

Nuclear decommissioning

Introduction

The UK nuclear industry is experiencing rapid and turbulent commercial change, with a handful of public sector companies disappearing and competitions launched to find private sector companies capable of tackling Britain's £100bn plus nuclear clean-up legacy. British Nuclear Fuels Limited (BNFL) and the UK Atomic Energy Authority (UKAEA) have been virtually swept aside and replaced by the Nuclear Decommissioning Authority (NDA) which is more like a financial regulator than a nuclear agency.

The NDA is a Government non-departmental public body that began operation in April 2005 and took-over the ownership of all nuclear sites previously run by BNFL and the UKAEA. It aims to introduce competition into the nuclear decommissioning and clean-up markets and by so doing speed up the decommissioning process and make cost savings. Unfortunately, the introduction of competition has not proved to be the panacea that was envisaged and costs are continuing to rise.

As well as clean-up, the NDA also operates installations that create waste - thus adding to the problem it was supposedly set up to solve. For example, the NDA owns all of the UK's first generation Magnox stations, including the two that are still operating, at Oldbury and Wylfa, and two spent nuclear fuel reprocessing plants and the plutonium fuel fabrication plant, all at Sellafield.

New reactors

From the early days of the NDA's inception there was speculation that accelerating decommissioning would help the nuclear industry make a case for building new nuclear reactors.¹ The Labour Government's first Energy White Paper in 2003 said there were "*important issues of nuclear waste to be resolved*".² Now the Government is trying to create the impression waste problems have been resolved to further its aim of building new reactors.³

Originally the NDA was not going to be responsible for decommissioning Britain's second and third generation reactors owned by the privatized British Energy (BE). But the Government was forced to bail out BE in 2001 to prevent it going bankrupt. Under the restructuring arrangements BE was required to make contributions to a Nuclear Liabilities Fund, although these were capped.⁴ Should the Nuclear Liabilities Fund prove to be inadequate, the taxpayer will have to make up the shortfall, so the Energy Act 2004 made the NDA responsible for the oversight of BE's decommissioning plans. Although it has no direct responsibility for carrying out the work, it must make sure BE carries it out cost effectively.⁵ In effect the Government has an open-ended commitment to meet all BE's liabilities should it become insolvent again or indeed the liabilities of any other future private nuclear operator.⁶

¹ Times, 5th April 2004. <http://business.timesonline.co.uk/tol/business/article1055882.ece>

² Energy White Paper: Our Energy Future – creating a low carbon economy, DTI, February 2003. <http://www.berr.gov.uk/files/file10719.pdf>

³ BBC 26th March 2008, http://news.bbc.co.uk/1/hi/uk_politics/7313986.stm

⁴ Restructuring Aid in favour of British Energy plc. Greenpeace UK, Sept 2003 <http://www.greenpeace.org.uk/files/pdfs/migrated/MultimediaFiles/Live/FullReport/6014.pdf>

⁵ NDA Final Strategy 2006, page 49. <http://www.nda.gov.uk/documents/loader.cfm?url=/commonspot/security/getfile.cfm&pageid=4957>

⁶ Voodoo Economics and the Doomed Nuclear Renaissance, by Paul Brown, FoE, May 2008 http://www.foe.co.uk/resource/reports/voodoo_economics.pdf

The NDA has also offered its 18 locations as potential sites for new reactors.⁷ Potential buyers were given four weeks to respond from 6th March 2008.⁸ RWE and Energy Solutions are among the companies thought to have expressed an interest in NDA sites.⁹ In September the NDA announced that it would begin a competitive process to sell land at Wylfa on Anglesey, Oldbury in Gloucestershire and Bradwell in Essex.¹⁰

Competition no panacea

The Government's plan for a competitive decommissioning market was intended to reduce costs for the taxpayer, help drive innovation and efficiency, and build a vibrant UK decommissioning industry that could sell its skills abroad. A new book called 'Nukenomics' by former Environment Agency regulator Ian Jackson gives examples of privatisation in other areas that resulted in industry consolidation and reduced competition. Investors in nuclear clean-up will require good profit margins to make the difficulty of entry into the market worthwhile. Nuclear salaries in the public sector in Britain have been low, compared with the rest of Europe, and a looming skills shortage will inevitably drive salaries upwards, and decommissioning is a labour intensive industry. The result is that, far from privatisation reducing costs, the bill for clean-up will most likely continue to spiral upwards.¹¹

Creating a competitive market

The NDA's first competition was for a Parent Body Organisation to run the Low Level Waste Repository (LLWR) near Drigg in Cumbria. The contract was awarded on 1st April 2008 to UK Nuclear Waste Management Limited (UKNWM) – a multi-national consortium comprising URS Washington Division (formally Washington Group), Areva, Studsvik and Serco Assurance.

The second competition was for the much larger and more complex Sellafield site licence company (incorporating Sellafield itself, Calder Hall, Capenhurst and Windscale). The Nuclear Management Partners (NMP) consortium, which composes UK engineering company Amec, URS Washington Division and France's Areva, was chosen as the preferred bidder for the contract in July 2008. Detailed negotiations are now taking place over an initial £5bn, five-year deal. The contract could last 17 years, making it potentially the UK's biggest public procurement deal. NMP beat three other bidders: CH2MHill Nuclear Services, a consortium of Serco, Bechtel and Babcock & Wilcox, and Fluor Ltd in combination with Toshiba.¹²

The contract could be worth a £22bn of taxpayers' money. But the NDA has also waived the insurance indemnity, meaning that taxpayers could pick up a tab for hundreds of millions of pounds in the event of an accident. A parliamentary answer by the Energy Minister Malcolm Wicks given just before Parliament broke for the summer recess reveals that the Government has no limit on the risk to the taxpayer. Mr Wicks said: "*Whilst the impact of any call on the proposed nuclear indemnity could be very high, there is only an extremely small possibility of*

⁷ Sunday Times 2nd March 2008.

http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article3465259.ece

⁸ BERR Press Release 6th March 2008

<http://nds.coi.gov.uk/Content/Detail.asp?ReleaseID=358129&NewsAreaID=2>

⁹ Reuters 9th June 2008

<http://uk.reuters.com/article/mergersNews/idUKL095949920080609?rpc=401&&pageNumber=1&virtualBrandChannel=0>

¹⁰ NDA Press Release 10th September 2008. <http://www.nda.gov.uk/news/land-sale.cfm>

¹¹ See a review of Nukenomics by Ian Jackson at:

<http://www.no2nuclearpower.org.uk/reviews/review03.php>

¹² Guardian 12th July 2008 <http://www.guardian.co.uk/environment/2008/jul/12/nuclearpower.pollution>

the indemnity ever being used ... There is no commercially available insurance".¹³ Because every country has different laws setting out liability in the event of a nuclear accident and the consortia bidding for the contract were almost all multi-national, the Government agreed to waive UK rules that require companies to pay the first £140m of clean-up costs.¹⁴

A third competition for five Magnox sites, bundled together as Magnox South had to be abandoned due to a lack of interest. This suggests the NDA may have to make profit margins more attractive for private companies thus reducing the cost savings the NDA is supposed to be making.¹⁵

Decommissioning costs

The cost of decommissioning the NDA sites has risen "rapidly" in the past few years by £12bn to £73bn, according to the National Audit Office (NAO) which said costs were rising, even for the most imminent work. NAO criticise the "stop and start" programmes caused by the authority running out of cash, saying delays in clearance work will make it even more expensive to clean up sites.¹⁶

The House of Commons Public Accounts Committee accused the NDA of letting its budget soar "out of control". Edward Leigh, committee chairman, said the £73bn figure for the cost of cleaning up Britain's old power stations and nuclear facilities was only the latest in a long line of continually escalating numbers. NDA chief executive Ian Roxburgh insisted that bringing in private clean-up contractors through planned competitive tendering would pay dividends. The more that was learned about the scale and type of waste the easier it would be to make estimates, he said, but he admitted costs were likely to rise.¹⁷

The NAO report disclosed that five Magnox sites suffered big cuts in their decommissioning budgets in 2007. Work on a new £8m nuclear waste store at Hinkley Point was halted just after the base for the site had been prepared. The suspension of work will cost another £400,000 in laying off workers, compensating the contractor and restarting the project later. The authority had however to spend more at Dounreay in Scotland where a 7.7% increase was allocated to handle unexpected costs - the bill rose from £139.4m to £150.1m. Nor was all the work carried out properly. At Dounreay the authority withheld some £2m because of a failure to meet safety standards after there was a spillage of contaminated cement in the waste encapsulation plant.

The Environment Agency expressed concern that by concentrating on especially hazardous waste at sites such as Sellafield and Dounreay, the NDA will delay clean-up elsewhere, "prolonging and potentially increasing risk to the environment that they pose and the costs necessary for their maintenance".¹⁸

¹³ Independent 4th August 2008 <http://www.independent.co.uk/news/uk/home-news/sellafield-has-public-blank-cheque-884231.html>

¹⁴ Observer 6th July 2008 <http://www.guardian.co.uk/business/2008/jul/06/1>

¹⁵ Guardian 5th Oct 2007 <http://www.guardian.co.uk/business/2007/oct/05/politics.nuclearindustry>

¹⁶ National Audit Office Press Release 30th Jan 2008

<http://www.nao.org.uk/pn/07-08/0708238.htm>

Guardian 30th Jan 2008

<http://www.guardian.co.uk/environment/2008/jan/30/nuclearpower.energy?gusrc=rss&feed=11>

¹⁷ Guardian 26th Feb 2008 <http://www.guardian.co.uk/world/2008/feb/26/nuclear.nuclearpower>

¹⁸ Guardian 25th Feb 2008

<http://www.guardian.co.uk/environment/2008/feb/25/nuclearpower.greenpolitics>

Greenpeace said the NAO report calls into question cost estimates for the disposal of waste from new reactors. The fact that new reactors are supposed to be built without public subsidy doesn't provide any comfort for the taxpayer, because the same legislation that established the NDA also contains clauses which allow the government to direct the authority to take over managing and financing new build wastes.¹⁹

Creating more waste

In the NDA's first three year Business Plan, covering the period 2008-11, the anticipated budget is expected to be over £8bn. Despite this, the aspiration to accelerate decommissioning had to be side-lined in favour of spending more money on the most hazardous wastes, particularly at Sellafield. Around half of the NDA's expenditure is spent at Sellafield.

The total planned expenditure for 2008/9 is almost £2.9bn, of which £1.5bn is funded by the government and £1.3bn is commercial income – with £781m coming from commercial operations at Sellafield.²⁰ But this reliance on income from commercial operations is creating enormous budgeting problems for the NDA.

Sellafield is home to two nuclear reprocessing plants, a plutonium (mixed-oxide or MOX) fuel fabrication plant, and various other radioactive waste facilities. The only nuclear electricity generating power station at the site, Calder Hall - the world's first commercial station, opened by the Queen in 1956 - closed in 2003. Reprocessing is the chemical separation of plutonium and unused uranium from spent nuclear waste fuel. It is only one management option used for around one sixth of spent fuel generated worldwide. The bulk of radioactive discharges going into the North-East Atlantic originate from Sellafield.

Magnox reprocessing

The older of the two reprocessing plants is the Magnox reprocessing plant, also known as B205. This reprocesses spent fuel from Britain's first generation Magnox reactors, also owned by the NDA. Only two of these reactors remain operational: Oldbury in Gloucestershire is planned to close at the end of 2008 and Wylfa on Anglesey at the end of 2010.

B205 remains Sellafield's most polluting plant in terms of discharges of radioactivity into the sea and atmosphere, although discharge levels were much higher in the 1960s and 1970s. The UK Government agreed at the 1998 Ministerial meeting of the Oslo and Paris (OSPAR) Commission - the treaty for the protection of the marine environment of the North-east Atlantic - to achieve "*substantial reductions or elimination of discharges*" by the year 2020, "*to levels ...close to zero*".²¹ But it now looks as though the Government is renegeing on its commitments.

This agreement, signed by John Prescott, led to an announcement by BNFL (Sellafield's owner at the time) that B205 would close around the end of 2012.²² Based on BNFL's projected shut-down of all of the UK's Magnox power stations by 2010, and the quantity of fuel still to reprocess, this was always going to be a challenging target given the plant's age

¹⁹ Guardian 30th Jan 2008

http://commentisfree.guardian.co.uk/john_sauven/2008/01/out_of_commission.html

²⁰ NDA Business Plan 2008/2011.

<http://www.nda.gov.uk/documents/loader.cfm?url=/commonspot/security/getfile.cfm&pageid=19286>

²¹ The Oslo Paris Convention for the Protection of the Marine Environment of the North-East Atlantic, Comprising the European Commission and 15 European nations including the UK. Ministerial meetings take place every 5 years, the 1998 meeting held in Sintra, Portugal. <http://www.ospar.org>

²² British Nuclear Fuels, Press Release, 23 May 2000. See Appendix 1 of BNFL Stakeholder Dialogue, Magnox Task Group Working Paper, November 2000. http://www.the-environment-council.org.uk/component/option.com_docman/task.doc_download/gid.3/Itemid.64/

and recent performance. The predicted inability to meet the challenge was confirmed by the NDA in 2007.²³ Blaming plant problems and logistical difficulties in receiving fuel from power stations being decommissioned, the NDA extended B205's life until 2016 or later.²⁴

Reprocessing of Magnox spent fuel has, in the past, been regarded as essential, because it begins to corrode once it has been wetted. BNFL finally admitted in 2003²⁵ that dry storage would be technically feasible, should B205 break down, having previously claimed Magnox spent fuel MUST be reprocessed. Encapsulating the spent fuel in concrete has also been considered as an alternative fuel management option.

Radioactive discharges

The UK Government published a Strategy for Radioactive Discharges 2001-2020 in July 2002, as a response to its OSPAR commitments.²⁶ Now the Department of Environment, Food and Rural Affairs (DEFRA) has launched a consultation on a revised strategy for 2006 – 2030.²⁷ It's clear the closure of B205 at the end of 2012 was important for the UK to meet its OSPAR commitments, because there is at least a five year time lag before discharges of radioactivity into the Irish Sea end after closure.

Also issued in 2001 was a draft Statutory Guidance to the Environment Agency on Radioactive Discharges, but this was never finalised.²⁸ It said any proposed increase in discharges of radioactivity into the environment should only be considered in exceptional circumstances. It has been replaced by a new draft Statutory Guidance which is currently out for consultation.²⁹

THORP

The newer of the two reprocessing plants is THORP – the Thermal Oxide Reprocessing Plant. THORP started operations in 1994 to reprocess spent fuel from Britain's newer Advanced Gas-cooled Reactors (AGRs) now owned by British Energy, and overseas Light Water Reactors (LWRs).

THORP was temporarily closed on 21st April 2005 because of the spillage of 18,000 litres of highly radioactive liquid waste which began seeping from a broken pipe around July 2004. The pipe then suffered a major fracture around January 2005. Although no radiation escaped

²³ U. K. Nuclear Decommissioning Authority, *Draft Business Plan 2008/11*, p.16,

<http://www.nda.gov.uk/documents/loader.cfm?url=/commonspot/security/getfile.cfm&pageid=15799>.

²⁴ See *The Legacy of Reprocessing in the United Kingdom* by Martin Forwood, International Panel on Fissile Materials, July 2008. http://www.fissilematerials.org/ipfm/site_down/rr05.pdf

²⁵ BNFL World March 2003.

²⁶

http://www.defra.gov.uk/environment/radioactivity/government/discharges/pdf/rad_dischargestrat1.pdf

²⁷ See <http://www.defra.gov.uk/corporate/consult/raddischarges-ukstrategy/index.htm>

²⁸ The industry is thought to have objected strongly to parts of this Guidance e.g. "The principle of progressive reduction is a central tenet of the way in which radioactive discharges should be controlled".

http://www.defra.gov.uk/environment/radioactivity/government/discharges/pdf/environment_consult_radioactivity_discharge_nls.pdf

The industry is thought to have objected strongly to some parts of this Guidance such as the idea that "The principle of progressive reduction is a central tenet of the way in which radioactive discharges should be controlled".

²⁹ Consultation on the Statutory Guidance to the Environment Agency concerning the regulation of radioactive discharges into the environment. DEFRA, June 2008

<http://www.defra.gov.uk/corporate/consult/rad-discharges-eaguidance/consultation-doc-statutory-guide.pdf>

outside of the building, British Nuclear Group (BNG), the BNFL subsidiary operating Sellafield on behalf of the NDA, should have been able to discover the leak within days. Yet it continued undetected for around eight months.³⁰ A criminal case, brought by the Health & Safety Executive (HSE), was heard by the Crown Court in Carlisle in October 2006, and BNG was fined £500,000 after pleading guilty. This was on top of a £2m penalty imposed on BNG by the NDA.³¹

The HSE's Nuclear Installations Inspectorate (NII) highlighted a lack of a "questioning attitude" or "challenge culture" at the company. It added: "The company fell well below the standard required by the licence conditions and these breaches amounted to serious offences,"³² and "there has been a failure to learn from previous incidents." In a scathing editorial, *The Whitehaven News* asked if we are doomed to repeat the mistakes of the past. "It seems you can have the world's most sophisticated nuclear technology, safety and fail-safe systems - but you can't legislate for human error," it said.³³

Although BNG received consent to restart operations at THORP from the NII in January 2007, the plant is still not fully operational. Reprocessing had to be abandoned again between January and March 2008 following the mechanical failure of an elevator system that lifts spent fuel. A return to full operation will be delayed until 2010 due to a lack of capacity to evaporate down high-level liquid waste.

THORP was originally expected to complete its so-called base-load contract by the end of 2003. With only a small number of post-baseload contracts, mostly for reprocessing spent fuel from British Energy's AGRs, prior to the 2005 accident it was expected that THORP would close around 2010/11. The accident has delayed this by at least five years. In fact nuclear physicist, Nils Bøhmer, of the Norwegian environment group, Bellona, was told on a recent visit to Sellafield the facility could still be operational in 2020.³⁴

Sellafield MoX plant

The Sellafield MoX Plant (SMP) was completed in 1997 at a cost of £470m. Built adjacent to THORP, it was designed to produce fuel assemblies for light water reactors made from mixed plutonium and uranium oxides, rather than conventional uranium fuel. Because of the need for various consultations and also due to legal actions taken by opponents, plutonium was not introduced into the plant until 2002. SMP was designed to produce 120 tonnes of MOX fuel per year for THORP's overseas customers, but it has been beset by problems. Nothing was produced for the first 2 years. As a result a number of orders had to be sub-contracted to fabricators in Belgium and France. The first four assemblies completed were not delivered to Switzerland until June 2005, and there were subsequent deliveries in 2006 and 2007, but by April 2008 only just over 5 tonnes of MoX had been manufactured.³⁵

In his new book 'Nukenomics', Ian Jackson, points out that SMP would cost taxpayers £2.3 billion even if its output is successfully ramped up to 10 tonnes a year. The plant is "hopelessly uneconomic".³⁶

³⁰ See Energy Review Update No. 4 <http://www.no2nuclearpower.org.uk/reports/ERNewsletterNo4.pdf>

³¹ Telegraph 17 Oct 2006

<http://www.telegraph.co.uk/news/main.jhtml?xml=/news/2006/10/17/npipe17.xml>

³² BBC 24th Feb 2007 <http://news.bbc.co.uk/1/hi/england/cumbria/6392283.stm>

³³ Whitehaven News 1st March 2007 <http://www.whitehaven-news.co.uk/home/1.187467>

³⁴ Bellona 22nd August 2008 http://www.bellona.org/articles/articles_2008/thorp_extended

³⁵ Guardian 3rd March 2008 http://www.guardian.co.uk/world/2008/mar/03/nuclear_energy

³⁶ Guardian 14th May 2008 <http://www.guardian.co.uk/commentisfree/2008/may/14/fuelforscandal>

In a letter to *The Guardian*, Michael Meacher said as Minister for the Environment, he adamantly opposed the decision to approve this plant in September 2001 on the grounds that it was nowhere near economic, but was overridden by Margaret Beckett (then Secretary of State) and her chief nuclear official.³⁷

Weapons-useable plutonium

In May 2008, Sellafield shipped a cargo of plutonium dioxide powder under armed escort to France, because the NDA wanted to replace plutonium used in the sub-contracted orders. This may turn out to have been the first of many plutonium-swap shipments.³⁸

Plutonium dioxide can be used to manufacture nuclear weapons.³⁹ The use of MOX fuel is also risky because the plutonium dioxide can easily be separated by straightforward chemistry from the uranium dioxide. A number of ways of doing this are described in detail in the open literature.⁴⁰

The Department for Transport (DfT) took "regulatory action" in July 2008 to prohibit shipments from Sellafield to Normandy on an unarmed old roll-on, roll-off ferry, with few safety or security features. The prohibition, the first of its kind, was imposed after complaints by the French nuclear safety authorities. Transport minister Jim Fitzpatrick said: "As a result of discussion between this department and L'Autorité de Sûreté Nucléaire regarding the shipment of plutonium by Sellafield Ltd in May, and our subsequent investigations, we took regulatory action to prevent further shipments of plutonium from Sellafield in the same manner." DfT has refused to explain further apart from saying that "the company failed to abide by the terms of its certificate of approval". Sellafield Ltd has said it is appealing against the decision.⁴¹

Britain has a stockpile of around 100 tonnes of weapons-useable plutonium, which, according to the Royal Society, are kept in "unacceptable" conditions which pose a severe safety and security risk.⁴² In July 2007 the NDA published a summary of the "Uranium and Plutonium: Macro-Economic Study",⁴³ which provides a wide-ranging analysis of options for the UK's stocks of uranium and weapons-useable plutonium, and sets out the financial, socio-economic and environmental impacts of each option. The authors say the UK has enough uranium and plutonium stockpiles to fuel three 1000 MWe reactors for their entire 60-year lives or 12GWe of fast reactors for 700 years. Other options include treating the materials as waste and storing them for possible future use.⁴⁴ The NDA launched a consultation on plutonium options in August 2008.⁴⁵

³⁷ Guardian 8th Mar 2008

<http://www.guardian.co.uk/environment/2008/mar/08/nuclearpower.greenpolitics>

³⁸ Imminent Plutonium Shipment, CORE Press Release 7th March 2008.

<http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=246>

³⁹ U.S. Department of Energy, Nonproliferation and Arms control Assessment of Weapons-Usable Fissile Material Storage and Excess Plutonium Disposition Alternatives, (1997), 37, excerpted in <http://www.ccnr.org/plute.html>

⁴⁰ The Proliferation Consequences of Global Stocks of Separated Plutonium, by Dr Frank Barnaby, Oxford Research Group Briefing, June 2005.

http://www.oxfordresearchgroup.org.uk/publications/briefing_papers/pdf/plutonium.pdf

⁴¹ Independent on Sunday 27th July 2008. <http://www.independent.co.uk/news/uk/home-news/ferry-shipments-of-terrorthreat-plutonium-end-878269.html>

⁴² Guardian 21st Sept 2007 http://www.guardian.co.uk/uk_news/story/0,2173810,00.html

Royal Society's Report 21st Sept 2007: <http://www.royalsoc.ac.uk/displaypagedoc.asp?id=27169>

Royal Society Press Release 21st Sept 2007: <http://www.royalsoc.ac.uk/news.asp?id=7081>

⁴³ NDA News 2nd July 2007 <http://www.nda.gov.uk/news/uranium-plutonium.cfm>

⁴⁴ World Nuclear News 4th July 2007

The NDA has appealed for help in dealing with the plutonium stockpile and deciding whether to treat it as waste or reuse it as fuel for nuclear reactors.⁴⁶ Areva says it is talking to the NDA about the stockpile, and wants permission to build a new MOX plant at Sellafield.⁴⁷

Funding crisis

The continuing problems at THORP and SMP caused a funding crisis at the NDA. It was facing a £450m hole in the budget for 2007/8. The Treasury was forced to make up the shortfall, rather than see decommissioning contractors laid off.⁴⁸ The DTI set the budget for 2007/08 at a level which would allow the Authority to operate with a budget of some £2.47 billion,⁴⁹ representing a small increase on the previous year's budget.

However, before the 2007/8 financial year was over the NDA was forced to go cap-in-hand once again to the Department for Business, Enterprise and Regulatory Reform (BERR) to ask for another £400 million to bolster its budget in March.⁵⁰ This led to an investigation by the House of Commons Business and Enterprise Committee. Chairman Peter Luff likened the NDA to a "car crash waiting to happen". MPs questioned Bill Roberts, the NDA's Director of finance and resources, alongside officials from BERR. The NDA informed the Committee a big factor in the call for extra cash was an extra £143 million income shortfall caused by plant failures and less production than had been expected, primarily at the Thorp and SMP.⁵¹

The Business and Enterprise Committee reported in April 2008.⁵² The report was scathing in its analysis of the way the NDA is operating. It said accounting uncertainty has the potential to impact drastically upon the NDA's funding of decommissioning of existing nuclear liabilities.⁵³ Its report concluded that funding for the NDA will almost certainly have to increase "significantly" over the coming years. The Committee called into question the sustainability of the NDA's financing model, warning of difficulties because of the "volatility and uncertainty" of the group's commercial income.⁵⁴

Ministers pledged to review how the £73bn liability will be funded, after the Committee's warning. In July 2008, the Government published its response to the Business and Enterprise Committee.⁵⁵ This was accompanied by a short report on lessons learned from the funding

http://www.world-nuclear-news.org/wasteRecycling/UK_considers_uranium_and_plutonium_stockpiles_040607.shtml

⁴⁵ NDA Plutonium Options Consultation, August 2008.

<http://www.nda.gov.uk/documents/upload/Plutonium-Options-for-Comment-August-2008.pdf>

⁴⁶ FT 2nd April 2008 <http://www.ft.com/cms/s/0/6242454a-004c-11dd-825a-000077b07658.html>

⁴⁷ FT 9th June 2008 <http://www.ft.com/cms/s/0/a957260e-35bb-11dd-998d-0000779fd2ac.html>

⁴⁸ NDA Statement 22nd Feb 2007. [http://www.nda.gov.uk/News--Statement_on_NDA_Budget_2007_8_-_22_February_2007_\(2225\).aspx?pg=2225](http://www.nda.gov.uk/News--Statement_on_NDA_Budget_2007_8_-_22_February_2007_(2225).aspx?pg=2225)

⁴⁹ DTI Press Release 22nd Feb 2007

<http://www.gnn.gov.uk/Content/Detail.asp?ReleaseID=266471&NewsAreaID=2>

⁵⁰ Times 5th March 2008

http://business.timesonline.co.uk/tol/business/industry_sectors/article3486304.ece

⁵¹ Whitehaven News 19th March 2008 <http://www.whitehaven-news.co.uk/home/1.57901>

⁵² Funding the Nuclear Decommissioning Authority, House of Commons Business and Enterprise Committee, 7th April 2008

<http://www.publications.parliament.uk/pa/cm200708/cmselect/cmberr/394/394.pdf>

⁵³ Chaos in the UK's Nuclear Clean-up Industry, Greenpeace Briefing, July 2008

<http://www.greenpeace.org.uk/files/pdfs/nuclear/nda-chaos-20080724.pdf>

⁵⁴ Guardian 7th April 2008

<http://www.guardian.co.uk/environment/2008/apr/07/nuclearpower.energy?gusrc=rss&feed=uknews>

⁵⁵ Response to the Business and Enterprise Committee Report: Funding the Nuclear Decommissioning Authority, 21st July 2008. <http://www.parliament.the-stationery->

shortfall.⁵⁶ These agreed with most of the Committee's findings, exposing massive cost overruns, amateurish bureaucratic cock-ups and complete chaos within the organisation charged with cleaning up the UK's lethal radioactive legacy. The Government agreed there was significant uncertainty in relying on commercial income for much of the NDA's funding, and agreed to look at other funding models.

Greenpeace commented:

*"The NDA's failure is as much a failure of Government, who set up the Authority knowing it would have to rely for half of its income from failing nuclear plants. The same Government that brought us this shambolic funding system is now telling us it can deliver new nuclear without subsidy. No one can take this claim seriously on the basis of this latest nuclear farce we're currently witnessing."*⁵⁷

Greenpeace estimates the cost of nuclear clean-up will be closer to £100bn by the time £10bn has been added for a deep disposal facility, a further £9bn for getting rid of uranium, plutonium and spent fuel not yet declared a waste, and £5bn for dismantling British Energy plants.⁵⁸

Magnox reactors.

In June 2007 BNFL agreed to sell its Magnox Reactor Site Management Company to Energy Solutions.⁵⁹ The NDA had originally planned to put the longer term clean-up of the Magnox sites out to a wider competitive tender, beginning with Magnox South - Berkeley, Bradwell, Dungeness A, Hinkley Point A and Sizewell A in 2008, followed by Magnox North - Chapelcross, Hunterston A, Oldbury, Trawsfynydd and Wylfa in 2009. Then in October the NDA put a halt to the competitive tendering process, which had already begun for Magnox South, because of a lack of interest from the private sector. Industry experts said the programme had been unravelling over the previous couple of months as private sector firms became increasingly disillusioned with the potential at Magnox South. The NDA was supposed to be making savings through efficiency gains but the lack of interest by companies in the Magnox South tender suggests it will have to make profit margins more attractive for them.⁶⁰

The NDA confirmed, in November 2007, that resources would be shifted from the Magnox sites to Sellafield and Dounreay to combat high-hazard waste more effectively, angering the unions who fear that hundreds of jobs could be lost when clean-up work at the Magnox stations is suspended. They also complain that this will lead to a loss of skills in the industry.⁶¹

Waste transports

[office.com/pa/cm200708/cmselect/cmberr/994/99404.htm](http://www.parliament.the-stationery-office.com/pa/cm200708/cmselect/cmberr/994/99404.htm)

⁵⁶ NDA Budgeting Shortfall 2007/8 Lessons Learned, BERR, 21st July 2008.

<http://www.parliament.the-stationery-office.com/pa/cm200708/cmselect/cmberr/994/99406.htm>

⁵⁷ Chaos in the UK's Nuclear Clean-up Industry, Greenpeace Briefing, July 2008

<http://www.greenpeace.org.uk/files/pdfs/nuclear/nda-chaos-20080724.pdf>

⁵⁸ Greenpeace 12th Oct 2007 <http://www.greenpeace.org.uk/blog/nuclear/here-i-go-again-nuclear-waste-costs-spiral-up-up-and-away-20071012>

⁵⁹ BNFL Press Release 7th June 2007. <http://www.bnfl.com/content.php?pageID=108&newsID=283>

⁶⁰ Guardian 5th Oct 2007 <http://www.guardian.co.uk/business/2007/oct/05/politics.nuclearindustry>

⁶¹ Times 8th Nov 2007

http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article2827309.ece

Because THORP has been out of action for over two years the Department of Trade and Industry (DTI) launched a public consultation in June 2007 into proposals to allow advance allocation of THORP reprocessing products to its overseas customers.⁶² In other words overseas customers could receive an allocation of plutonium, uranium and waste from British stocks even though their spent fuel may not yet have been reprocessed yet. With around 800 tonnes of overseas spent fuel still waiting to be reprocessed at THORP, some observers questioned why, if this “virtual” reprocessing is approved, the plant needs to be re-opened at all. With sufficient plutonium and other materials for customers’ needs already stockpiled at Sellafield, none of the outstanding spent fuel needs to be reprocessed.⁶³

The Government published its response to the consultation on so-called 'virtual reprocessing' in November 2007. Perhaps unsurprisingly it concluded that advanced allocation "offers a sensible approach to managing overseas spent fuel awaiting reprocessing".⁶⁴

Future reprocessing?

The UK Government likes to give the impression that reprocessing is being phased out. The 2008 Energy White Paper says new nuclear power stations should proceed on the basis that spent fuel will not be reprocessed.⁶⁵ But NDA officials have not ruled out future reprocessing saying only that operators of potential new reactors should make their calculations on the premise that reprocessing is not an option, because the Government can't guarantee that reprocessing facilities will be available. When a Government official was asked in 2007 why the government was ruling out future reprocessing when the US is starting to take steps toward recycling, he said “ruling out” was probably “too strong” an expression. If at some stage in the future, nuclear operators come forward with reprocessing proposals things may change.⁶⁶

Some trades unions have already started campaigning for a new reprocessing plant at Sellafield so that spent nuclear fuel from new reactors can be reprocessed, for the possibility of securing reprocessing contracts from abroad to be kept open, and for existing stocks of UK plutonium at Sellafield to be converted into MoX fuel for use in new reactors.⁶⁷ Gordon Brown is reported to have held talks with the Japanese Prime Minister about the possibility of new Japanese reprocessing contracts for Sellafield.⁶⁸

New reactors

⁶² NDA website 14th June 2007 <http://www.nda.gov.uk/news/advance-allocation.cfm>

DTI Consultation Document 14th June 2007 [Responses required by 26th July]

<http://www.dti.gov.uk/files/file39759.pdf>

⁶³ CORE Briefing (02.07) 18th June 2007 <http://www.corecumbria.co.uk/>

⁶⁴ Proposal on how to manage overseas spent nuclear fuel awaiting processing at Sellafield: Government response to the consultation, BERR November 2007.

<http://www.berr.gov.uk/files/file42361.pdf>

⁶⁵ “Meeting the Energy Challenge: A White Paper on Nuclear Power” BERR, Jan 2008 (See page 114) See also: RobEdwards.com 23rd May 2007

http://www.robedwards.com/2007/05/uk_signals_aban.html

Independent on Sunday 13th Jan 2008

<http://www.independent.co.uk/environment/green-living/sellafield-cleanup-will-cost-16334bn-769990.html>

⁶⁶ Nuclear Fuel, 18th June 2007

⁶⁷ GMB 18th Jan 2008 <http://www.gmb.org.uk/Templates/Internal.asp?NodeID=96494>

⁶⁸ Telegraph 23rd June 2008

<http://www.telegraph.co.uk/money/main.jhtml?xml=/money/2008/06/23/cnjap123.xml>

The Energy Bill 2008 contains clauses to ensure adequate funding provision by new reactor developers of decommissioning and waste management costs⁶⁹ (see NuclearSpin's briefing on Nuclear Costs and Finances). A draft framework on how these costs will be paid for was published in February 2008.⁷⁰ Companies must produce a detailed funded decommissioning programme before new reactors are approved. This will include a commitment to pay into a secure and independently managed fund to cover all the costs of decommissioning, clean up and disposing of the waste. The Nuclear Liabilities Financing Assurance Board will monitor these funds.⁷¹

The system proposed effectively means utilities will pay for the State to absorb the risks of handling nuclear waste in exchange for payments into a fund. It's a fixed-price contract for the Government to take the waste. There is a real risk that the public will end up footing the bill. The Government has left open the possibility of subsidizing reactors, despite its disclaimers. It says in 'extreme circumstances', it is prepared to help meet the massive decommissioning and waste disposal costs.⁷²

Pete Roche

⁶⁹ Modern Power Systems 17th January 2008

<http://www.modernpowersystems.com/story.asp?sectioncode=131&storyCode=2048395>

⁷⁰ Consultation on Funded Decommissioning Programme Guidance for New Nuclear Power Station, BERR, February 2008 <http://www.berr.gov.uk/files/file44486.pdf>
Telegraph 22nd February 2008

<http://www.telegraph.co.uk/earth/main.jhtml?xml=/earth/2008/02/22/eanuc122.xml>

⁷¹ FT 22nd February 2008 <http://www.ft.com/cms/s/0/70bd3824-e0d4-11dc-b0d7-0000779fd2ac.html>

⁷² Spectator 12th March 2008

http://www.spectator.co.uk/the-magazine/features/553546/part_3/go-nuclear-but-keep-your-hand-on-your-wallet.thtml