To: Mr Wicks

From: **REDACTED**
Energy Review Team

Tel: 020 7215 5552
Fax: 020 7215 0339

Date: 5 October 2006

ci: PS/Secretary of State
PS/Sir Brian Bender
Willy Rickett
Paul McIntyre
Mark Higson
Daron Walker
Energy Review Team
REDACTED
SPADs

Response to House of Commons Trade and Industry Committee Report: *New Nuclear? Examining the Issues*

Issue

1. How to respond to the Trade and Industry Committee Report on new nuclear build.

Recommendation

2. That you respond along the lines of the attached draft at Annex B. A cover letter for you to send to the Chair of the Committee is attached at Annex A.

Timing

3. You are due to meet the Committee on Tuesday 10 October, and it would be helpful to submit a response for this meeting.

Argument

4. The vast majority of the Committee's conclusions reflect Government's position and proposals as set out in the Energy Review Report. For example, the Committee recommends:

- making clear that any new nuclear build (including waste and decommissioning) would be funded by the private sector;
- reforming the planning and licensing processes, which would benefit wider energy investment projects as well as nuclear;
- giving greater certainty over a long term carbon price, which would encourage low carbon generation.

5. We can say that we are addressing all these recommendations. Indeed, given the fit between most of the Committee's conclusions and the Energy Review Report, many of the suggested responses in Annex B are taken directly from the Review Report.

6. Remarks made by the Committee's Chair at the time of the report's publication might suggest that the report was far more critical of Government's

position than was actually the case. The main criticisms in the Committee's report are around public engagement, and the speed at which the Energy Review was conducted. This has also just been cited in Greenpeace's Judicial Review Challenge, and, as with our response to Greenpeace, we can respond to this criticism robustly.

7. For example, Committee's Report quotes Jonathan Porritt as saying "[the DTI] have not touched the general public in the way you would expect a consultation engagement actually to do". However, we can point to our extensive stakeholder engagement during the Review consultation, and our actions to make the consultation more accessible. In addition to the other consultations flagged in the Energy Review Report, we are currently in the middle of a consultation on the nuclear policy framework, and we have committed to a number of other nuclear-specific consultations (for example around Justification and Strategic Siting), which would follow the Energy White Paper. *(Conclusions 7-10.)*

8. Some of the Committee's conclusions also refer to taking forward the recommendations of the Committee on Radioactive Waste Management (CoRWM). Government is due to issue a formal response to CoRWM as soon as practicable after Parliament returns from recess, and the devolved administrations will do likewise. We expect this to be around the end of this month, but the date is not yet absolutely fixed. While we can make clear that there is a process in place to tackle legacy waste (including setting up the NDA and commissioning the CoRWM report), and that Government will set out a process under which the CoRWM recommendations will be taken forward, it is important that our response to the Trade and Industry Committee does not pre-empt Government's response to the CoRWM recommendations. We should also reiterate our position set out in the Energy Review Report that the private sector would be responsible for meeting the decommissioning and waste management costs arising from any new nuclear build. (Conclusions 17-19 in particular.)

9. **READCTED NAME** is providing Q&A briefing on the nuclear report, as part of your briefing pack for your appearance before the Trade and Industry Committee.

REDACTED NAME

ANNEX A

Peter Luff MP
Chairman
Trade and Industry Committee
House of Commons
7 Millbank
London
SW1P 3JA

Dear

TRADE AND INDUSTRY COMMITTEE REPORT – NEW NUCLEAR? EXAMINING THE ISSUES

I am grateful to the Trade and Industry Committee for its report *New nuclear? Examining the issues.*. Please find enclosed my response to the Committee, which I hope that you and the Committee will find helpful.

I am copying this letter and its attachment to the Leader of the House of Commons.

MALCOLM WICKS

Annex B

DTI response to Trade and Industry Committee Conclusions and Recommendations

Overview

The Government is grateful to the Trade and Industry Committee for its timely examination of issues surrounding new nuclear build.

As the Committee will be aware, the Prime Minister launched the Energy Review in November 2005, and the Government's conclusions were published on 11 July 2006 in *"The Energy Challenge"*[1]. This document puts forward a wide-ranging evidence-based package of proposals designed to reduce the demand for energy, to secure a mix of clean, low carbon energy sources and to streamline the planning process for energy projects.

One of the Government's conclusions was that nuclear has a role to play in the future UK generating mix alongside other low carbon generating options. Within the UK's market-based framework, it is for companies to make investments in new power stations, including investments in new nuclear stations. However, evidence gathered during the Energy Review consultation supports the Committee's view that if new nuclear is to play a role in the future of UK electricity generation, Government needs to address a number of regulatory barriers. Government is currently consulting on proposals (set out in Annex A of the Energy Review Report) to address these barriers through a new policy framework for nuclear build.

The proposals set out in this consultation, and elsewhere in the Energy Review Report are consistent with many of the Committee's conclusions and recommendations.

3. If the Government really wishes to meet its objectives for carbon emissions and energy security, its policy must sustain those technologies it wishes to be part of the energy mix. However, we do not believe that the way to energy security is for the Government to fix the proportion of the energy mix that should come from particular technologies. Rather, it should ensure a fair competitive environment for existing technologies, while supporting innovation in new ones. A policy designed to enable the construction of new nuclear power stations would be credible only if it was based on four key elements:

• A broad national consensus on the role of nuclear power, that has both cross-party political support and wider public backing;

[1] http://www.dti.gov.uk/energy/review/page31995.html

• A carbon-pricing framework that provides long-term incentives for investment in all low carbon technologies;
• A long-term storage solution in place for the UK's existing radioactive waste legacy; and
• A review of the planning and licensing system to reduce the lead time for construction. (Paragraph 5)

- *Broad national consensus*

Government agrees that it should continue to make the case for nuclear power remaining part of our generating mix, with a view to building broader public acceptance for this.

- *Carbon pricing*

Government concluded that we should continue to work with the European Commission and the other Member States to strengthen the EU ETS so that it creates clear incentives for investment in low carbon technologies. We will also keep open the option of further measures to reinforce the operation of the EU ETS in the UK should this be necessary to provide greater certainty to investors.

- *Waste*

Government is tackling the waste issue. Since the 2003 EWP we have set up the Nuclear Decommissioning Authority and Committee on Radioactive Waste Management to devise a strategy to deal with our legacy waste. This work is essential, irrespective of any new build. The NDA is setting a UK wide strategy for more effective decommissioning and clean up of its sites.

CoRWM published its interim report in April 2006, and final report in July 2006, concluding that deep geological disposal in a repository was the best available approach. The Government will respond in a formal statement to Parliament as soon as practicable after recess, as will the devolved administrations, setting out how work to manage long-term waste will be taken forward.

While CoRWM has no position on the desirability or otherwise of nuclear new build, it has however said that "in principle" new build wastes could be accommodated within its options, although this would raise practical issues about the size, number and location of facilities, which would need to be properly assessed.

- *Planning and licensing*

Government agrees that the planning and licensing systems can pose barriers to investment across the energy sector. This is why we are taking action to remove uncertainty and delays in the planning and licensing processes to reduce the barriers to investment for developers. Further details on our proposals are set out in answer 11 below.

4. Two of these areas require action for the successful implementation of energy policy, regardless of a decision on nuclear power. The planning system and carbon pricing are as much issues for renewable energy and the future of fossil fuel plants as they are for nuclear. Moreover, it would be necessary to ensure any decision in favour of new nuclear build would not undermine efforts elsewhere, such as in energy efficiency. (Paragraph 6)

As stated above, Government agrees that the planning system and carbon prices are issues which affect the whole energy sector. There is no single solution to meeting our energy challenges; we need to save energy through energy efficiency, and we also need low carbon generating options such as renewables and nuclear.

5. In addition, there are issues which the Government and Parliament must consider that have a strong ethical dimension and will ultimately require a political judgment. These include:

• Whether, as a country, we should create new radioactive waste, which subsequent generations will have to manage;
• Whether the UK's nuclear policy poses internal security risks and undermines efforts to prevent proliferation; and
• The extent to which the UK needs to demonstrate leadership in reducing carbon emissions, given the modest contribution it can make relative to the rest of the world. (Paragraph 7)

- *Waste*

Investment in low carbon technologies will benefit future generations in helping to address climate change. The Energy Review is part of an ongoing process through which climate change issues, including nuclear power and waste, are considered. This process will continue with further consultation and public engagement; for example, the Justification process will need to consider whether the economic, social or other benefits of a new nuclear practice outweigh the potential health detriment it may cause. As the Committee states, modern nuclear plants produce significantly less waste than earlier generations of nuclear reactors.

- *Security and proliferation*

Government agrees that the importance of security and the risks of proliferation are of the utmost concern. Although the international security situation is expected to remain at current levels in the medium to long term, the Office for Civil Nuclear Security (the UK security regulator) considers that new nuclear build would be unlikely to increase risks to the UK. Any new plant would be built taking the current threat environment into account, with robustness and security built-in, rather than retro-fitted as with the existing plant.

An international mechanism for keeping track of nuclear material, referred to as Safeguards, is operated by the International Atomic Energy Agency (IAEA) and the European Commission to detect and prevent diversion of this material from peaceful use. The UK, as a nuclear weapons state, has a voluntary agreement with the IAEA and is a signatory of the EURATOM Treaty, both of which cover all our civil nuclear installations, as part of this regime. Any new nuclear reactors would be covered by these agreements.

The proliferation risks from an increase in the number of modern reactors in the UK are small; all of the plants that industry have highlighted as potential candidate designs for new build in the UK can be considered as low proliferation risk. To further international non-proliferation objectives, the UK is working with US, France, Russia, Germany and other states, as well as the IAEA, to establish international assurance of supply for nuclear fuel which is aimed at avoiding widespread investment in sensitive enrichment and reprocessing plants, which can have a greater proliferation risk.

- *UK leadership*

Climate change is a global problem requiring urgent international collective effort built on a shared understanding of the scale of action needed to stabilise the climate. There must be shared commitment to take action in response, involving national and local governments, businesses and individuals.

A clear, disciplined multilateral framework that produces the investment in research and development in science and technology is needed to create a global low carbon economy. The UK, working in partnership with other countries, can play a leading role in assembling this framework, drawing on important lessons learnt in different countries and sectors.

6. Finally, our Report highlights issues surrounding nuclear power, where there has been debate, or where, underpinned by the principles outlined above, the market and the Government should be able to find a solution. Among our conclusions are that:

• Although new reactors may be able to use existing sites, this cannot be guaranteed. Further research would be needed to identify alternative sites;
• There are reactor technologies that could seek licensing in the UK now, although we would be amongst the first in the world to use them;
• Constraints in the domestic skills capacity could be overcome with sufficient investment and use of international resources;
• Constraints in infrastructure capacity could be overcome with sufficient investment, although there are concerns regarding certain reactor components;
• There should be sufficient uranium supplies to meet any future UK demand;
• Financing the management of decommissioning and waste storage is possible, provided a system for charging the industry is in place from the start;
• The UK has the market players willing to deliver a programme of new build, although the current electricity market does not provide favourable conditions for them to do so;
• Nuclear power is a low carbon source of electricity, comparable to renewable energy; and
• There is a clear understanding that the costs of developing new nuclear power stations, including subsequent decommissioning and waste disposal, would be met by the private sector developers of each station. (Paragraph 8)

Government considered these issues as part of the Energy Review, and came to similar conclusions to those set out above. These issues are covered in greater detail in answers 12-15, 17-22, and 26 below.

7. Finally, we are concerned about the manner in which this Energy Review has been conducted. Throughout the process, the Government has hinted strongly that it has already made its mind up on nuclear power. The last review took three years to complete, yet this one has been conducted in the space of six months, and has focused primarily on the electricity sector, at the expense of consideration of transport and heating—both equally important sources of carbon emissions in the UK. This has not been an Energy Review, but an Electricity Review. (Paragraph 9)

Ministers were clear throughout the Energy Review process that no decisions had been taken on nuclear in advance of the Review's conclusion. The Review studied the evidence, and Government has published the basis on which it reached a view.

This has been an Energy Review, looking at all aspects of energy supply and demand. There is no single solution to meet our energy challenges. The measures proposed in the Energy Review are ambitious, tackling carbon emissions across many sectors including industry, households and transport.

8. What is more, it is clear to us that the outcome of the Energy Review has largely been determined before adequate consideration could possibly have been taken of important evidence that should inform the Government's policy decision. This includes the Committee on Radioactive Waste Management's final report and recommendations for the long-term storage of the UK's high level radioactive waste, expected at the end of July 2006; and the Heath and Safety Executive's recently published expert report, which includes analysis of the potential for pre-licensing of nuclear reactors. Further, there has been insufficient analysis of the extent of the 'energy gap' the UK faces, for example, given the potential for further lifetime extensions of some of the existing nuclear fleet. All of these areas bear crucially on the key principles we have highlighted above. (Paragraph 10)

CoRWM published its interim report in April 2006, and its final recommendations, published in July, were in line with those in its interim report. The Committee's work has been undertaken in a very open and transparent way. The Review engaged CoRWM as a key stakeholder and source of expert knowledge during the course of the Energy Review consultation. However, we were clear that a long-term solution for waste had to be found, irrespective of whether there was new build. CoRWM's job was to advise on what this should be.

We are grateful to the HSE for the work they have done to look at the health and safety risks associated with a number of generating technologies and the potential role of pre-licensing assessments of candidate designs for nuclear power stations. We have worked closely with HSE throughout the Energy

Review, to ensure the Review's conclusions took full account of the HSE's analysis. The HSE's work on prelicensing is about how best to improve the licensing process; it does not bear on the issue of principle as to whether nuclear has a role to play in the future generating mix.

On the need for new electricity generating capacity, the Review's assessment was that around 25GW of new capacity is likely to be needed over the next 20 years. This assessment was based on a number of assumptions including that existing nuclear plant will be decommissioned according to the currently assumed timetable. The decision to apply for an extension of the lifetime of nuclear plants is a decision for the operators. It will be for British Energy to consider the options for lifetime extensions for its plants; there are no plans to extend the BNFL Magnox fleet.

Building a national consensus

9. A clear government commitment to the future role of nuclear power, based on a broad cross-party political consensus, would be necessary for the power industry to be willing to invest in a new programme of reactors. However, market delivery of new build, and the absence of public subsidy and guarantees, would constrain the Government's ability to determine the scope of any new programme. What is more, the way in which it has conducted its Energy Review to date suggests that the Government will have to work hard if it is to gain cross-party and wider public support for its policy decisions. (Paragraph 23)

Group with 10.

10. Public opinion on new nuclear build is mixed. Where it is favourable, this is contingent on factors such as the UK reaching a long-term solution to its existing radioactive waste legacy, and the assumption that new nuclear power would be within the context of a range of other low-carbon technologies contributing to the energy mix. Of itself, the Energy Review does not represent a sufficient public engagement on the long-term issues of energy policy. With regard to nuclear power, this would require continuing dialogue both at a national level on wider policy issues, and at a local level on, for example, siting issues. Both approaches are vital for building a national consensus on the Government's energy policy. The Energy Review statement cannot be the Government's final word. (Paragraph 31)

Government agrees that the Energy Review is part of a process of engagement that is ongoing, and includes current and future consultations on nuclear issues.

In forming conclusions, the Review Team analysed the vast amount of evidence gathered during the Energy Review consultation. Over the consultation period Ministers and the Energy Review team were engaged in around 300 consultation

activities with a wide range of organisations across the energy and environment landscape - business and industry representatives, green NGOs and consumer groups. The issue of civil nuclear power was discussed at most of those engagements.

The public will continue to have opportunities to engage in the consideration of proposals for nuclear new build, both through the setting of the policy framework for new build (currently out for consultation), and also in every nuclear proposal brought forward by industry. We are currently seeking views on the most appropriate stages of the regulatory process at which issues relating to new nuclear build should be discussed, to give people the most effective way to participate and discuss the relevant issues. Our proposed policy framework would see national and strategic issues discussed upfront at a national level, leaving local planning inquiries to focus on local issues.

Planning and licensing

11. Evidence that we received stated that the current planning and licensing systems are a significant deterrent for investment in new nuclear power stations in the UK. To overcome this problem, the Government would need to take a more managed approach to the entire regulatory process, including resolving the national debate on nuclear power early on, and through the pre-licensing of generic reactor designs. Whilst we accept that the Government should do what it can to manage the regulatory risks faced by potential operators, we have doubts as to the extent to which it will be able to achieve this. Factors militating against success include its past experience with planning reform, the role of the Scottish planning system, the available skills base, and the extent to which the Government would be willing to close down public debate in order to meet any regulatory timetable, and whether such changes would maintain public confidence. Finally, we note that the issue of planning delays applies to the whole of the energy sector, and is not a concern specific to nuclear power. (Paragraph 53)

The UK needs a planning framework for energy projects that takes account of both national and local issues, reaches timely decisions and provides more certainty of the duration of the process, while encouraging the public to participate in the system. We are committed to making fundamental changes to the planning system, and will be making a further announcement once other cross-Whitehall work in this area; including the Barker Review of Land Use Planning. The Government has also embarked on a programme of work to tackle the planning barriers for developers of energy infrastructure. This will come into effect from next year and will help inform future more fundamental changes.

This programme of work will create an energy planning system with three key elements:

- Government setting a strategic context for planning applications for major energy infrastructure developments of national importance;
- New and more efficient procedures for the consenting regimes to enable streamlined inquiries to focus on the relevant issues; and
- Appropriate mechanisms to ensure timely action by decision makers to prevent delays at the end of the consenting process.

These proposals are not about limiting people's ability to participate in the planning system. Our proposals are about giving people the best opportunity to debate all the important issues in relation to proposed developments at the most appropriate level. Where there are discussions of a national or strategic nature it is right that people get to debate these issues at that level. We are committed to maintaining a fair, open and transparent system, with the opportunity for the fullest public engagement.

These proposals are not just about nuclear power: they will help the development of all energy projects

Finding suitable sites

12. The siting of a potential new generation of reactors in the UK could be aided by locating them next to existing nuclear power stations. There are possible advantages from doing this with regard to public acceptance, licensing and grid access, although none of these is guaranteed. However, the availability of some of these sites may be affected by rising sea levels and coastal erosion, arising from climate change. As a result, more research would have to be carried out on these potential effects before the industry could proceed. In addition, we are unclear as to how the Government would make existing sites available to the nuclear industry, given that many of them are privately owned. There would need to be a potentially difficult commercial negotiation with the current owner—probably British Energy—before development could proceed. (Paragraph 64)

It is for any developer to make proposals regarding the site of a new power station. Industry has indicated that the most attractive sites are likely to be next to existing nuclear power stations. Government will undertake a strategic siting assessment to identify the criteria for locations where Government would support proposals for new nuclear power stations.

On the question of rising sea levels, the Committee referenced a report by Nirex on the suitability of sites for a long term waste repository. The Nirex report found that over a timescale of 300 years and with no active flood defence protection that many existing nuclear sites would not be suitable for a long-term waste solution. However, it is not possible to make a parallel with a generating station with a 40-60 year life with active flood defences (which must be approved by safety regulators).

It will be up to potential participants in new build to discuss with owners appropriate access to suitable sites. Government will monitor whether an appropriate market in suitable sites is developing.

Choosing the right technology

13. Of the two main reactor designs viable for the UK, neither has yet been built anywhere in the world. There will, therefore, be both technical and cost uncertainties associated with any new nuclear plant, the risk of which could be mitigated by using a single reactor design for all new build. However, in a liberalised electricity market with competing consortia, each vying to build one or more new power stations, there is no guarantee that a single reactor design would be chosen for all new build. To a certain extent investment decisions would be influenced by pre-licensing generic designs, as those so licensed would have a significant cost advantage. Moreover, costs will decrease as each reactor of the same design is built. (Paragraph 73)

Regulators will, as now, have to approve all aspects of any proposed nuclear power plant. Any new nuclear build would be initiated, funded, constructed and operated by the private sector. It will be for industry to apply for the prelicensing of particular reactor designs; the choice of which prelicensed reactor to build is a commercial decision.

Accessing skills and plant

14. The UK's domestic supply chain could meet only a proportion of the skills requirements that a programme of nuclear new build would pose. Although there are considerable concerns with regard to the current shortage of domestic nuclear skills, there are signs of a pick-up in this area. The domestic supply chain could also meet a proportion of the infrastructure requirements of a new build programme. Where there are shortfalls, the global market should be able to fill these gaps, though there are constraints regarding a few important reactor components. The growth in worldwide interest in new nuclear build also means that the relatively small UK market will face fierce competition in accessing skills and plant from other countries. As such, a clear and long-term commitment to nuclear power from the Government would be key both to timely investment in the domestic supply chain and for ensuring the global sector's willingness to engage in the UK market. (Paragraph 84)

The issues of infrastructure and skills capacity were raised during the Energy Review. As set out in the Energy Review Report, Government agrees with the Committee's conclusion that potential constraints could be overcome. In committing to a number of measures to remove regulatory barriers to nuclear new build, Government is helping to create the conditions for action in the supply chain.

Fuel availability

15. As regards fuel availability, demand for uranium is set to increase markedly in the future, with greater global energy consumption, particularly in East Asia. In the short-term we have concerns about the availability of fuel supplies as secondary sources, such as commercial inventories, are used up. However, in the long-run we believe increased prices and global demand will help maintain reliable uranium supplies, thus not representing a constraint on any new nuclear build in the UK. This provides some reassurance about fuel availability, as it currently seems unlikely that new nuclear power stations would be in a position to use fuel reprocessing to recycle their nuclear waste back into re-usable uranium. (Paragraph 95)

As set out in the Energy Review Report, Government agrees that reliable uranium supplies are likely to be maintained. This is supported by comprehensive analysis by the International Atomic Energy Agency.

Security and proliferation

16. The importance of security and the risks of proliferation are of the utmost concern to the Government in protecting its citizens. As such, it is vital for the UK civil nuclear industry to adhere to international treaties and uphold the highest regulatory standards. While these considerations should not be neglected in the debate on new nuclear power stations in the UK, we do not believe that such a programme would pose a significant additional security or proliferation risk, although by definition it extends the period of that risk. However, we accept, too, that there are ethical considerations to take account of in this debate, and that the UK's position should not necessarily be determined on the basis of the relative risk any programme would present. (Paragraph 108)

Government agrees that the importance of security and the risks of proliferation are of the utmost concern, and that it is vital for the UK civil nuclear industry to adhere to international treaties and uphold the highest regulatory standards.

Although the international security situation is expected to remain at current levels in the medium to long term, the Office for Civil Nuclear Security agrees with the Committee's assessment that new nuclear build would be unlikely to increase risks to the UK. Any new plant would be build taking the current threat environment into account, with robustness and security built in.

Managing decommissioning and long-term waste disposal

17. Regardless of a decision on new nuclear build, the UK has a significant radioactive waste legacy requiring a long-term solution. Advances in technology mean that the decommissioning of new reactors should be cheaper and simpler. The volume of waste generated would also be smaller—10 new reactors would add only 10% to the existing volume of radioactive waste in the UK—although the radioactivity of this waste would be substantially greater. Moreover, in addition to considering the extent to which new build would increase the UK's future waste problem, the Government must also address the ethics of producing new radioactive waste versus the environmental consequences of not doing so, for example with regard to climate change. (Paragraph 122)

Group with 19.

18. Clearly, the more advanced the Government's planning for a long-term repository, the greater will be the certainty of the cost of that solution. Given the current pace of the Energy Review process, the Government appears to be cutting off this possibility. If it decided in favour of a new nuclear programme, it would have to act quickly in taking forward and building on the CoRWM recommendations, for the issue of waste to be resolved by the time investments were being made. This would also be vital for gaining public acceptance of new nuclear build. While we do not believe that this is impossible, the Government would have to prove that it can perform better than previous governments in developing a long-term solution. (Paragraph 136)

Group with 19.

19. The nuclear industry told us that a fundamental pre-condition for new nuclear build is that the Government puts in place a strategy for the long-term disposal of its existing radioactive waste legacy. This would not only be in accordance with its existing policy, but would be necessary to gain the support of both industry and the public for a programme of new build. However, successive governments' record to date in delivering a long-term solution has been woeful. The Committee on Radioactive Waste Management's recommendations provide an opportunity to put right this situation, although these should in no way be taken as giving a 'green light'**82** for new build. Key to finding a long-term storage site will be the active engagement of local communities under the principle of 'volunteerism', bearing in mind the need to have clear definitions and processes to allow local communities to decide on the issues. With regard to a long-term storage facility, the waste and decommissioning costs arising from any new build would have to be borne by the operator. This poses risks given it is still many years before a repository will be in place, and hence its potential cost is highly uncertain. (Paragraph 142)

Government is tackling the waste issue. Since the 2003 Energy White Paper we have set up the Nuclear Decommissioning Authority and Committee on

Radioactive Waste Management to devise a strategy to deal with our legacy waste. This work is essential, irrespective of any new build. The NDA is setting a UK wide strategy for more effective decommissioning and clean up of its sites. CoRWM published its interim report in April 2006, and final report in July 2006, concluding that deep geological disposal in a repository was the best available approach.

Government will respond to CoRWM's final report in a formal statement to Parliament as soon as practicable after recess, as will the devolved administrations, setting out a process by which work to manage long-term waste will be taken forward.

Investment in low carbon technologies will benefit future generations in helping to address climate change. The Energy Review is part of an ongoing process through which climate change issues, including nuclear power and waste, are considered. This process will continue with further consultation and public engagement; for example, the Justification process will need to consider whether the economic, social or other benefits of a new nuclear practice outweigh the potential health detriment it may cause. As the Committee states, modern nuclear plants produce significantly less waste than earlier generations of nuclear reactors.

Government also agrees that the private sector would meet full decommissioning costs and their full share of long term waste management costs arising from any new nuclear build. Government will appoint an individual with senior management or financial experience of major capital investment projects to lead the development of arrangements for the costs associated with new build decommissioning and waste management, based on the principles set out in the Energy Review. We will aim to establish principles of funding so that potential developers have sufficient clarity before committing substantial expenditure. Further details on the work programme and timetable will be published by the time of the Energy White Paper.

Financing nuclear new build

20. The UK's liberalised electricity market does not provide favourable conditions for investment in new nuclear build. Nuclear's high capital cost and long lead times act as a disincentive to investors in a market where the focus is on short-term pay-back and where prices in recent years have been uncertain and volatile. However, the structure of the market, dominated by a small number of large firms with the ability to raise sufficient finance, could be conducive to the delivery of new nuclear power stations were the Government to create the appropriate framework. (Paragraph 150)

Group with 22.

21. The Government should set a policy framework that treats each source of energy fairly, letting the market determine the generation mix, based on its own view about the relative risks and costs. Here, 'fair' treatment includes areas considered in this Report, particularly the need for a political consensus, a rational and long term carbon allocation, and the planning system. It should also cover the way in which different forms of generation are rewarded in the market. (Paragraph 163)

Group with 22.

22. There is a high degree of uncertainty surrounding the cost of nuclear power because of a lack of data relevant to the UK. That which exists suggests nuclear energy may be economically viable in a scenario where gas prices remain high, but we do not feel this is a sufficient basis on which to draw robust conclusions. However, if the
Government wishes the market to deliver new nuclear build, we recommend that it should be for the market to decide to what extent it has confidence in its own cost estimates in deciding whether or not to invest. The Government should make it clear that all the costs of building, operating and decommissioning new nuclear power stations will fall to the private sector investors who build those stations. These costs are a concern for investors—not the Government or the taxpayer. The role of Government, in the first instance, should be to ensure that all sources of generation are treated 'fairly' within the market. (Paragraph 164)

Government agrees with the Committee's recommendation that any new nuclear power stations would be proposed, developed, constructed and operated by the private sector, who would also meet full decommissioning costs and their full share of long-term waste management costs.

Government does not take a view on the future relative costs of different generating technologies; we agree with the Committee's conclusion that it is for the private sector to make these judgements, within the market framework established by Government. The actual costs and economics of new nuclear will depend on, amongst other things, the contracts into which developers enter,

and their cost of capital for financing the project. Based on a range of plausible scenarios, the economics of nuclear now look more positive than at the time of the 2003 Energy White Paper, but it will be for the private sector to make commercial decisions on investment in nuclear.

Pricing carbon emissions

23. If the Government were to support nuclear power on the basis of its contribution to reducing emissions, then it would need to do this within a policy framework that rewarded low carbon technologies. (Paragraph 170)

Group with 25.

24. Our predecessor Committee argued on several occasions that the CCL was neither a straightforward carbon tax, nor, because of the complexity of the Climate Change Agreement arrangements, was it a very effective means of encouraging energy efficiency. They felt it detracted from the effort to provide a long-term market-based costing of carbon emissions. So do we. (Paragraph 174)**83**

Group with 25.

25. The nuclear industry believes that some form of stable long-term carbon pricing is the only means by which new nuclear build could be funded. We think that a technology-neutral form of long-term carbon pricing is essential if the Government is to achieve its objectives of reducing carbon emissions and allowing the market to determine the precise energy mix. This applies whether the Government decides for or against new nuclear build. The current EU ETS does not provide an adequate mechanism. There are various ways in which the Government could provide a longterm price for carbon, including carbon contracts and fixed price guarantees. Of these, we are attracted by the proposal of auctioning long-term contracts for future reductions in carbon emissions as a means of creating the incentives for investment in all low carbon technologies. We note that the Government is already beginning to accept the principle of this through the auctioning of allocations in Phase 2 of the EU ETS. (Paragraph 185)

Government agrees with the Committee's recommendation that a technology neutral form of long term pricing is essential to achieving our objectives of reducing carbon emissions and allowing the market to determine the precise energy mix. In the Energy Review, Government concluded that we will continue to work with the European Commission and the other EU Member States to strengthen the EU ETS so that it creates clear incentives for early investment in low carbon technologies. We will also keep open the option of further measures to reinforce the operation of the EU ETS in the UK should this be necessary to provide greater certainty to investors.

Is nuclear power low carbon?

26. There are some carbon emissions associated with the life-cycle of nuclear power stations, as there are with some renewable sources of electricity generation. However, nuclear power can still be considered a low carbon energy source on a par with hydroelectricity and wind power. The contribution nuclear power can make to the carbon reductions required to meet the Government's 2050 objective is relatively small. However, this reflects the scale of the challenge faced and the fact that electricity generation, though significant, is only one source of carbon emissions: space heating and transport emissions are of at least equal importance. The extent to which this should matter to the Government, with regard to nuclear power, depends on its determination to create a low carbon economy, and whether it believes other low carbon technologies or energy efficiency can fill the gap left by closing nuclear plant, which otherwise would almost certainly be filled by gas-fired generation. (Paragraph 194)

Nuclear plays an important role in reducing carbon emissions. According to Sustainable Development Commission analysis, the full lifecycle release of carbon dioxide from nuclear power is about the same as wind power, and much less than fossil fuel plant.

However, even if we had a zero carbon electricity sector, we would still not be able to meet our 2050 goal without taking significant action on heat and transport. Government believes that wide-ranging action is necessary, on both energy supply and demand, in order to meet out long term emission reduction goals.

Nuclear power *v.* energy efficiency and renewable power

27. The Sustainable Development Commission argued that further nuclear power would send out a message to energy consumers that the Government has plugged the 'energy gap'. In so doing, this might reduce the incentives to cut electricity demand. Whilst we agree that this is a risk, we note that the promotion of energy efficiency should take place through separate policy instruments that seek to raise consumers' awareness of the carbon impact of their energy consumption, and also, for example, through regulation of building standards. In addition, we note the need to take action on energy efficiency across the whole of the energy sector, including in the transport and heating sectors—not just for electricity. The general public is unlikely to support new nuclear power stations unless they are part of a wider strategy that also encourages renewable energy and energy efficiency. There is a risk that a Government focus on new nuclear build would distract from efforts in these two areas. To prevent this, it would have to ensure that nuclear power did not receive preferential treatment, either in the planning system, or in a long-term carbon pricing mechanism. It would also have to demonstrate a genuine political

commitment to these two means of reducing

carbon emissions in building a longterm national consensus for its energy policy. (Paragraphs 198 and 199)

Government does not believe that, in removing regulatory barriers to new nuclear build, it will distract from efforts to increase energy efficiency and promote renewables. Government agrees that there is no one single solution to meeting our energy challenges; we need to save energy through energy efficiency as well as low carbon generating options like renewables and nuclear to help meet our goals.

The Energy Review Report provides for a major drive for Government, business and households to save energy. For example, by working towards phasing out inefficient consumer goods, improving the energy efficiency of new housing and taking forward work on a radical new approach that would give energy supply companies incentives to reduce energy demand and therefore carbon emissions from the home.

We will encourage all cleaner low carbon technologies by making a strong, long-term commitment to carbon pricing. The report commits to boosting renewable electricity generation by providing incentives for investment and tackling barriers such as planning. We will consult on changes to the Renewables Obligation that would bring on renewable technologies that are further from the market. We will also take steps to exploit the potential for 'distributed generation' which would enable us to generate energy more efficiently near to where we use it. We will make further progress in laying the groundwork for the adoption of carbon capture and storage in the UK and elsewhere.

Impact on the electricity grid

28. The UK has a centralised electricity grid network, although growth in renewable energy and, in the future, microgeneration are beginning to challenge this approach. We were told by National Grid that a new nuclear programme aimed at doing no more than replacing existing capacity would not act to prevent the further development of decentralised generation. The siting of new nuclear plant, whether near existing nuclear sites or not, will affect the level of investment required in upgrading the transmission network, which could be in the range of £850 million to £1.4 billion—these are costs that will have to be met by developers, thus influencing their investment decision. (Paragraph 205)

Government has examined whether the transmission network could be a potential barrier to new nuclear generation, and agrees with the Committee that the costs of accommodating new nuclear build at existing sites vary considerably; such costs are likely to be a factor in the private sector's site selection process.

Will there be an 'energy gap'?

29. The apparent urgency of the current Energy Review seems to be predicated on the assumption that the country faces an imminent crisis. We agree that some generating capacity, such as the remaining Magnox power stations, will certainly be decommissioned in the coming years, and that the replacement of this poses a challenge for the market. However, whilst we acknowledge that it would not be sensible to presume lifetime extensions for all of the remaining nuclear fleet, equally it would not be prudent for the Government to make long-term policy decisions on the future energy mix in haste, and without full consideration of the evidence, simply because it has assumed that this capacity will certainly not be available. Indeed the fact that British Energy has begun to evaluate possible extensions for two of its reactors suggests the company believes there is a chance that they will carry on operating. We consider that a full and proper assessment of the projected future generating capacity should have been conducted to inform debate before the Government undertook its Review. (Paragraph 212)

Group with 30.

30. There is a possibility that a proportion of the UK's existing nuclear power stations may receive life extensions over the coming years. If this is the case, then the potential 'energy gap' faced by the Government will not be as severe as that which the current Energy Review assumes. Whilst we accept that the long lead time on nuclear build requires a decision soon if new capacity were to come on stream before the end of the next decade, we question the haste with which the Government is seeking to conclude its current Review, especially given the short timeframe it has allowed for consideration of certain key pieces of evidence. Changes in the energy mix, such as increased wind power and potential new nuclear build, will in the future increase reserve capacity requirements. Developments in this area will require close monitoring by the Government and Ofgem as, if there is any sign of market failure, a swift policy response—perhaps in the form of some capacity payment—will be necessary. (Paragraph 216)

Nuclear power is a source of low carbon generation which contributes to the diversity of our energy supplies. Under likely scenarios for gas and carbon prices, new nuclear power stations would yield economic benefits in terms of carbon reduction and security of supply. Over the next 20 years companies will be investing significant capital in new generating capacity. We want new nuclear to be an option for some of that capacity. Because generating assets are long-lived, and because of the long lead times associated with nuclear, we are currently consulting on a proposed new policy framework which would remove regulatory barriers to make new nuclear a real option for investment in new low carbon generating capacity.

If one new nuclear power plant, with a capacity of 1GW, were in operation by 2020 and it was replacing a gas fired plant, it would reduce carbon emissions by 0.71MTC, which would be equivalent to 0.5% of our expected total carbon emissions in 2020.

Government does not agree with the Committee's conclusion that decisions have been made in haste. As stated above, the Energy Review and the current consultation on a nuclear policy framework are part of an ongoing consideration of a range of nuclear issues, which would continue through the Justification and Strategic Siting Assessment processes.

There is a possibility of extensions to the scheduled lives of some existing nuclear plant. However, this is uncertain, and will remain so for some years. Any life extensions would help mitigate the decline in low carbon generation in the period towards the end of the next decade. However, it is less clear and certain that life extensions would have a significant impact on the amount of existing nuclear capacity continuing to operate in the 2020s. The decision to apply for an extension of the lifetime of nuclear plants is a decision for the operators.