news/opinion/la-ed-nuclear23jul23.0.378363.story?coll=la-opinion-center>
- (8) Amory Lovins, *Nuclear power: Economics and Climate Protection Potential*, Rocky Mountain Institute, Updated January 6, 2006. http://www.rmi.org/images/other/Energy/E05-14_NukePwrEcon.pdf
- (9) David Adam, "Nuclear Power Cannot Tackle Climate Change", *Guardian*, January 17, 2006
<http://www.guardian.co.uk/science/story/0,,1688034,00.html>
- (10) The role of nuclear power in a low carbon economy, UK Sustainable Development Commission, March 2006.
<http://www.sd-commission.org.uk/publications/downloads/SDC-NuclearPosition-2006.pdf>
- (11) Catherine Mitchell and Bridget Woodman, *New Nuclear Power: Implications For A Sustainable Energy System*, Warwick Business School for Green Alliance, April 2005.
<http://www.green-alliance.org.uk/uploadedFiles/Publications/NewNuclearPower.pdf>
- (12) Marie Woolf, "Don't Rush to Nuclear Power Warns Blair's Environment Advisor", *Independent on Sunday*, May 21, 2006. <http://news.independent.co.uk/uk/politics/article549529.ece>
- (13) For a historical look at the disastrous record of the UK nuclear industry see: Olaf Bayer and Chris Grimshaw, Broken Promises: Why the nuclear industry won't deliver, Corporate Watch, July 2007
<http://www.corporatewatch.org.uk/?lid=2968>
- (14) Gordon Mackerron, "Nuclear Power and the Characteristics of 'ordinariness' – the Case of UK Energy Policy", *Energy Policy* 32, pp 1957-1965, 2004. http://www.nera.co.uk/Publication.asp?p_ID=2213&login=6923124
- (15) Andrew Warren, Director of Association for the Conservation of Energy, Letter to the *Guardian* July, 13, 2006.
<http://politics.guardian.co.uk/green/story/0,,1819253,00.html>
- (16) Amory Lovins, More Profit with Less Carbon, *Scientific American*, September 2005
<http://www.sciam.com/media/pdf/Lovinsforweb.pdf>

- (17) Meeting the Energy Challenge, A White Paper on Energy, May 2007, Table 10.1, page 283
<http://www.berr.gov.uk/files/file39387.pdf>
- (18) Frank Barnaby and James Kemp, Too hot to handle? The future of civil nuclear power, Oxford Research Group, June 2007, http://www.oxfordresearchgroup.org.uk/publications/briefing_papers/pdf/toohottohandle.pdf
- (19) Jan Willem Storm van Leeuwen, Energy Security and Uranium Reserves, Oxford Research Group, Secure Options for a Safer World, Factsheet 4.
http://www.oxfordresearchgroup.org.uk/publications/briefing_papers/pdf/energyfactsheet4.pdf
- (20) “Keeping the lights on: Nuclear, Renewables, and Climate Change” (HC 584-1, April 2006):
www.publications.parliament.uk/pa/cm200506/cmselect/cmenvaud/584/58402.htm
- (21) Decoding Nuclear Nonsense, by Tom Burke, Open Democracy, May 25, 2007
<http://www.e3g.org/index.php/programmes/climate-articles/decoding-nuclear-nonsense-7-myths-and-their-antidote/P0/>
- (22) Independent 23rd May 2007 <http://comment.independent.co.uk/commentators/article2573270.ece>
- (23) See for example Fuel Cell Today 9th July 2007
http://www.fuelcelltoday.com/FuelCellToday/IndustryInformation/IndustryInformationExternal/NewsDisplayArticle/0_1602_9409.00.html
- Also see: <http://www.mpeeba3.com/gms/chp/index.html>
- (24) Hewitt, C (2001) “Power to the People: Delivering a 21st Century Energy System” IPPR.
<http://www.ippr.org.uk/publicationsandreports/publication.asp?id=152>
- (25) DTI (February 2003) ‘ Our Energy Future – Creating a Low Carbon Economy,’ Cm 5761.
<http://www.berr.gov.uk/files/file10719.pdf>
- (26) Insurmountable Risks: The dangers of using nuclear power to combat global climate change by Brice Smith. A report for the Institute for Energy and Environmental Research 2006
<http://www.no2nuclearpower.org.uk/reviews/review01.php>
- (27) Decoding Nuclear Nonsense, by Tom Burke, Open Democracy, May 25, 2007
<http://www.e3g.org/index.php/programmes/climate-articles/decoding-nuclear-nonsense-7-myths-and-their-antidote/P0/>
- (28) The Energy Review, Performance and Innovation Unit, February 2002, table 6.1 page 108.
<http://www.cabinetoffice.gov.uk/strategy/downloads/su/energy/TheEnergyReview.pdf>
- (29) See Opportunity Costs of Nuclear Power, New Nuclear Monitor, No.12
<http://www.nuclearpolicy.info/docs/nuclearmonitor/NNM12.pdf>
- (30) More profit with less carbon, by Amory Lovins, Scientific American, September 2005
<http://www.sciam.com/media/pdf/Lovinsforweb.pdf>
- (31) Independent 21st June 2007 <http://environment.independent.co.uk/lifestyle/article2688326.ece>
- (32) Energy Revolution: A sustainable pathway to a clean energy future for Europe, GPI Sept. 2005
<http://www.greenpeace.org/raw/content/international/press/reports/energy-revolution-a-sustainab.pdf>
- (33) ibid
- (34) Wind Force 12, GPI, GWEC, June 2005
<http://www.greenpeace.org/raw/content/international/press/reports/windforce-12-2005.pdf>
- (35) Offshore Wind: Implementing a new powerhouse for Europe, GPI, March 2005
<http://www.greenpeace.org/raw/content/international/press/reports/offshore-wind-implementing-a.pdf>
- (36) Sea Wind Europe, Garrad Hassan, GPI, Feb 2004.
<http://www.greenpeace.org/raw/content/international/press/reports/sea-wind-europe.pdf>
- (37) European Photovoltaic Industry Association Leaflet, January 2006
http://www.epia.org/documents/Leaflet_EPIA_2006.pdf
- (38) Solar Generation: solar electricity for over 1 billion people and 2 million jobs by 2020, GPI September 2006. <http://www.greenpeace.org/raw/content/international/press/reports/solar-generation-ii.pdf>
- (39) Future Marine Energy, Carbon Trust, 2006
<http://www.carbontrust.co.uk/Publications/publicationdetail.htm?productid=CTC601&metaNoCache=1>
- (40) Path to Power, BWEA, June 2006 <http://www.bwea.com/pathtopower/index.html>
- (41) Into the Blue, BWEA, 18th May 2004, <http://www.bwea.com/media/news/intotheblue.html>
- (42) For more information see: Climate solutions: Nuclear vs Sustainable Pathways, No2NuclearPower Briefing, January 2007, http://www.no2nuclearpower.org.uk/reports/Climate_solutions.pdf
- (43) Residual Risk: An account of events in nuclear power plants since Chernobyl in 1986, by Georgui Kastchiev et al, European Greens, May 2007
http://www.greens-efa.org/cms/topics/dokbin/181/181995.residual_risk@en.pdf
- (44) Hirsch, H et al (April 2005) Nuclear Reactor Hazards Report.
<http://www.greenpeace.org/international/press/reports/nuclearreactorhazards>
- (45) For more information see Nuclear reactor safety, No2NuclearPower Briefing, January 2007.
http://www.no2nuclearpower.org.uk/reports/Nuclear_Safety.pdf
- (46) For more information see Civil nuclear power and weapons proliferation, No2NuclearPower Briefing, January 2007. http://www.no2nuclearpower.org.uk/reports/Civil_Nukes_Proliferation.pdf
- (47) Report into the risks of nuclear transportation in the UK, Large Associates, March 2006.
www.greenpeace.org.uk/transporthazards

- (48) See Some comments on CoRWM's position on new build, by Prof. Andrew Blowers, CoRWM, March 2007. <http://www.corwm.org.uk/pdf/2162%20-%20Judicial%20Review%20on%20Energy%20Review.pdf>
- (49) See NFLA Radioactive Waste Policy Briefings Nos. 15, 16 & 17. <http://www.nuclearpolicy.info/publications/radwaste.php>
- (50) Future R&D Needs, by Gordon MacKerron, CoRWM, June 2007. <http://www.corwm.org.uk/pdf/2209%20-%20Future%20RD%20needs.pdf>
- (51) Guardian 25th June 2007 http://www.guardian.co.uk/uk_news/story/0,,2111332,00.html
- (52) Guardian letters 28th June 2007 <http://www.guardian.co.uk/letters/story/0,,2113027,00.html>
- (53) CoRWM New Build Statement, March 2006, <http://www.corwm.org/PDF/1593.1%20-%20New%20build%20statement.pdf>
- (54) David Elliott (Ed), Nuclear or Not? Does Nuclear Power Have A Place in a Sustainable Energy Future? Palgrave, 2007. <http://www.no2nuclearpower.org.uk/reviews/review02.php>
- (55) UK Government Sustainable Development website: Shared UK principles of sustainable development. <http://www.sustainable-development.gov.uk/what/principles.htm>
- (56) Planning White Paper: Steamroller for Major Infrastructure Projects. Nuclear Free Local Authorities Briefing No.62, 2nd July 2007 [http://www.nuclearpolicy.info/docs/briefings/A178\(NB62\).pdf](http://www.nuclearpolicy.info/docs/briefings/A178(NB62).pdf)
- (57) Guardian 5th June 2007 <http://www.guardian.co.uk/letters/story/0,,2095346,00.html>
 Planning White Paper: Our concerns, CPRE, May 2007
<http://www.cpre.org.uk/campaigns/planning/planning-system/planning-system-our-concerns>
- (58) UN 5th June 2006 <http://www.un.org/apps/news/story.asp?NewsID=18741&Cr=uranium&Cr1=>
- (59) Uranium 2005, Resources Production and Demand, [The "Red Book"] IAEA and OECD-NEA, 1st June 2006 http://www.iaea.org/NewsCenter/News/2006/uranium_resources.html
<http://www.nea.fr/html/pub/ret.cgi?id=new#6098>
- (60) Energy Security and Uranium Reserves, Oxford Research Group, Factsheet 4 by Jan Willem Storm van Leeuwen <http://www.oxfordresearchgroup.org.uk/publications/briefings/energyfactsheet4.pdf>
- (61) Contract Journal 18th July 2007. <http://www.contractjournal.com/Articles/2007/07/18/55613/national+federation+of+roofing+contractors+contractors+1+ack+skills+to+fit+green+technology.html>
- (62) Edie 18th July 2007 http://www.edie.net/news/news_story.asp?id=13305&channel=1
- (63) Nuclear Fuel, 18th June 2007
- (64) NDA News 2nd July 2007 <http://www.nda.gov.uk/news/uranium-plutonium.cfm>
- (65) World Nuclear News 4th July 2007 http://www.world-nuclear-news.org/wasteRecycling/UK_considers_uranium_and_plutonium_stockpiles_040607.shtml
- (66) U.S nuclear hypocrisy fuelled by arrival of experimental plutonium shipment, GPI Press Release 12th April 2005. <http://www.greenpeace.org/international/press/releases/mox-shipment-arrival>
 Greenpeace exposes terror target, 3rd March 2004. <http://www.greenpeace.org/international/news/terror-targets-exposed>
- (67) Security Assessment Report for Plutonium Transport in France, Ronald E Timm, Greenpeace International March 2005. <http://www.greenpeace.fr/stop-plutonium/en/TimmReportV5.pdf>
- (68) See http://www.greenpeace.fr/stop-plutonium/en/camions_en.php3
<http://www.greenpeace.org/international/press/releases/greenpeace-blocks-top-secret-t>
- (69) Potential Radiological Impact and Consequences arising from incidents involving a consignment of plutonium dioxide under transit from Cogema La Hague to Marcoule/Cadarache, Large Associates, 2nd March 2004
<http://www.greenpeace.org/raw/content/international/press/reports/road-accidents-and-terrorist-a.pdf>
- (70) See Nuclear Power and Future Energy Systems by Dr Bridget Woodman in Nuclear Power: Unnecessary, dangerous and expensive. <http://www.nuclearpowernothanks.co.uk/>
- (71) See Justification Process for New Nuclear Power Stations in the UK: A Discussion of the Basis for Considering Together Different Candidate Reactor Systems, Nexia Solutions, March 2007
<http://www.berr.gov.uk/files/file39200.pdf>
- (72) See NFLA Briefing No. 62, July 2007. [http://www.nuclearpolicy.info/docs/briefings/A178\(NB62\).pdf](http://www.nuclearpolicy.info/docs/briefings/A178(NB62).pdf)
- (73) Guidance on Generic Design Assessment, HSE, Updated 16th July 2007.
<http://www.hse.gov.uk/nuclear/reactors/guidance.htm>
- (74) Dept for Business, Enterprise & Regulatory Reform Press Release 5th July 2007
<http://www.gnn.gov.uk/Content/Detail.asp?ReleaseID=297087&NewsAreaID=2>