To **SECRETARY OF STATE FOR TRADE & INDUSTRY**

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Date 23 March 2007

NUCLEAR NEW BUILD WASTE AND DECOMMISSIONING

ISSUE

1. Policy recommendations for your decision on funding for new nuclear waste and decommissioning.

SUMMARY

2. In advance of the Nuclear Consultation and in order to instruct lawyers to begin preparing for the Energy Bill on a contingent basis, this submission makes a number of recommendations on financing for new nuclear waste and decommissioning. While not urgent, a swift response from you would enable us to settle the remaining issues with Treasury before the publication of the Nuclear Consultation. This submimssion has been approved by your advisor on this issue, Tim Stone. A summary of this advice will go to the Chief Secretary of the Treasury.

3. The policy recommendations contained in this submission are as follows:

- There should be a requirement on prospective new nuclear operators to submit a 'Decommissioning and Waste Management (D&WM) plan' and a 'Funding Arrangements Plan' to the Secretary of State for approval;
- There should be a duty on the operator of a new power plant to adhere to the approved plans;
- It should be an offence not to adhere to these plans;
- Government should develop a base case decommissioning and waste management route to inform operators as to what an approvable D&WM plan should include;
- Government should develop cost estimates for carrying out the D&WM base case, (our high-level methodology is set out in this paper);
- The option for a D&WM fund to build up "within company" on the balance sheet and the option for a D&WM fund to build up "within government" by payments direct to a Government body should be ruled out. The "outside company, independent fund" option should be pursued, although recognising that there are challenges with this option that have not yet been fully resolved.

4. In addition, we recommend that you:

- Agree the objectives underpinning the work on financing new nuclear build decommissioning and waste management (paras 5-7 below);

- Decide how we should describe these financing arrangements in the nuclear consultation document (paras 37-43);
- Agree the proposed work plan and timetable for this work (paras 44-46);
- Note that should you agree to our policy recommendations, we will need to resolve any remaining differences with Treasury before the publication of the Nuclear Consultation document.

Objectives for new build waste and decommissioning finance arrangements

5. Government needs to be satisfied that an appropriate structure is in place to ensure that any participants in nuclear new build are obligated to make full and secure provision to meet the costs of decommissioning and long term waste management, even in the event of early plant closure, insolvency or gaming.

6. The objectives in designing these arrangements are:
- to minimise the risk to the taxpayer that Government is called upon to meet any unfunded liabilities;
- to give greater certainty to potential developers about the costs they are expected to meet and the arrangements by which they will meet them - this is necessary for investors to take project financing decisions;
- to encourage developers to operate new build plant in a way that seeks the optimal balance between operations and waste creation; and
- To create a financially efficient mechanism within the bounds of tax and accounting constraints

7. In addition, Treasury are concerned that the arrangements be designed in such a way that the funds (and hence the liabilities) do not appear on the public accounts.

Policy proposals

8. We propose that there should be a requirement on a prospective new nuclear operator to submit a "Decommissioning and Waste Management Plan" and a "Funding Arrangement Plan" for the approval of the Secretary of State for Trade and Industry:

- The "Decommissioning and Waste Management" plan would set out in detail the way in which an operator will carry out waste management, disposal and decommissioning;
- The "Funding Arrangement Plan" would set out the payment schedule, investment strategy, monitoring, governance and disbursement of funds to cover costs of delivering the agreed "Decommissioning and Waste Management" plan.

9. This model would mean that you, as Secretary of State, would approve both plans, calling on expert advice as appropriate. Certain minimum requirements for what these plans should contain would be set out in regulations. Other elements of what an 'approvable' plan should contain would be set out in guidelines. Adherence to the approved plans will be a duty on the new nuclear operator. Non-adherence would be an offence.

10. The elements comprising each plan can be designed in a number of ways. This submission makes recommendations on how each of the two plans should be designed.

11. For clarity, a more detailed outline of how the new requirement and duties would work and how it sits alongside existing regulatory licenses and other consents is attached at **Annex A**. This summary is based on the policy recommendations set out for your decision in this submission. Once approved, this paper will serve as policy instructions to DTI legal to begin preparing instructions for the Energy Bill.

12. In developing options, we have explored precedents from oil & gas decommissioning and offshore renewables decommissioning. Looking towards the Energy Bill, we are collaborating with colleagues responsible for these sectors on areas of mutual interest.

Decommissioning and Waste Management & Disposal Plans

13. We are currently taking forward two streams of work which will contribute to the development of decommissioning and waste management plans – work on a base case decommissioning and waste management route and work on cost estimates.

Base Case

14. Current legislation, together with policy in development (e.g. CoRWM, DEFRA's soon-to-be published low level waste policy etc.) all set policy and regulatory context for the management and disposal of nuclear waste.

15. However, where gaps in policy for new nuclear build exist, where we may wish to set out additional requirements (such as on interim storage, packaging of waste etc), or where policy development is progressing over a longer timescale (e.g. implementing CoRWM's recommendations to build a deep geological repository), sensible assumptions will need to be made about the route for waste management and disposal in order that Government can ensure that generators make sufficient financial provision.

16. We are working with relevant parties, including other Government Departments, Regulators, the NDA and industry, to build a base case using existing policy and certain assumptions. The base case will be used to develop guidelines for operators on the processes and behaviours that are likely to be acceptable in a D&WM plan. However, these guidelines will not form an absolute requirement for the way in which operators must plan to carry out waste management and decommissioning. There will be flexibility to allow operators to suggest alternative approaches if they wish to do so, which the regulators, together with you, as Secretary of State, might approve or decline.

17. Treasury officials are not convinced of the need to cover anything other than the cost of accessing a geological repository on the grounds that the other stages are reasonably certain can be costed accurately, and hence don't need to be prescribed for. This is not a fundamental point, but we consider that there are in fact a number of uncertainties surrounding the process for waste management and decommissioning, including how long we will prescribe that there should be interim storage on site, how soon after station closure decommissioning will begin and the specification of the storage facilities that will need to be constructed on site. While it may be true

that we can cost the various options for how the process might operate, different combinations of options may produce very different cost amounts. It will be important to provide industry with as much certainty as possible with regard to the processes we will expect them to follow for waste management and decommissioning so that they can take an accurate view of the costs involved and ensure that they make adequate provision to meet those costs. Equally it will be essential to know the magnitudes, uncertainties and cross-correlations of these costs if we are to minimise the risk to the taxpayer that the Government might be called on to meet any unfunded liabilities. We will continue to progress this issue with Treasury at official level and through Tim Stone.

Cost Estimates

18. To get the best possible understanding of the likely costs of waste management, disposal and decommissioning we plan to develop estimates of the costs. This work will draw on the widest international knowledge and experience and we will work closely with industry and other interested parties to ensure our view of the costs has the widest support possible. The cost estimates will be built using the base case, and will also build on an exercise to determine the inventory of volumes and types of waste that new nuclear build may produce.

19. This exercise will be important to demonstrate that we have fully gripped this issue, so it will be essential to ensure that this exercise is carried out in a robust way. These cost estimates will inform Government's stance on how much cash a company must be required to set aside to cover the part of the D&WM plan that relates to waste disposal in the proposed national deep geological repository. For all other areas of the plan, the estimates will serve as a tool for the trustees or directors of the accumulating D&WM fund to test the reliability of an operator's own cost estimates.

Funding Arrangement Plans

20. Under Tim Stone's guidance, we have explored three financing approaches:

- Within Company Funding - Funds retained on the company's own balance sheet
- Within Government Funding - Funds transferred by the company to a Government controlled entity (such as the NDA) or direct to Treasury's consolidated fund.
- Outside Company Funding - Funds transferred by the company to an outside entity (e.g. a Trust or a company limited by guarantee)

21. All three options have real challenges associated with them. We recommend the outside company funding option on the basis that the flaws in the other options are too fundamental to overcome. All three options are explored in more detail in paras 23-35.

22. Treasury officials are not yet convinced that we should rule out any options. We consider that there is a real benefit in taking a policy decision in favour of one option now and Tim Stone will put advice to the Treasury to this effect. The rationale for agreeing the policy approach now is:

- We consider the within company funding and within Government Funding options to be fundamentally sub-optimal

- An early decision would allow us to give a greater sense of policy direction in the consultation document and set the scene for the powers we propose to take in the Energy Bill should the nuclear consultation result in a Government decision in the autumn that 'nuclear has a role to play';
- An early decision would allow us to focus resources on the favoured approach.

Within Company Funding

23. This approach is used by the French and German utilities (EDF, E.ON and RWE). Funds are managed within the utility and liabilities are shown as provisions on the balance sheet. In practice the funds are re-invested within the business to develop new assets to provide the future cash flow to pay for decommissioning and waste management[1]. Generators tend to favour this model as it enables revenues that would otherwise be unavailable to be re-invested within the business.

24. The key disadvantage is that it relies on the continuing successful growth of the company to fund the liabilities from future cash flows. If the utility fails and goes into liquidation, then the funds are unlikely to be available for liabilities management (depending on their status within the creditor hierarchy) and costs will fall to Government as the funder of last resort. Additionally, there is a risk in any company restructuring that the assets may be diverted and unavailable to fund the liability. This situation occurred with the privatisation of the Central Electricity Generating Board in the UK.

25. It might be possible to put in place special arrangements to protect funds intended for waste and decommissioning in the event of insolvency; to restrict companies from diverting or re-investing these funds within the business or to require financial instruments or insurance to be in place to cover the estimated liabilities. However, this would involve putting in place a complicated special insolvency regime through the Energy Bill that would be untested in law and would in any event remove the advantage to the company of keeping the funds on balance sheet.

26. The benefit of this model is that neither the fund nor the liability would score to the public sector or appear in the public finances.

Within Government Funding

27. The majority of the separate liabilities funds already in existence around the world fall into this category, whereby the operator makes payments direct to Government or to an external fund which is administered by Government[2].

[1] EDF are currently converting their balance sheet provisions for liabilities into a portfolio of assets; this process is expected to cover all their liabilities by 2010. Canada operates a similar arrangement, although the Canadian Nuclear Safety Commission requires the licensees (who are owned by the Provincial Governments) to provide financial guarantees to underpin the liabilities costs.

[2] In Sweden such funds are invested in the Swedish Nuclear Waste Fund and in Spain they are managed by the state waste disposal company ENRESA. Finland and Belgium have a hybrid arrangement whereby the licensee can borrow back a percentage (usually 75%) of the contributions to the fund at a commercial interest rate. The US approach to spent fuel management also falls into this category, whereby the Operators make a $1 per MWh payment to the Federal Government to cover disposal costs.

28. The advantage of this approach is the security of the funding over time; there are few institutions as long lived or credit worthy as national governments.

29. In practice however, unless the funds are hypothecated (which is rare in practice) availability of funds may be vulnerable to short – term pressures from other areas of Government spending. The current budgetary restrictions faced by the NDA are one example of this.

30. Other disadvantages of a funding arrangement which scores to the public sector include:

- Funds held in the public sector are likely to assume a low, risk free, rate of return which could increase the overall cost to the operator of providing for liabilities significantly. A worked example is attached at Annex B.
- Government would have to record the liabilities in the public accounts,
- This model would lack transparency and visibility that the funds match the liabilities if funds are absorbed by the consolidated fund; and
- The public perception that Government is somehow taking on the liability and the risk rather than delivering on the Energy Review commitment that new build operators will pay the full costs, even in challenging downside scenarios.

Outside Company Funding

31. The main advantages of this approach is that provisions are held in a fund as "real money" investments which can be liquidated reasonably readily to provide funding as required to discharge the liability; the fund is insulated against the commercial fortunes of the operator and a flexible approach to investment would take advantage of the higher potential returns from equities.

32. The majority of existing outside company funds are administered directly or indirectly by Governments and there are few examples of privately administered segregated funds. However, Treasury are clear that for public accounting reasons highlighted in the previous section funds for new build waste and decommissioning should not score to the public sector for the reasons outlined in paragraph 30 above.

33. On the preliminary advice of Treasury officials, we consider that it should be possible to design an off balance sheet arrangement that does not score to the public sector. However, there is a risk that the limited controls we might wish to have over the fund to ensure it is protected in the case of insolvency may result in the Office of National Statistics (ONS) classifying the fund to the public sector. Examples of such desirable controls might include: prescribing that the Fund must take the form of a Trust; or imposing certain investment restrictions to address concerns that the fund might be wiped out by fluctuations in the equity market (such as a switch to low risk gilts 10 years before operating life ceases).

34. Aside from the difficulty of designing arrangements that do not score to the public sector, there are other challenges with the outside company structure including:

- Accounting issues: under law, companies are obliged to record decommissioning and waste cost estimates as a liability on their balance sheet. We will need to ensure that the accumulating fund can be

recognised on the balance sheet to offset the liability and avoid a situation where the company is 'technically' bankrupt. We continue to work on this, but are optimistic that a solution will be forthcoming because similar concerns have been successfully addressed in the cases of BE, UKAEA and BNFL; and

- The tax treatment of payments: payments to a D&WM fund may not be tax deductible as a legitimate business expense even though the company cannot reclaim the payments; and the fund itself may not be free of corporation tax or inheritance tax.

35. We have not yet found a solution to these issues which are important from a project financing point of view, but are undertaking work with a view to resolving them in so far as possible. The 'outside company, independent fund' remains the most promising approach to pursue.

Language for the consultation document

Base case and cost estimates

36. The consultation document could be used to set out our approach to developing a base case and cost estimates, the rationale for this course of action and the broad timescales for carrying out this work. The choice would not be subject to consultation.

Funding Arrangements

Describing all three options for the funding arrangements

37. In the consultation document we could list all the models with or without including a consultation question seeking views on the three approaches. This is what Treasury are suggesting.

38. The benefit of this approach is that it avoids committing to the 'outside company fund' approach before we have fully considered the ONS classification, tax and accounting implications. It allows more time to consider these issues and agree with Treasury.

39. The disadvantage of this approach is that it does not close off any options and allow us to prepare targeted powers for an Energy Bill. If we leave all three options open in the consultation, we could either seek legislation that includes broad powers covering all three options **or** we must take some policy decisions soon and before the consultation closes and risk criticism that we did not wait for input from consultees and did not indicate the direction the Bill was going in when we published the consultation. We can mitigate against this risk somewhat by not asking a consultation question on the three options or by expressing a preference for the 'outside company fund' option in the consultation.

Focusing on the 'outside company fund' approach in the consultation document

40. If you agree that only the outside company fund approach should be pursued, we could outline it in terms that show the Government's direction of travel but which do not to commit at this stage to Government controls that would trigger the ONS to classify the fund to the public sector.

41. The benefits of this approach are that contingently, we are working towards (i) an Energy Bill and, (ii) (if possible) detailed draft regulations on the

funding arrangements to follow hot on the heels of the nuclear consultation in the autumn. It would be useful to give as much indication of direction of travel of Government policy as possible. In addition, the deadline of the consultation publication might encourage Treasury and EE Committee to agree to the policy proposal of an outside government fund very quickly. This policy decision could then be built on in coming weeks rather than being re-opened.

42. The disadvantages of this approach are that it would commit us to an outside company fund arrangement before we have confirmed that the funding arrangements will not score to the public sector. Nor would we have yet resolved the other difficulties, such as the accounting and tax issues.

43. The two alternative formulations for the consultation text are included at Annex C

Work plan

44. The work plan has been modified to reflect the JR ruling. We propose that broad powers should be sought through the Energy Bill proposed for the Third Session (2007-08). If ready in time, we propose that in parallel with the Bill, we should consult on the detailed application of the powers sought in the form of draft regulations.

45. We propose to take forward the work on the base case by developing a number of scenarios and working with industry, the regulators and other interested parties to develop one or more possible base case(s). We would then aim to consult on these proposals in late 2007, before settling on the final base case during the first half of 2008.

46. Work to identify the inventory of waste from new nuclear build would be done in parallel, which would allow us to develop an estimate of the costs by the summer of 2008.

Next Steps

47. We are keen to be able to set out as much detail on waste and decommissioning as possible in the forthcoming nuclear consultation. We would like to resolve the remaining issues with Treasury in time to allow us to demonstrate a clear way forward in the consultation document. Tim Stone will submit a paper to the Treasury outlining the proposals contained in this submission. Once we know your views, we would aim to resolve any remaining differences through a meeting between Tim Stone and Treasury officials.

48. This paper has been approved by Tim Stone and Mark Higson.

Annex A – Detailed description of how the arrangements for satisfying Government that adequate funding would be available for nuclear new build waste and decommissioning would work
Annex B – Worked example of difference in annual contribution of public v. private fund.
Annex C – Draft consultation text on funding arrangements.

ANNEX A: ARRANGEMENTS FOR SATISFYING GOVERNMENT THAT ADEQUATE FUNDING WILL BE AVAILABLE FOR NUCLEAR NEW BUILD WASTE AND DECOMMISSIONING WOULD WORK

FUNDING ARRANGEMENTS FOR DECOMMISSIONING OF, AND WASTE MANAGEMENT FOR, NEW NUCLEAR BUILD

Objective

To ensure that new nuclear operators make adequate provision for decommissioning and waste management costs relating to new nuclear build.
Government needs to be satisfied that an appropriate structure is in place to ensure that any owners or operators of new nuclear power stations are obligated to accumulate funds to cover the full costs of their eventual decommissioning, as well as their full share of long term waste management and disposal costs, even in the event of early plant closure or insolvency.
The objectives in designing these arrangements are:

- to minimise the risk to the taxpayer that Government is called upon to meet either decommissioning or waste liabilities that the owner or operator has failed to adequately fund;
- to provide transparency in the funding arrangements, separation of those funds from the owner or operator's other resources, and the degree of security over those funds in the event of default on the part of the owner or operator;
- to give greater certainty to potential developers about the costs they will be required to meet and the arrangements by which they will meet them - this is also necessary for investors to take project financing decisions; and
- to encourage developers to operate new build plant in a way that seeks the optimal balance between operations and waste creation.

In addition, Treasury are concerned that the arrangements are designed in such a way to ensure that the funds (and hence the liabilities) do not fall to be treated as part of the public accounts.

Background

Prior to operating a nuclear power generating facility, an operator must obtain a number of licences and approvals, as follows:

- A nuclear site licence under the Nuclear Installations Act 1965 (NIA 1965) (HSE/NII)
- An approved nuclear security plan under the Nuclear Industries Security Regulations 2003 (OCNS)
- Radioactive discharge authorisation under the Radioactive Substances Act 2003 (RSA 1993) (EA/SEPA)
- Non-Radioactive discharge consents under the Pollution Prevention and Control (England and Wales) Regulations 2000 and the Pollution Prevention and Control (Scotland) Regulations 2000 (EA/SEPA)
- Approvals for water abstractions and discharges to controlled waters under the Environment Act 1991 (EA/SEPA)
- Waste management licences under the Waste Management Licensing Regulations for non-radioactive waste (EA/SEPA)
- Consent under section 36 and 37 of the Electricity Act 1989 (EA 1989) (DTI, Scottish Ministers)
- Electricity generation licence under section 6 of the Electricity Act 1989 (OFGEM, in Scotland after consultation with Scottish Ministers)

- In the case of new designs which involve practices not either already carried on or justified, justification under the Euratom Basic Standards Directive 96/29 (as implemented by the Justification of Practices Involving Ionising Radiation Regulations (DTI, Scottish Ministers, Welsh Assembly, as appropriate))

An operator must also go through at least one Environmental Impact Assessment (EIA) process (in relation to the section 36 consent application). A public enquiry is likely as part of the section 36 consent process, and may also be held as part of the justification process, if it's considered expedient to do so. An operator must, of course, also obtain planning permission for the construction of the site.

Proposal

We propose that in addition to the pre-requisites listed above, Government should:

- Require a prospective nuclear operator to submit a "Decommissioning and Waste Management plan" and a "Funding Arrangements Plan" to the Secretary of State for Trade and Industry for approval; *"*

[NB, the contents envisaged for these two plans might be covered through a single "D&WM" plan, as is the case for oil & gas decommissioning arrangements. For the purposes of this paper, we will refer to two separate plans unless DTI legal suggest a different approach]

- Make it a duty on the operator to comply with the approved plans; and
- Make it an offence not to comply with the approved plans.

Certain elements of the plans would be prescribed through regulations and/or set out in guidelines.

Process

The diagram attached at annex A outlines the process that we envisage these new approvals following in practice. This process is explained below:

1. We propose that there should be a requirement on the operator to submit a Decommissioning and Waste Management Plan ("D&WM" plan) to the Secretary of State for Trade and Industry for approval. The SoS would not take a view or express an opinion on the technical and safety issues, which are, and would remain, the concern of the regulators. In addition, SoS would consult the regulators before approving the plan. For the purposes of financing, Government will indicate what an approvable D&WM plan would consist of by setting out guidelines. The guidelines will be based on a 'base case' decommissioning and waste management & disposal route. When the operator applies for a site licence, information contained in the D&WM plan that was relevant to HSE Licence Condition 35 (LC35) would inevitably need to be included in what is submitted to the regulators for approval.

2. As under the existing regime, to receive a license, an operator must submit its safety case (a decommissioning programme) to the regulators under LC35. Regulators approve arrangements for the decommissioning of any plant or process 'which may affect safety'. Our requirement for a D&WM plan exists alongside the existing regulatory regime, which remains unchanged by what we are proposing.

   N.B: The NII/HSE consider plans to ensure that they are deliverable technically and safely, however, they do not consider whether the efficacy of the plan. There are areas of uncertainty in the decommissioning and waste management route which regulators can live with, but which, from a financing point of view, Government would not be able to accept. For example: for the purposes of setting aside appropriate funding, the guidelines may state that operators must assume that waste will be stored on site for a period of 100 years; the regulator will not have an opinion on the length of time that we have specified, but as the operator's plan (in order to attain SoS approval) will

state that waste will be stored on site for 100 years, as noted in point 1. above, the regulator will need to ensure that the provisions the operator has made for safely storing the waste on site for that period of time are adequate. Note that the developer may propose alternatives to the decommissioning and waste management and disposal route set out in the guidelines. These alternatives must be submitted to the Secretary of State and the regulators for approval.

3. There would be a requirement on the operator to make payments to a fund. There would be a requirement to submit a "**Funding Arrangement Plan**" to the Secretary of State for approval, detailing the funding arrangements that the operator will put in place to calculate and meet the costs associated with the **"Decommissioning and Waste Management"** plan[3]. The fund must be independent of the company, it must result in sufficient funds[4] to meet the costs of the D&WM plan even in the event of early closure and these funds must be beyond the reach of liquidators in the event of insolvency of the operator. There will be a duty on the operator [and directors/trustees of the fund] to adhere to this plan. It will be an offence not to adhere to this plan. The Government will make regulations prescribing the minimum requirements for the Funding Plan, encompassing all or any of the specifics listed below:
    a. The structure of the fund (e.g. company limited by guarantee, Trust or alternative structure)
    b. How the fund will be governed (e.g. board of directors / trustees, how they will be appointed, terms of reference, constitution (i.e. the duty on the Trustees / Directors of the Fund);
    c. The investment policy for the fund;
    d. Proposals and arrangements for payments into the fund (e.g. up-front payment, front-loaded payments, annual payments, basis for payments (e.g. electricity output / fuel loaded / volume of waste generated or some other measure);
    e. Target value for the fund (e.g. if the fund is designed to accrue to a final total in excess of the estimated liability, the level of that excess) and the timescale within which the fund should reach that target;
    f. How the fund size and performance will be monitored and audited;
    g. The basis for repairing a deficit in the fund (remedial action);
    h. Arrangements for dealing with disputes relating to the fund; (e.g. Trustees view on costs will prevail over the view of the operator)
    i. What insurance or financial instruments will be put in place to top up the fund should the liabilities crystallise before the fund is mature;
    j. Circumstances in which payments would be disbursed from the fund, and how those payments would be disbursed;
    k. How any surplus funds would be disbursed from the fund at the end of the decommissioning and waste management process;

    N.B: some of the items in 5.a-k[5] will be prescribed through legislation, some will be covered in guidance that we will produce and on other areas, Government might remain entirely silent (although the range of options open

[3], The application of accounting rules require that the company i.e. the licensee must record the costs of the D&WM on its balance sheet. The company's auditors will audit the cost estimates arrived at by the operator. The relevant FRS provision can be found at: http://www.frc.org.uk/images/uploaded/documents/FRS%2012.pdf

[4] NB – see later comment on the subjectiveness of what is 'sufficient'. Requiring 100% of funds to be provided up front may not be practical or desireable. The right duty and incentives must be placed on Trustees / directors of the fund to ensure that they can exercise responsible judgement.

[5] Further comments and questions on points a – k are included in Annex B.

will be implied by the criteria that the fund must be 'adequate even in the event of early closure and beyond the reach of liquidators'. For example, Government will prescribe the basis for payments into the fund for the element of the D&WM which relates to the national deep geological repository, but may leave it to trustees to establish the funding approach to cover the costs of the other elements of the D&WM plan. The Government will put in place objective requirements, it will be for the Trustees/Directors of the Fund to take subjective judgements as to whether the objective requirements are being met. ***Annex B*** *considers some of the detail of a-k above.*

4. SoS, again following advice (from auditors, financial experts or other third parties as he sees appropriate), could approve the plan or approve the plan subject to conditions. Once approved, the SoS could not unilaterally change the plan.
5. The "D&WM Plan" and "Funding Arrangement Plan" must be approved by the SoS [prior to the building or[6] operation] of a nuclear power generating facility and must be adhered to. Failure to adhere to the plan/s would be an offence
6. Should the operator make any changes to the D&WM plan or should the operator or directors/trustees of the Fund make any changes to the Funding Arrangement Plan, these must be approved by the SoS.
7. To satisfy SoS that the Funding Arrangement Plan is being adhered to, there will be a requirement on the directors/trustees of the fund to submit to the SoS audited details of the D&WM plan cost estimates and the size of the fund periodically and to notify the SoS if there is any deviation from the details outlined in the Funding Arrangement Plan.

Examples of situations in which directors/trustees of the Fund must notify the SoS include:

- *if the costs associated with the D&WM Plan are altered or revised, leading to a different 'target amount' for the fund;*
- *if analysis of fund investment performance demonstrates that the fund is [5%] lower in value at any given time than was provided for in the Funding Arrangement Plan;*
- *if the operator seeks and receives permission from the regulator to extend or shorten the expected operational life of a plant, leading to a revised prediction of the liabilities and value of the fund at the end of plant life;*
- *If the operator misses a payment to the fund or makes an insufficient payment.*

8. Sanctions: The consequences of non compliance with the plans must be such that directors of the company / trustees of the fund would never out of choice break the terms of the plans. For example at the extreme, non-compliance with the plans due to unwillingness (as opposed to inability) will be a criminal offence with criminal sanctions. *[Our DTI legal advisor has highlighted that in the case of oil & gas decommissioning, it is a criminal offence not to adhere to the approved decommissioning programme].*

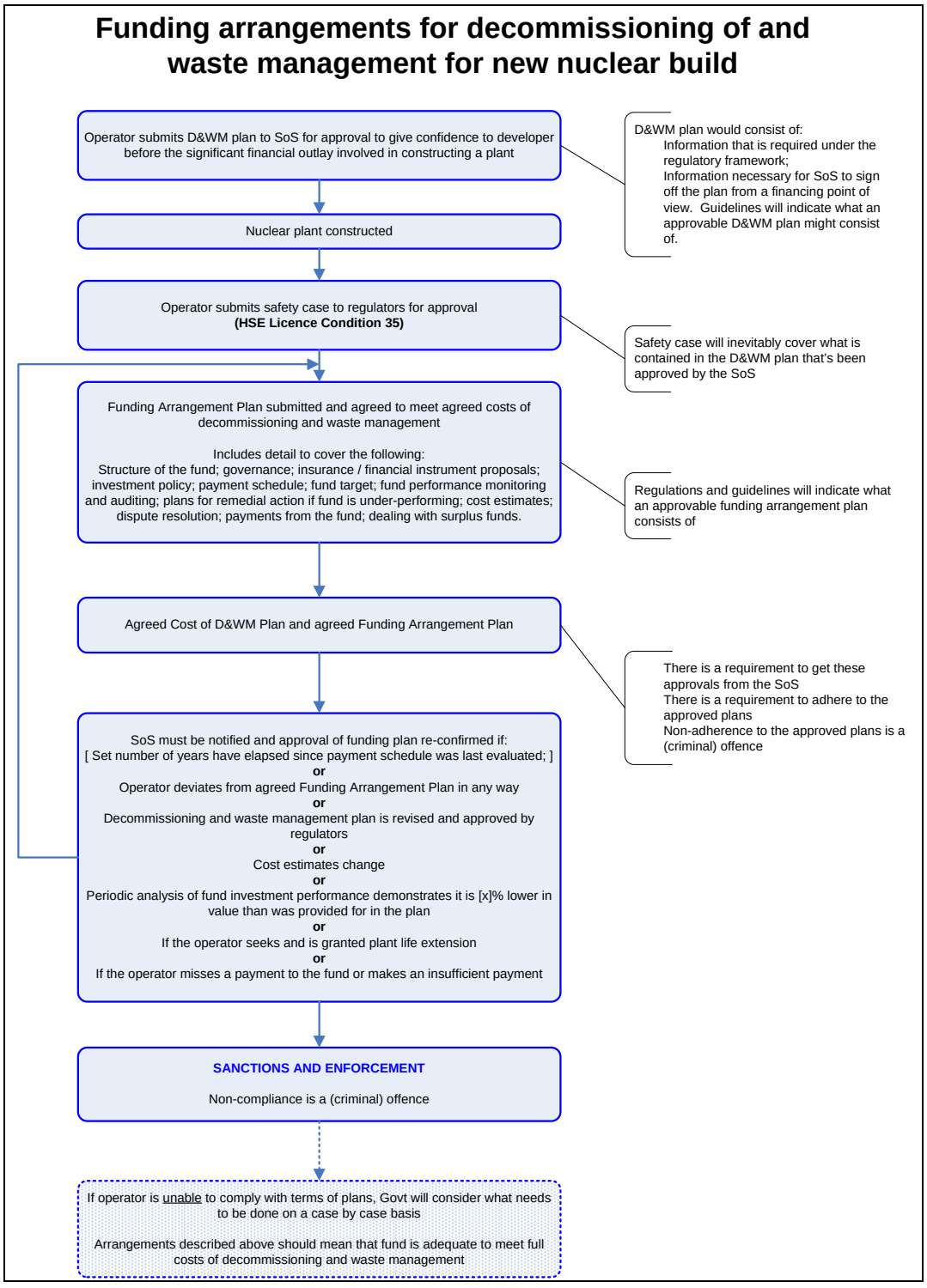
[NB: an alternative to this model is to make the SoS approval of the plans a necessary 'consent' or 'permit' for the operation of the power station. This would introduce a possible sanction of requiring electricity generation in a plant to cease if the permit is revoked. However, DTI legal has pointed out that there are possible disadvantages to this sanction, notably security of supply; bringing about an insolvency situation or inadvertently providing a way out for an operator who wants to exploit this. Our legal advisor increasingly favours a criminal sanction

[6] See later discussion about timing of the consents in "Question 1" later on this same page.

over a new consent approach. This chimes with current practice for oil & gas decommissioning].

9. If the company is unable to comply with the terms of the plans (as opposed to unwilling), Government will need to consider appropriate action on a case by case basis. (For example, BNFL and BE got into financial difficulties and Government had to decide what to do: for BNFL, part of the solution was the establishment of the NDA; for BE it was the 2004 rescue package.)

PROCESS FLOWCHART



ANNEX B – Worked example of the difference in annual cash contributions that would be required if the fund scores to the public sector rather than the private sector

1 We commissioned Ernst & Young to construct a simple Excel based model. The model calculates the implied annual funding required to meet a given liability amount at a set future date, with various other variable inputs.

2 The following example illustrates the impact of private v. public sector rates of return on annual contributions towards the decommissioning costs of a single reactor. This example makes some reasonable assumptions as follows:

a. Operational life of the reactor is assumed to begin on 1 January 2012 and last for 60 years.
b. The final liability is assumed to be £500m in 2007 money values, crystallising on cessation of the station's operations on 31 December 2072. (This translates to a nominal liability of approximately £4,760m in 2072 money values).
c. The model's start date (ie. the "current date") is assumed to be 1 January 2007.
d. Inflation is assumed to be 3.5% throughout the period. This is somewhat higher than current forecast CPI inflation, to reflect the large element of personnel costs that will be included in the waste and decommissioning liability (historically earnings inflation has been marginally higher than CPI). The role of inflation is significant due to the long time periods involved.
e. **Real returns on equities, gilts and other assets are assumed to be 4%, 1% and 4% respectively**, based on an analysis of historic rates of pre-tax return]
f. The liability would crystallise when the station's operational period ceased (66 years in the future).
g. Funding payments are made annually from commencement of operations (1 January 2012) until the end of the operational period (31 December 2072)[7].

Type of Fund	**Investment**	**Annual Contribution**
Private sector	60% equities, 30% gilts, 10% other assets consistently through the operational period. This asset mix is predicated on the premise that long term equity investments minimise the effects of volatility.	**£2.77m** (2007 money)
Public Sector	100% investment in gilts. This asset mix reflects Government policy for funds that score to the public sector.	**£5.93m** (2007 money) This represents an increase in annual contribution of 114%

[7] Other options include (i) an endowment payment (e.g. £50m required in year one, the remainder built up evenly over the 60 year life), (ii) stub funding (e.g. front loading the funding period into the first 40 years of operation), (iii) changing asset allocation (e.g. a mixed portfolio of investments for the first 40 years and then gilts only investment for the final 20 years of the station's life to lower the risk to the portfolio as the crystallisation date draws closer).

ANNEX C: Options for language on financing for waste and decommissioning in the nuclear consultation text

Principles for waste and decommissioning funding for new nuclear power stations

1. The Energy Challenge, published in July 2006, set out that participants in nuclear new build would need to make secure provision to meet the full costs of decommissioning and their full share of waste management costs, even in challenging downside scenarios. Funding arrangements would be designed according to the following principles:

Principles: The Risk Management Framework – Decommissioning

- There should be an upfront assessment of decommissioning costs.
- Full responsibility for decommissioning costs to be retained by the private sector operator(s).
- Protection will be given to the public sector regarding credit risk and reduced reactor life.
- The framework should be robust and transparent through time.
- These principles will form the basis of arrangements which will apply consistently to all new build operators and reactor types.

Principles: The Risk Management Framework – Waste

- Delivering and paying for a long-term waste management solution for legacy waste is a responsibility that falls to the public sector. Any long-term waste management solution developed by Government will factor in waste from new build.
- There will be an assessment of how new build affects the cost of delivering the national waste management solution.
- The private sector will pay a charge covering the full and equitable costs of managing the waste generated over the expected life of each new power station.
- The level of this charge will be informed by work on the Government's long-term waste management solution.
- The arrangements in relation to waste disposal will incentivise participants to operate power stations in a way that seeks the optimal balance between performance and waste generation.
- Protection will be given to the public sector regarding changes in reactor life and other factors.
- Provision of interim storage over the life of the plant will be the responsibility of the operator.
- The framework should be robust and transparent through time.
- These principles will form the basis of arrangements which will apply to all new nuclear build operators and reactor types.

Financing arrangements to protect taxpayer against liabilities from new nuclear power stations

2. It is Government's proposal that if the conclusion is reached that nuclear has a role to play in a low carbon generating mix, there must be a robust structure to ensure that owners and operators of any new nuclear power stations are obliged to accumulate funds to cover the full costs of their eventual decommissioning as well as their full share of long-term waste management and disposal costs. These requirements would be set out in legislation at the earliest opportunity. It is considered that these arrangements must be in place before consent is granted to [construct / operate] any new nuclear power stations and adherence to them will be a condition of operating a plant.

EITHER VERSION 1 (IF NO AGREEMENT FROM SECRETARY OF STATE AND TREASURY ON WHICH APPROACH TO PURSUE)

3. There are three generic structures through which funds could be accumulated over the operating life of the station to cover the decommissioning and waste management and disposal costs. One or a combination of these three approaches could be adopted. Each approach could be designed in a number of ways but, broadly, each can be described as follows:

- The private sector operator of a power station is required to accumulate funds in a separable, designated form albeit that the assets are still held within the company itself, and hence are reflected on its balance sheet;

- The private sector operator is required to make payments to a separate, independent fund or body, such as a trust.

- The private sector operator is required to make specified payments to a designated Government controlled entity or direct to Treasury.

4. In designing the funding arrangements, variants of these options will be tested against the objective of ensuring that new build operators make secure provision to meet the full costs of decommissioning and their full share of waste management costs, even in challenging downside scenarios and tested against the principles set out above.

OR VERSION 2 (IF AGREEMENT IS REACHED IN FAVOUR OF THE "OUTSIDE COMPANY, INDEPENDENT FUND" APPROACH

3. The principal characteristics of this structure would be that:

- The private sector owners of new nuclear power stations would be required to make cash payments to one or more separate, independent bodies or funds throughout the operational life of the station. The nuclear power plant owners would not have access to these funds;

- The fund or funds must be designed to meet the full costs of decommissioning and the full share of waste management costs, even in challenging downside scenarios;

- As a condition for operating a station, Government would need to be satisfied that the arrangements relating to the fund or funds were in conformance with the principles set out above and secure, even in challenging downside scenarios.

4. Government intends to consult on the detailed regulations that would set out how any new powers governing financing arrangements would operate.