

March 2011

**Response to  
Funded Decommissioning Programme Guidance  
and  
Waste Transfer Price consultations**

We welcome the opportunity to comment on DECC's *Consultation on revised Funded Decommissioning Programme Guidance for New Nuclear Power Stations (noted as the FDP)*<sup>i</sup> and the *Consultation on an updated Waste Transfer Pricing Methodology for the disposal of higher activity waste from new nuclear power stations (noted as the WTP)*<sup>ii</sup>

In discussing the proposals contained in the consultations, we do not mean Greenpeace agrees with proposals to build new reactors.

**Summary**

Main points are that:

**Subsidy/taxpayer risk**

- the change from a 'fixed unit' price to a maximum cap under the 'Waste Transfer Price' (WTP) for what operators will expect to pay for disposal still implies a subsidy to new build operators.
- leaving a period of 30 years - after operations - to settle a Final Price for disposal assumes too much about reactor lives (and relies too much on industry expectations for generation) and risks leaving waste management and disposal underfunded. There should be no cap on waste disposal costs.
- in order to accommodate the many uncertainties around disposal, but to facilitate new build, and provide 'certainty' to investors, the Government's proposals unjustifiably and unfairly lean too much in favour of nuclear investment.
- it is assumed that monies will be accumulated, and companies will remain viable and solvent, over the timescale necessary to see completion of a FDP – a period of many decades and long after revenues from power generation may have ceased - and the completion of the Decommissioning and Waste Management Plan (DWMP) and Funding Arrangements Plan (FAP). This flies in the face of the experience in the UK, for example it is less than 10 years ago that the main nuclear power generator in UK was formally insolvent and had to be bailed out by the taxpayer both as an emergency measure and in the long term.

**Omissions from consideration**

- the Government continues to rely on what it calls successful completion of processes connected with new build and ignores the fact that they are still subject to significant uncertainty, in particular uncertainties over siting, establishing and operating a geological disposal facility (GDF) in order to make plans and determine costs. The Government should recognise, throughout, that there are still no finalised proposals for a disposal facility.
- the proposed changes to the Secretary of State's (SoS) powers to modify a Funded Decommissioning Programme (FDP) - to 'fetter' his powers are not dealt with in the consultation even though they could have far reaching implications.

- the WTP consultation does not properly discuss outstanding and unresolved problems of waste and spent fuel management and encapsulation and funding for these.
- the consultation does not fully explain how the FDP processes might impact on other relevant process e.g. Managing Radioactive Waste Safely (MRWS) process
- there is no mention of the relevance to the revised Paris and Brussels conventions on accident liability, and how measures for proposed legislative changes (which will incur financial costs) could have implications for spent fuel and waste management and disposal.
- the consultation does not address the introduction of new elements to new build in other current consultations, such as proposals to use plutonium-uranium (MOX) fuel. This is not discussed but has wide implications.

### Secrecy

- it is unacceptable that the agreements, which will have practical and financial implications for over 100 years, will remain closed to public input or Parliamentary scrutiny until after they are decided on. Agreements, and any modifications to them which impact on the funding, or the practical arrangements concerning decommissioning, waste and spent fuel management and disposal, must be open for public information and participation and Parliament scrutiny.
- key information on cost modeling has not been made public

### **A public consultation?**

As with every other consultation on nuclear matters, these two come with their own series of very complex proposals as well as being held within a mix of other complex but inter-related consultations. Consultations such as that on the six energy National Policy Statements (which closed in January), the consultations on plutonium disposition and that on international liability (accident) conventions and changes to UK legislation, as well as that on Electricity Market Reform, all overlap with these consultations in terms of timing. This makes it impossible for the informed consultee properly and fully to respond.

Each of the other consultations, and the matters they consider, have an impact on the rationale for the FDP and WTP consultations or have a direct impact on the result to be achieved e.g. the proposals to possibly change the legislation on insurance cover in the event of an accident to also include nuclear waste repositories as well as reactors.

To understand and appreciate the breadth and impact of the proposals in this consultation, also requires an understanding of the debates around the Energy Act 2008, as well as subsequent relevant consultations.

On this we note the previous documents on these matters:

- Funded Decommissioning Programme Guidance, 2008,
- three pre-consultation papers on the Fixed Unit Price (2009); and
- the consultation on Fixed Unit Price (2010).

There are also legislative changes proposed or being made which appear to be relevant to the current consultations.<sup>iii</sup>

In addition, all the responses and other material submitted in reply to the earlier

consultations need to be considered.

It is highly unlikely members of the public, NGOs or local authorities with interests in the matters the consultations cover - in particular in localities where there may be new reactors and where the decisions made following these consultations will have practical impacts - will be able to find the time and necessary expertise to comment on these documents?

It is suggested that the Government should bring together in one document all the proposals which affect each other so that the public concerned can be fully consulted.

Greenpeace has already provided much comment and evidence on this matter to official processes, such as:

- memos and made submissions for the hearings on the Energy Bill 2008,
- evidence to the Public Bill Committee hearings on the bill -
- a response to the FDP consultation in 2008<sup>iv</sup>; and
- responses to the 2010 consultation on Fixed Unit Price.<sup>v</sup>

This response is made as a series of comments on key issues raised in the current consultations. Greenpeace refers DECC to previous submissions it has made on this issue and asks that they be taken into account along with this document.

Parametric cost model. The NDA parametric model has not been released, making it virtually impossible to fully check the basis for the methodology in the paper.

Greenpeace has asked if DECC will release the NDA's Parametric Cost Model - which is the basis for all costings in the WTP consultation.<sup>vi</sup> DECC said the model is primarily for internal use and "not really user friendly", but the NDA is prepared to demonstrate it - if people go to the NDA offices at Harwell. DECC informed Greenpeace that a demonstration has already been run for some of the utilities. How can it be considered a public consultation if people have to go through such arrangements to see the financial model?

It is not acceptable in a public consultation that essential information is, effectively, being withheld from scrutiny by all interested parties due to the failure of DECC and the NDA (both of which are well funded) to find a method of releasing the information.

Greenpeace asks that this information, essentially for proper consultation, be made available to the public in a readily accessible form.

### **What's included in an FDP – according to the draft guidance?**

We note that, according to the draft guidance, it is proposed an FDP covers the:

- the Decommissioning and Waste Management Plan (DWMP) which will set out details of the steps to be taken in relation to what are called "technical matters" and the estimates of costs likely to be incurred in connection with the "designated technical matters" (1.8 FDP); and
- the Funding Arrangements Plan (FAP) should set out details of any security to be provided .....in connection with meeting the estimated costs of carrying out the plans (as set out in the DWMP) for the decommissioning of the site and for the management and disposal of waste arisings (i.e. the designated technical matters)

(1.9 FDP).

The FDP notes: *The DWMP is therefore intended to cover all technical matters (including designated technical matters) whereas the contents of the FAP should relate only to designated technical matters.*<sup>vii</sup>

We note (FDP) that:

*2b.6 The technical matters are the steps set out in the DWMP relating to the decommissioning of the power station, cleaning up of the site, and waste management and disposal activities. The requirement that these be set out is intended to meet the overall objective of the FDP that operators make prudent provision for the full costs of decommissioning their installations; and their full share of safely and securely managing and disposing their waste, and that in doing so the risk of recourse to public funds is remote at all times.* (our emphasis)<sup>viii</sup>

We also note, on (2b.8 FDP) this indicates which activities will be designated technical matters under the Energy Act and that (2b.9, FDP): *The key difference between the technical matters and the designated technical matters is that the cost of non-designated technical matters are to be met by the operator from operational expenditure, while the costs of designated technical matters must be provided for in the independent Fund which operators will be expected to set up.* (our emphasis)

The above are key in terms of understanding the timing and the relation of all the activities (and plans which concern them) which are to be covered by an FDP and what funds have to be accumulated and under what mechanisms (as per the draft guidance).

Firstly, it is understood the FDP has to be in place before any 'nuclear safety related' work (on a reactor) i.e. any work which is regulated by the NII as being essential to nuclear safety.

Secondly, it is important to consider what has to be in the DWMP presented to the SoS for his agreement prior to key construction milestones – and what will be *known* at that time. The processes (and progress) on the GDF are important to an FDP as this will have to be agreed before reactor construction. Yet a GDF will not be established (if at all) for some decades. In addition, it will be subject to a completely separate process i.e. Managing Radioactive Waste Safely (MRWS) – as well as being subject to a different set of planning and regulatory procedures from those which govern the FDP process.

In relation to this, we note (2b.12 FDP) that the SoS expects the DWMP to be divided into three principal phases and there are a number of elements that an approvable DWMP would "also be likely to include." These are, among other things:

- *A clear timeline showing key milestones and giving scheduling assumptions in each of the three phases of the Base Case as defined below.*
- *A summary of the key assumptions underpinning the operator's DWMP. In particular the operator should provide details of any assumptions that differ from the Base Case, with an explanation of reasons for any proposed deviation from the Base Case.*
- *An explanation as to how the assumptions and parameters underpinning the DWMP are expected to evolve over time as the new nuclear power station operates and draws near to*

*closure.*

It is not made clear exactly what 'key milestones' are to be shown (i.e. which activities) and how the public/local communities around sites will be notified of any changes from the base case, as per the guidance. If, for example, the milestones include actual disposal - which will not be certain (at the very least) for some decades - it brings into question how a DWMP can include milestones - unless these are accepted as being no more than expectations rather than achievable outcomes. Greenpeace finds this part of the guidance unhelpful and incomplete at best and at worst creates the impression of there being more certainty over disposal than in fact there might be (depending on what a DWMP might list as 'milestones.')

Alongside the FDP, the Government will agree with operators a process on determining waste disposal costs and the funds needed for waste and spent fuel management.<sup>ix</sup> This will also include the terms on which the Government will accept title and liability for the wastes and spent fuel. Thus, under an FDP, dates for transfer of wastes and spent fuel (based on uncertain disposal timelines) and costs (also based on uncertain disposal timelines) will be offered *before* reactor construction and also before key activities are finalised and real costs known. This is clearly unfeasible.

### **Oversight, modifications and SoS powers**

There is too much flexibility built into the FDP process (33 FDP). The level of flexibility allows operators to move from the base case - which creates uncertainty for on-site operations and local communities around both reactors or possible GDF sites.

We note (1.17 FDP) that: *The FDP must be durable so that the arrangements set out in the FDP remain applicable for the generating lifetime of the station, throughout decommissioning and until the operator has satisfied all of its obligations under the FDP.*

How this can be done before a disposal route - let alone agreement on a possible 100 years of spent fuel storage (and encapsulation) - is decided? Overall this indicates that a number of modifications will be needed to the FDPs over time to accommodate the many - and potentially significant - changes which are likely to take place (all without public input and Parliamentary oversight).<sup>x</sup>

Greenpeace asks DECC to ensure the guidance does not include anything which is liable to mislead the public or other into thinking that there are solutions where, in fact, none exist.

In the FDP there is an emphasis on plans for the DWMP. However, given the lack of direct instructions on this, from the regulators and the Government, it is reasonable to ask just how much reliance can be placed on such plans.

The lack of clear directions (as opposed to guidance) almost appears designed to maximise the possibility of modifications to the FDP, yet at the same time the Government is intending to pass legislative amendments which will constrain the power of the SoS to make future amendments - and all this before the first reactor application has gone to the IPC or the NII/EA have provided the reactors (and essential plant such as spent fuel stores) under the Generic Design Assessment process.

The Base Case presents the generic case and leaves too much of the specific (2b.16-.

2b.18 FDP) to the closed discussions around the agreement. This favours the industry over public interest in disclosure of information and leaves much to be dealt with through modifications to agreements behind closed doors.

### Public and Parliament

In a meeting with Greenpeace (1st February 2010) DECC said the Government will 'encourage' industry to put as much as possible into the public domain, commercial confidentiality and security notwithstanding. DECC confirmed the FDPs - the agreements - would only be published after they have been finalised between industry and Government.

The Government is asked to reconsider any preliminary decision that is made following this consultation. It should insist that any nuclear operator publicly releases, immediately after an FDP is finalised, the terms and conditions of an FDP. There is a public right to know (under the Aarhus Convention) the details of any agreements which will impact on the environment and which, in this case, will also have the potential for long lasting impacts.

The responsibility to publish an FDP - or a redacted version - seems to rest with the companies. What responsibility does the Government have, on behalf of the taxpayer, to publish an FDP? There is no indication of how notification of an FDP decision will be made public or whether it will be accompanied by details of the FDP. No statutory deadline is given for publication of an FDP by the SoS. Neither consultation mentions precisely how the companies will publish details of the contract will be published.

To place such weight on commercial considerations rather than in the legitimate public interest in the environment is unlawful and undemocratic.

DECC has not explained how the discussions would tie in, or otherwise, with the Managing Radioactive Waste Safely (MRWS) Process and which the FDP will have an impact on.<sup>xi</sup>

DECC was asked also if there was, for example, any possibility of input from the public or local authorities to an FDP e.g. to ensure that there are compensation (aka benefits) packages, for reactor-site storage of spent fuel for 100 years (as some councils have indicated they would like to see. Such discussion as there is on benefits packages relates only to a GDF site (see 2.2.37 WTP). DECC said that any community benefits and reactor sites and spent fuel stores would be decided under any overall development package with operators, and not within the FDP process.

### Powers of the SoS

On Modification of an FDP, the document notes:

*1.28 In determining whether (and if so, on what terms) to propose a modification to the FDP, the Secretary of State will have regard to the matters set out in this Guidance; in particular whether the modification is a necessary, appropriate or proportionate means to ensure that the Objective is met and the Guiding Factors are complied with.*

The Energy Bill 2011 will make amendments to the primary legislation concerning FDPs for new nuclear plants. The changes to the Energy Act 2008 are said to be necessary to provide certainty for new nuclear build investors, but according to DECC they will also 'fetter the Secretary of State's discretion over the exercise of the power to propose modifications to the FDP.'<sup>xii</sup>

It is not clear from the above if the changes safeguard the interests of the nuclear industry,

rather than add further protection for the public purse.

The DECC briefing<sup>xiii</sup> on the amendments (8th December 2010) notes they are:

*To ensure that there is an appropriate balance between the Secretary of State's powers to protect the taxpayer and the operator's need for clarity and certainty over how those powers will be exercised.*

Yet the proposed legislative change is referred to only once in the current consultation on the revised FDP notes:

*7. During the period of this consultation the Government is considering amending the Secretary of State's power under the Energy Act 2008 to modify an operator's FDP to ensure that there is an appropriate balance between the Secretary of State's powers to protect the taxpayer and the operator's need for clarity over how those powers will be exercised. This Guidance might need to be updated if those amendments are passed.*

As noted, the amendments, if passed, could lead to further changes to the guidance. It is not clear if the guidance (already on its second round of consultation) would then be subject to further consultation. In Greenpeace's view there must be public consultation.

No worked example of the impacts of the amendments is given in the impact assessment on the amendments.<sup>xiv</sup> If passed the amendments could lead to further changes to the Guidance. The amendments referred to in the consultation should have been clearly spelt out so the implications could have been examined; as it is the amendments and accompanying documents are poorly explained. Anyone commenting on the consultation would have a lot of extra research to do in order to be able to appreciate what is happening regarding these amendments, all while the consultation is taking place.

The amendments are being progressed even though it is acknowledged there are uncertainties over the full policy impact of the changes. It is not at all clear why this is being done now, as it is not expected that an FDP will be agreed between Government and industry for at a year.

The timing of an FDP - and what has to be in it - is very relevant to the lack of resolution around decommissioning and nuclear waste funding and the practicalities of waste and spent fuel management and disposal. These issues will likely remain unresolved for many decades. In this context, proposals to limit the discretion of the SoS to exercise powers to modify an FDP appear extremely premature and could impact significantly on the Government's negotiating power when it comes to agreeing or modifying FDPs with industry.

It would be ill advised to make changes to the Energy Act 2008 at this time when there is a public consultation the FDP guidance. The consultation is inadequate as it does not fully take into account the proposed changes to legislation and the powers of the SoS to modify an FDP, which is of particular concern when there are so many unknown factors on waste management and disposal.

DECC has told Greenpeace that despite the impression given, legislation still 'enables' the SoS to modify FDPs. We note that DECC said that in return for the amendments - which bind the SoS - the FDP will have to be more robust. While Greenpeace welcomes the opportunity to meet with DECC to discuss these matters, a full understanding of the impact of the amendments should have been in the consultation and not something gained through a meeting.

## **Waste transfer price, cap/price setting and deferral**

Consultation question 1 asks: *Do you agree or disagree that the level of the Waste Transfer Price should be subject to a Cap and that in return for setting a Cap the Government should charge a Risk Fee? What are your reasons?*

Greenpeace does not agree with a cap on waste disposal costs.

This is because the main reason behind setting a maximum cap which operators can expect to pay is to give certainty to new build investors (3.1.5 WTP), whereas no certainty is being provided for the taxpayer that the public purse will not eventually have to pay towards waste and spent fuel management and disposal. The claim that: *the Government's objective is to ensure the safe disposal of ILW and spent fuel from new nuclear power stations without cost to the taxpayer and to facilitate investment through providing cost certainty (para 3.1.7 WTP)* is just that - a claim. There is no guarantee this objective will be met, particularly if there is a price cap.

The removal of uncertainty and risk from the operators is a disguised subsidy and could be unlawful.

The history of this suggests that the Government has been caught between reassuring parliament and the public that there is to be no subsidy for nuclear power while wishing to meet the industry's demands for financial help.

Initially the Government proposed (October 2008): *2.9 The Government would expect to set a fixed unit price based on the operator's projected full share of waste disposal costs at the time when the approvals for the station are given, prior to construction of the station.* (our emphasis) <sup>xv</sup>

The introduction of a 'capped' price - as opposed to a Fixed Unit Price (along with the proposed 30 years deferral period before setting a Final Price) - is a significant change to the proposals. <sup>xvi</sup>

A 'cap' - to be set at the outset - the maximum the operator can expect to pay (1.14 WTP) raises many questions. Although it is recognised there would be some adjustments to funding arrangements over time for operators accumulate the monies up to the capped price (if necessary) from the very beginning operators will know there is an absolute limit on their costs.

That there is to be a cap plus risk premium is tacit acknowledgment of the risks of cost escalation. The cap and risk premium could however be exceeded. The benefit of doubt is given to the operators under the Government's proposals, with the risk (of subsidy) staying with the taxpayer. How can it be that certainty is given to the private nuclear sector and not the taxpayer instead?

In relation to this, it is noted (1.14 WTP) that: *The March consultation said that in seeking a deferral the operator would be accepting the risk that a Price set at a later date could be higher than the Price on offer at the outset, if estimated costs escalate sufficiently in the intervening period. Having considered the responses to the consultation, the Government's view is that it will be difficult for an operator to accept such a risk, given that there is very little the operator can do to manage and mitigate it. In contrast, the Government does have capacity to manage risks around waste disposal costs, as these*

costs will be heavily influenced by the manner in which the Government implements geological disposal. Therefore the Government's view is that it is reasonable for nuclear operators to have some certainty over their maximum exposure to these risks from the outset.<sup>xvii</sup> (our emphasis).

The risk to disposal and costs should remain with the operator and not be removed by the Government which cannot guarantee - regardless of the various mechanisms proposed - that the cap will not be exceeded. This means monies should be accrued for waste and spent fuel management and disposal by the operator but no cap set on them.

The SoS will set a Final Price, even in the event of there being no GDF after the deferral period (3.3.61-3.3.62 WTP). This raises the same questions as those around the 'unknowns' which would arise earlier in the process when an expected price is offered (1.12 and 1.24 WTP). That is because whenever a Final Price is set it still amounts to a limit on unknown levels of cost - and thus risks subsidy. Is it not clear how the SoS can determine a cap alongside a Default Date (3.3.64 WTP) as this will depend on the status of any proposals on disposal at that time. What if no plans for a GDF are in progress when a Final Price is set?

On 1.1.4 WTP (see above) the Government, may be able to 'manage' or 'influence' some risks, but it cannot control them all. For example, it cannot guarantee it will find a volunteer community, *with the right geology*, which will take *all* legacy *and* new build wastes. Minutes of meetings of Government officials reveal, in discussing project plans on geological disposal, their thinking on this matter: *Considering the draft project plan as set out October 08, it was noted that overdue tasks are those dependant (sic) on the local community, over which Government has no direct control.*<sup>xviii</sup> (This information was only released following a Freedom of Information request).

Despite the obvious problems, government appears to be willing to accept claims (2.2.28 WTP) that the costs risks are extensively within its control.

Quite how the Government will seek to control local authorities, the voting public, the money markets (so funds accumulate the necessary amount of money), independent specialists assessing geological suitability, security threats and many, many other aspects of the disposal process which are 'outside of its direct control' remains to be seen.

How it will seek to control the whole disposal process in the future, so it can be sure of the price offered (when the FDP agreements are made and the cap offered), is not clear? If it cannot guarantee it can control all of this, then a cap should not be given.

Indeed, we note (3.3.72 WTP): The best available waste disposal cost estimate is the current best estimate derived by NDA for their reference scenario. This is a single value base estimate rather than a distribution, as a detailed line-by-line assessment of the risks and uncertainties around this estimate cannot meaningfully be produced at this stage, in the absence of a site and final design for a GDF. (our emphasis)

We note the geological suitability of the only areas currently under consideration in the MRWS process (Allerdale and Copeland) is being questioned by experts in this field. Indeed, the suitability of the whole Cumbria region as suitable for geological disposal is being challenged.<sup>xix</sup> This demonstrates the shaky basis for the Government's assumptions.

On *Handling Uncertainty in cost estimates* (3.3.95-3.3.102 WTP) the issue of the level of uncertainty comes up yet again - particularly with reference to the fact that it is the intention to set the cap at the outset (e.g. 3.3.85-3.3.88 WTP).

Can DECC really decide on a risk fee high enough to cover all eventualities which may lead to an increase in costs over the cap, but which is low enough to not deter investors? This problem is acknowledged to a degree (3.3.107 WTP) but the proposals to set a cap continue forward with no discussion on when the whole policy (let alone agreements and contracts) might be revisited in the light of new information down the line if things do not go as planned?

It is clear the intention is to make decisions in the short term (1-2 years) regardless of major, unresolved issues which exist now and may not be resolved for decades. In the meantime new reactors - producing highly radioactive spent fuel - will have been built.

Despite criticisms made of the assumptions regarding costs in the March 2010 consultation, the Government has not changed its analysis of risks and uncertainty. (3.3.87 WTP).<sup>xx</sup> This flies in the face of the facts.

On (2b.26 FDP), we note the Base Case sticks to an assumed 40 year operating life for a reactor, which at first seems sensible based on what companies may need to accrue in terms of funding for waste costs. However, it then goes on to note that the current reactor vendors are proposing 60 years operating lives for reactors - and that plans can subsequently be changed to accommodate any extensions in operating life. Why has the Government not set the operating life to the average operating life now which is around 25-30 years (although an operating life 40 years may be achieved).<sup>xxi</sup> The Government should at least set a deferral date which is realistic in terms of the average life of a reactor in order to safeguard against the Final Price being fixed too late? (see also 3.3.6 WTP).

### **Costs, volume/weight, fuel mixing and storage**

#### **Volume and weight as unit cost basis**

On the pricing for the disposal of spent fuel and ILW we note the Government has moved from its proposed per kilowatt hour for spent fuel to a 'simpler' cost per tonne of uranium (weight) for spent fuel (2.2.53 WTP).

The volume/weight measure does not adequately factor in the problems with the heat-generating capacity of new build spent fuel - which is it recognised is a factor in both the management *and* the disposal of new build fuel. Using weight/volume alone is a clumsy measurement and although probably very helpful to the new build industry does not recognise the problems of new build fuel - which will be exacerbated further still if MOX is used.

#### **Radioactive inventory**

Using volume/weight as a basis for disposal costs is not enough. The unit costs should take into account the radioactive inventory of spent fuel (it does not have to be based on a specific isotope). This would recognise that new build spent fuel (i.e. based on a 10GW programme) would contain three-fold the amount of radioactivity as all legacy wastes and nuclear materials (from the past 50 years of activity) combined.<sup>xxii</sup>

This could be relevant, at the very least, to the issue of any compensation package for the

communities considering a GDF. Or is it DECC's intention to foreclose discussion on this by deciding on the WTP units and measures well before the discussions on inventory and compensation take place through the MRWS process?

### Fuel Mixing

The issue of radioactive inventory (and heat generation) is clearly an issue which is why the NDA has said a 'judicious mix of short and long cooled fuel' <sup>(xxiii)</sup> would possibly shorten storage time before disposal to 50 years, from the original 100 years (to help in reducing storage costs and time and possibly disposal costs also).

Questions naturally arise over the mixing of long-cooled and short-cooled fuel mixing and how it might be achieved? Could legacy spent fuel be used to enable 'quicker' disposal for new build fuel, but at the risk of leaving legacy wastes above ground for longer? If this did happen what impact it might have on costs in terms of subsidy? The consultation does not state either whether operators will be allowed to swap fuel to achieve shorter storage times pre-disposal.

If fuel mixing does not take place as planned then both the variable costs of contributions to a GDF may change for new build operators due to the proportion of space required (and other factors).

If it is found however that the long and short cooled fuels cannot be mixed - the disposal (and costs) become more of an issue then the Final Price will be affected. Using tonnes of uranium as a unit may be simpler for the industry, but leaves the risk of increased costs in terms of , storage times (at reactors sites or off-site) and encapsulation etc to be addressed as well as practicalities of spacing and disposal in a GDF. On this we note a recent presentation an MRWS meeting which raised concerns over potentially significant environmental impacts arising from the heat generation of new build spent fuel in a GDF. <sup>xxiv</sup> (. With regard to this, it is important to be mindful also of the potential worker exposure in handling higher burn up fuels, and the possible environmental impacts of encapsulation (or other handling or conditioning) of the spent fuel.

On the potential health and environmental implications of spent fuel management and disposal the consultation makes no mention of when the Justification process will be applied to the above ground works and/or GDF (either together or separately).

### Whose fuel gets to share the legacy GDF?

When it met with DECC, Greenpeace asked DECC if it would give preference to different operators based on a) when they built the reactors and/or b) when they applied for an FDP or WTP? DECC acknowledged the consultation is 'silent' on this matter. We note 3.3.16 WTP that operators may want to set a final price before the end of the deferral period? (We also note a new Cap may be set for each new operator applying for a WTP (4.2.4 WTP ).

On this we note that in a 2009 pre-consultation paper it was recognised the first new build operators entrants would likely be disadvantaged in the setting of a 'fixed unit price' as the earlier they applied, the more risks attached, as there were more uncertainties. <sup>xxv</sup>

How will DECC deal with any jockeying for position on a final price and disposal timeline for different operators? Whose waste gets to share a legacy-new build GDF - and

therefore how soon spent fuel is sent for disposal - is not an incidental matter as it will have very real implications for communities living around reactor sites or possible GDF(s) and what might happen in their localities.

How might the possibilities pan out in terms of the order in which operators will apply for a Final Price? What if operator X builds a reactor later than operator Y, but applies for the final price before operator Y? Operator X does this so it can benefit from the cost sharing which will come from using a legacy-new build waste repository. However, Operator Y (and others) may have built their reactors earlier than X, but have deferred in applying for a Final Price until later than X hoping for the greater cost certainty promised by the Government. In doing so they also risk having to pay much more if their spent fuel has to go into a second (new build waste only) repository.

### Assumed Disposal Date

It is Greenpeace's view that the Expected Assumed Disposal Date (3.3.19 WTP) or the date the Assumed Disposal Date is given (3.3.109-3.3.111 WTP)<sup>xxvi</sup> might be subject to more delay than is anticipated. The whole process risks setting dates - and raising expectations - too far in advance of objectives becoming reality. Similarly, giving an indicative timing of when title and liability might transfer to the Government for waste and spent fuel (when the waste contract is initially agreed 3.1.2 WTP) is very relevant. That this might be reviewed later does not detract from the fact that the contractual obligations will in all likelihood be used to put pressure on communities - none of whom will have had a say in the FDP negotiations - to agree to a GDF.

### MOX spent fuel

The Base Case (page 45 FDP) assumes the new reactors will use uranium or uranium oxide fuel, yet at the same time this consultation is taking place DECC has published a consultation giving the Government's preferred option (for the disposition of the UK's plutonium stockpile) as reuse in MOX fuel.<sup>xxvii</sup> The use of MOX fuel could have many practical and financial implications which these consultations do not address.

The potential use of MOX fuel, which is more radioactive than new build fuel, could massively complicate any future FDPs or modifications to them (and the Waste Transfer Price).

The NDA has not produced a timeline for storage and disposal of MOX spent fuel as part of the Government's consultation on plutonium.<sup>xxviii</sup> Given this, the consultation on the WTP should be done again running MOX fuel through the model. And the Government should re-consult on the result.

### Geological disposal facility - when and if

Throughout both the consultation documents there are references either to disposal or a GDF. The FDP (2b.14) asks operators for information about the predicted spent fuel inventory for the site and its relevant characteristics as this will have a direct bearing on the costs of waste management and disposal.

This gives the impression matters will be settled, via the FDP process, before reactor construction begins but before other crucial processes, e.g. the MRWS process, have run their course.

As DECC will be aware this is not the case, nor can it be in the context of this consultation.

In (2b.25 and 2b.26 FDP - pre-generation) on what an operator must provide information on (and which is to be consistent with information put before the Infrastructure Planning Commission - IPC) the consultation states that: An approvable FDP will require the operator to demonstrate that a credible disposal route for the ILW and spent fuel has been identified. The Base Case assumes that this will be in a Geological Disposal Facility (GDF) that the Government will construct to dispose of higher activity radioactive wastes. (our emphasis).

How will the timing of an FDP agreed impact on the MRWS process, surely the FDP process will pre-empt it? Also, if the first FDP is to be negotiated from mid-2011, how can any operator 'demonstrate' a 'credible disposal route'? Also, it is not clear what will happen if the IPC is not properly informed of operator plans.

On matters concerning timing, and what is achievable (and which relate to costs), we note: (FDP) 2a.13: The purpose of the quinquennial report, which is a detailed and comprehensive analysis, is to ensure that the FDP is up to date. For the DWMP this is to ensure that the plans for the decommissioning of the site and for the management and disposal of waste arisings are realistic, clearly defined and achievable and that the corresponding cost estimates are robust (set out in Part 1 of this Guidance). (our emphasis)

Further, (FDP) 2b.3: The aim of the DWMP is to demonstrate that the decommissioning of the nuclear power station and management and disposal of waste can be undertaken in a way which is prudent and consistent with the requirements and expectations of the safety, security and environmental regulators. By forming part of the FDP required to be approved by the Secretary of State, it is designed to ensure that a plan for these activities, based on established techniques and steps, is prepared prior to the construction of the nuclear power station. It is also designed to ensure that accurate and up to date estimates of the costs of decommissioning and waste management and disposal are provided, to demonstrate that prudent provision will be made to meet these costs. (our emphasis)

Again, it is asked how an operator can possible present a DWMP which will be able to 'demonstrate' that the disposal of waste 'can be undertaken' - and how can this be done not only before the construction of reactors (estimated to begin around 2013) but also when there is no known GDF site (and the geology is not known) and the first new build spent fuel disposal is not planned until 2130 at the earliest.<sup>xxix</sup>

It is also noted that it has been estimated it will take up to 2185, at least, to get all spent nuclear fuel from a (10 reactor) new build programme into a GDF. This is based on a reactor starting operations in 2020, closing after 60 years (and assuming no shortening of the original estimated time for cooling spent fuel i.e. it stays in storage for 100 years).<sup>xxx</sup>

Estimating an Expected Assumed Disposal Date as part of the initial agreement with the operators - as well as giving a capped price - lacks credibility given all the issues to be resolved over the next 90-170 years.

Nowhere near enough consideration is given to whether a second GDF may be needed (e.g. 2.2.41 WTP). Page 45 and 46 (FDP) assumes both ILW and spent fuel from new build will be disposed on in a GDF: whether even one eventuates, let alone a second one is build, is not honestly debated. Yet suggestions by Government in other documents - that at least a 16GW new build programme is likely - and desirable - strongly suggest a second

GDF would be required.<sup>xxx</sup> This should be acknowledged in the consultation: it is too late, on this important matter, to leave the need for a further GDF until later.

There have also been suggestions that the above-ground works for the first GDF, could service a second GDF - this brings this discussion (once again) back to the MRWS process and the considerations been made through that process which are sidelined by the FDP and WTP consultations. It seems that this consultation has not taken into account the existence or product of other consultations.

There is too much reliance on a GDF siting-process going to plan (e.g. 3.2.3, 3.2.5 WTP) and the Government's ability to manage costs around disposal (3.2.8 WTP). Yet, the process as set out by the NDA on how geological disposal will be implemented (e.g. 3.2.12 WTP) cannot be guaranteed. We also note the recent comments from the Energy and Climate Change committee on its concerns over the uncertainty surrounding disposal.<sup>xxx</sup>

The decision to further extend the deferral period to 30 years for setting the final price for waste disposal - based on the assumption this will happen after the first legacy waste emplacement around 2040 (and costs are more certain) is a massive gamble which could go wrong. Or, that a final price could be set (around 2025) once a site is selected, but before the first waste emplacement (3.3.14 WTP) is also based on the Government's over-reliance on the progress of disposal and its 'commitment' to this happening (3.3.15 WTP). All of this is at odds with the volunteer approach under the MRWS process and thus creates a false impression of the risks involved.

The process of agreeing an FDP looks very likely to tie the communities - particularly those living around a potential GDF - into agreements which will have been finalised well before they have considered key issues (e.g. on inventory). They will have had no say in these matters. No information is given on how the contractual arrangements of an FDP will impact on any agreements yet to be considered under the later stages of the MRWS process between the site developer and any new build operators wishing to either store waste and spent fuel near a GDF or dispose of it *and* the communities they are meant to negotiate with.

### Costs for spent fuel management and encapsulation

A lump sum is to be paid from the Independent Fund if waste transfers to the Government: *FDP 2b.27 In the event that the operator expects its waste to transfer to Government before the Assumed Disposal Date, the operator's DWMP should clearly set out those steps expected to take place after the Transfer Date and the cost of those steps. The operator's plan should also contain an estimate of the Lump Sum Payment, including an allowance for a commensurate risk premium, to ensure that the Payment is sufficient to cover all waste management costs incurred between the Transfer Date and the Assumed Disposal Date. (see also 3.3.18 WTP)*

Again, it is too soon to be making such a commitment as, if the ADD is wrong, it could entail significant extra costs not covered by the risk premium attached.

If the lump sum is to be transferred after decommissioning of the reactor takes place which, from the last consultation we assume to be around 20 years (after electricity generation ceases). This may be overly optimistic.<sup>xxx</sup> It has not been explained sufficiently in any document (concerning this matter) why the Government is assuming there will be no care and maintenance period post-generation but pre-decommissioning

(page 42, FDP).

The FDP (2b.36) states: *At present there is uncertainty over these waste management costs but this should reduce over time. By the Transfer Date it should be possible to estimate these costs with a much higher degree of confidence. Notwithstanding this, under this approach the Government would expect the operator's provision to be based on a conservative, evidence-based, estimate of the waste management costs and would expect the Lump Sum Payment to include a commensurate risk premium to compensate the taxpayer for taking on the risk of subsequent cost escalation.*

This may seem reasonable, yet only last March (nine months before the current consultation) it was noted, on encapsulation (which is an essential part of the pre-disposal process to be covered by the lump sum) that one approach would be for the Government to expand the scope of the Fixed Unit Price to cover these costs but that: *This would require the Government to estimate these costs, together with their attendant level of uncertainty. However this uncertainty is considerable, particularly around the costs of encapsulation, and hence the additional risk premium would be large.*<sup>xxxiv</sup>

No evidence has been presented to justify the lessening of concerns (or omission of them) over storage and encapsulation costs from those which appeared in the March 2010 consultation. The Government should consult on the basis of the best evidence available to them and not on the basis of unwarranted assumptions.

We acknowledge the Base Case assumes that spent fuel storage and encapsulation takes place at reactor sites, but also see no evidence to back up claims that: *However in the event that regional or central facilities were available for either storage or encapsulation of spent fuel that should lead to significant reductions in waste management costs. (2b.32 FDP)*

On the issue of shared facilities for legacy and new build wastes and potential subsidy, (2.2.17 WTP) the Government's response (2.2.23 WTP) is inadequate and downplays real concerns - without providing any evidence - that subsidy could arise to new build through sharing facilities.

On the Summary of *principal costs streams and how they will be met*. Under the section on Spent Fuel (page 51, FDP) the ordering is that encapsulation of spent fuel for disposal comes *after* the transport of spent fuel for disposal. If the base case is - first and foremost - encapsulation at reactor sites, then the Guidance should reflect this and have these two reversed and placed in order of which they are expected to take happen.

## **OTHER/GENERAL POINTS**

The guidance should be more prescriptive. The non-prescriptive guidance and then the powers to modify the FDP (coupled with constraint of SoS powers) and the vagaries over Final Price, as well as the 'flexibility' on many unresolved issues, favours the nuclear industry to the potential detriment of the taxpayer.

On EU state aid law the WTP paper states (3.1.6): *The Government's approach to taking title to and liability for ILW and spent fuel will be subject to ensuring compliance with EU State Aid law.*

No explanation is given as to how exactly the Government will demonstrate its measures do comply with EU State Aid Law; Greenpeace assumes that the Commission, which is the

sole arbiter on this issue, will be asked to approve any scheme in advance and that the Government accepts that, without this approval, subsidy is plainly unlawful.

On the Funding Arrangements Plan (para 2c. 9 FDP) we note: *Any structure proposed must be demonstrably capable of accumulating and receiving sufficient funds to meet the plans as set out in the DWMP for the designated technical matters.*

Given the timescales involved it is not unreasonable to ask how - over a possible 160 years for spent fuel storage (covering that created from when the reactor first goes critical to when a GDF may be able to received the final spent fuel) the Government can guarantee that all relevant funding is in place in the case of insolvency (2c.11-2c.12 FDP). Within recent years both individual nuclear companies (e.g. British Energy) have gone bankrupt and other major financial institutions have gone to the wall (sometimes very quickly, quicker than an annual or quinquennial review would have spotted).

What certainty can there be that the organisation holding the funds for the DWMP will be 'safe' over the time period required? Of course, the Government will say it will ensure this via the FDP arrangements, but given such agreements are secret, how will the public and Parliament really be able to establish the safety of such funds?

Notification/credit rating: On the final dot point in (2a.20 FDP) and the requirement to notify the SoS of: *'Change in the credit rating of the operator, the Fund or of any entity providing a guarantee or other credit support under the FDP. '*

This seems particularly lame given the experience with British Energy. As a number of reports have since concluded, not enough was done to head-off BE's looming bankruptcy before it had to appeal to the taxpayer for a bailout. Yet it was known by the Government and the Shareholder Executive the company was in trouble.

On this, we ask if there will be protection for the taxpayer in having a schedule for the title and liability - and transfer of wastes and spent fuel - in batches to ensure that the Government does not agree - in advance of funds being available - to take *all* the spent fuel from a reactor or even a fleet of reactors? We are aware the Government is the 'last resort' in the absolute failure of any institution with practical or financial obligations for waste and spent fuel, but the onus should remain with the operator and associated companies (which may be overseas) to fund these liabilities.

Will there be a clause in the contracts which will enforce the necessary funding to be paid by associated companies overseas (or another Government's, as in the case of EDF which is majority owned by the French state) if a portion of the spent fuel costs has be to recovered - in the event a UK-based operator goes bankrupt?.

On Contributions to the Fund. On this we note (2c.38 FDP) that: *Payments to the Fund should be viewed as an essential matter during operation which must be serviced before debt and/or other costs as appropriate.*

The Shareholder Executive was, it is understood, meant to do a similar job on monitoring British Energy's viability, but took its payment of shareholders as a sign of the company's financial well-being (although there were not the powers to actually stop BE paying dividends to shareholders before its waste liabilities). The National Audit Office explains the problem in BE's case.<sup>xxxv</sup> On this also note the conclusions of the Public Accounts Committee on the Restructuring of British Energy in July 2007<sup>xxxvi</sup>

It is to be hoped the current administration has learnt from the failures over BE, but it might still be relevant if those who advised on BE are also advising on the FDP and WTP issues. This is not a Department with a good record on nuclear liabilities.

On Investment Strategy (2c.47-2c.53 FDP), we refer to Greenpeace's earlier submission (June 2010) where it was noted that: *The financial engineering (in the fixed unit price consultation is) designed to pay for disposal of spent fuel relies upon accrued interest funding around 70% of the total disposal cost. The energy utility would typically pay around 30% of the disposal cost over a 60 year period but then rely upon compound interest earned during the next 50 - 100 years to make up the shortfall. The arrangement transfers most funding risk to the stock market.*

Combining the risks of the nuclear waste management process and the financial markets (and possible returns on investments over 100 years) - when coupled with DECC's record on nuclear liabilities - indicates the potential financial problems around managing nuclear liabilities are massive.

Even with the best intention, the combination of different factors - variability in the FDPs over time, risks on waste and spent fuel management and disposal (which are practical, financial and political), the flexibility to operators proposals, the SoS powers (and how these are to be constrained), the potential problems with investment returns, disbursement of funds, the viability of the operators and associated companies - could either together or separately create many problems

On investment returns (2.2.34 WTP) states: *Over the many decades in which these funds are expected to operate, the Government considers it reasonable for an operator to plan on the basis that real terms growth in investments will be achieved. However it is important to note that the risks around fund performance lie with the operator not the Government.* (our emphasis)

Given the recent financial crisis this is a brave or perhaps foolish claim. The consultation gives the impression of certainty for investment, yet (4.5.11 WTP) goes on to note: *The performance of an operator's independent Fund will depend on a number of factors, including the Fund's investment strategy and the performance of the economy over time. It is impossible to project fund performance over the very long timescales involved here. Moreover, given the long timeframes involved, even small variations in assumed fund performance can have a very large impact on the estimated level of payments into the Fund.*

Linked to this is the issue of modification of an FDP (2a.43) *Modifications may include changes to the DWMP, for example to account for technical or operational changes to the nuclear power station which have had an effect on the cost estimates for the designated technical matters. Modifications may also include changes to the FAP, for example to reflect changes to contribution schedules in respect of the Fund to take account of changes to cost estimates set out in the DWMP or to reflect investment returns.* (our emphasis)

As noted earlier, there is too much reliance on the expectations of how much of the funds will come from accrued interest on investment returns. As with the issue of credit rating, we ask how a potentially significant down-turn in fortunes (which can happen very quickly) will be conveyed to the SoS and acted on - and acted on it time.

We note (2c.64-2c.66 FDP) on the guidance on Sufficiency of Fund and (2c.67-2c.72 FDP) Protection against an insufficient Fund. Again, there are questions over whether the Government will have the necessary powers - and be able to act in time - to reduce the risk of insufficient funds (particularly in the event of a major technical failure or terrorist act) and also whether it will be able to act to ensure 'associated companies' will step in if the operators fails to provide sufficient funds.

On reporting requirements, we note (footnote para 2a.6) that: The Government has proposed text for the Nuclear Decommissioning and Waste Handling (Finance and Fees) Regulations 2010 (the proposed Regulations) and expects to lay them in the House subject to parliamentary approval in time for them to come into effect on 6 April 2011. It seems odd to have already passed these before this consultation takes place as it assumes there will be no changes needed, regardless of the outcome of the consultation.

#### Variable costs

We note that apportioning Fixed Costs will be based on Variable Costs which cannot be provided at present (3.3.30 WTP). Variable costs are also assumed to be linked to 'demand' for disposal. This also relates to when a Final Price is set and whether it is at the GDF site selection stage or post-first waste emplacement (3.3.52 WTP). We note the consultation (3.3.77 WTP) acknowledges there could still be uncertainties around the variable costs even after the Final Price is set.

#### Fixed cost contribution

On fixed price contributions to the cost of a GDF from new build operators. We note: (2.2.43 WTP) *The starting point for the calculation of the Fixed Costs is expected to be at or around the time that the first price is requested by a prospective new nuclear operator. It therefore excludes all design and other costs incurred before that point. The consultation noted that there are categories of possible costs excluded from the current cost estimate but which might need to be added in later, such as the cost of community benefits associated with a GDF and the need to maintain institutional control for the facility post closure. To the extent that such costs are incurred or expected to be incurred as part of the GDF project, a new nuclear power station operator will be expected to pay their full share of these costs.* our emphasis (see also *estimating waste disposal costs* 3.3.25, 3.3.32-3.3.39 WTP)

It has been estimated that costs to date, to establish a repository, undertake R&D on various waste forms etc., is around £1bn. The Government is now saying that new build operators will not pay any of those costs. It will doubtless be argued that those costs would have been incurred for legacy wastes anyway. If there is a GDF and if it involves new build wastes then all development costs should be shared with new build operators as not including all the costs to date will constitute a subsidy to new build.

Fixed costs - (3.3.32-3.3.39 WTP) another 'unknown' is the size of any new build fleet - therefore ignoring certain earlier costs (see paragraph above) might benefit a few operators e.g. depending on the maximum inventory allowed for the GDF, fuel mixing and other criteria, but not others who may use a second GDF. The costs (based on a generic reactor) rather than the supposed commitment by pro-new build companies - to a 16GW programme - ignores the extent to which the waste and spent fuel inventory could drive a second GDF and who benefits. There should be worked examples using a 10GW, 16GW or even 20GW programme to give an idea of the potential impact overall - for either one or two GDFs.

Definitions in the paper differ from those used by CoRWM (e.g. disposal is not defined in either the FDP or WTP) and the EA in GRA papers. Given proposals on retrievability and reversibility, which will probably be discussed under the MRWS process, this could lead to confusion as to the actual outcome expected by all parties on these issues. Indeed, in this consultation, as with other Government and agency documents, common definitions and meanings are not shared.

The term 'waste transfer price' now covers both the earlier Fixed Unit Price element for disposal costs and the 'lump sum' for ILW and spent fuel management (and encapsulation) once title and liability passes from the operator to the NDA. WTP is defined (page 87) as: *the price paid by an operator of a new nuclear power station in return for the Government taking title to and liability for their ILW and spent fuel.*

WTP now joins together a price (for disposal) which will be capped at the very outset when an FDP is agreed, with the 'lump sum' which will not be capped i.e. the operators will have to accrue funds over the life of the reactor and then adjust the amount in the fund to cover estimated costs just before the monies are handed over. The change in name may seem small, but might it also indicate potential policy drift whereby the storage/encapsulation costs eventually becomes part of a 'fixed' price.

#### Liability/insurance cover

The consultation does not discuss how liability cover will be provided for spent fuel stores on site after generation has ceased but before the title and liability pass to the NDA. For the estimated 20 years to decommission the reactor (after which title and liability for spent fuel will pass to the NDA) the spent fuel stores will be the single biggest hazard on site. Insurance cover for this should be specifically stipulated as part of the FDP package. We also note the consultation on the changes to the UK liability laws are taking place at the same time as this consultation.

On the Base Case - working assumptions list. We challenge the idea that dose limits will be those in currently in use. Future generations may wish to impose the more stringent Basic Safety Objectives as in the NII SAPS (see GP Justification response, Feb 2009, pages 7-9).<sup>xxxvii</sup>

We also note (page 47 FDP) that LLW will be disposed of at the LLWR in Cumbria or 'a successor facility.' As with the higher activity wastes, the question arises as to what will happen if there is no new national disposal facility for LLW?

#### Conclusions

The consultation has presented inadequate information.

Some of the information is misleading. This is the particularly the case for all the references to future waste disposal which seem to assume problems have already been overcome.

The proposals are a disguised form of subsidy.

The proposals to keep the future agreements and arrangements from public view and scrutiny are undemocratic and unlawful.

The process undermines the voluntarism approach around the siting of a GDF and key issues concerning it such as the inventory of wastes to be disposed of.

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- i Consultation on revised Funded Decommissioning Programme Guidance for New Nuclear Power Stations <http://www.decc.gov.uk/assets/decc/Consultations/fdp-guidance-new-nuclear/985-consultation-revised-fdp-guide.pdf>
- ii Waste Transfer Price document: <http://www.decc.gov.uk/assets/decc/Consultations/nuclear-waste-transfer-pricing/984-consultation-waste-transfer-pricing-method.pdf>
- iii e.g. *The Nuclear Decommissioning and Waste Handling (Designated Technical Matters) Order 2010 (SI 2010/2850)* came into effect on 30 November 2010.
- iv <http://webarchive.nationalarchives.gov.uk/20090103073128/http://www.berr.gov.uk/files/file48074.pdf>
- v Greenpeace response to consultation questions, June 2010 C:\Documents and Settings\Jean\Local Settings\Temporary Internet and Jackson consulting report on fixed unit price cost modeling Files\Content.IE5\M1O7SZ4L\674-nuclear-decommissioning-cons-responses[1].zip <http://www.greenpeace.org.uk/files/pdfs/nuclear/gpuk-fupsim-report.pdf>
- vi (3.3.90 WTP) *The detailed cost estimate resulted from a rigorous process in 2007/08 that included bottom up estimates with costs and prices included from tender information, quotations, relevant industry data and current salary levels. (3.3.90 WTP)*
- vii See Page 20 The Energy Act 2008 Consultation on The Financing of Nuclear Decommissioning and Waste Handling Regulations Designated technical matters <http://www.legislation.gov.uk/ukpga/2008/32/section/45>
- viii See also FDP 2b.7 *Some of the technical matters are designated technical matters. These are defined in the Energy Act as being the steps that need to be taken to decommission the installation and clean up the site (which includes the management and disposal of waste) after the nuclear power station has finally ceased generation. The Act also envisages that certain steps undertaken during the generating life of the station may also be specified as designated technical matters by Order.*
- ix WTP 3.1.2 *Alongside the approval of an operator's FDP, the Government will expect to enter into a contract with the operator regarding the terms on which the Government will take title to and liability for the operator's spent fuel and ILW (the "Waste Contract"). In particular, this agreement will need to set out how the price that will be charged for this waste transfer will be determined (the "Final Price"). The Final Price will be set at a level consistent with the Government's policy that operators of new nuclear power stations should meet their full share of waste management costs.*
- x I It is not clear in terms of reference to 'transparency' and 'good industry practice' (e.g. para 3.3.46 and 3.3.55, 3.3.68 WTP), who the details of agreements will be made known to.
- xi WTP 3.3.11 notes there will be independent oversight on the pricing and review, but not public or Parliamentary oversight.
- xii <http://www.decc.gov.uk/assets/decc/legislation/energybill/544-energy-security-bill-brief-nuclear-operator.pdf>
- xiii *ibid*
- xiv <http://www.decc.gov.uk/assets/decc/legislation/energybill/993-energy-bill-2011-ia-nuclear-operators.pdf>. The relevant section of the proposed Energy Bill 2011 is <http://www.publications.parliament.uk/pa/ld201011/ldbills/033/11033.72-77.html#j121>.
- xv Pre-Consultation Paper No1: on a methodology to determine how the fixed costs of building a geological disposal facility should be apportioned and share between operators of new nuclear power stations. DECC. October 2008.
- xvi 4.1.3 (WTP) *As with the figures in the March consultation, the figures given here are for the purposes of illustration and should not be taken as representing the level of the Cap, Risk Fee or Expected Price that will actually be set for an operator of a new nuclear power station.*
- xvii We note WTP, 3.3.85 *The Cap will be determined by the Secretary of State at the outset and the Government will guarantee that the Final Price will not be higher than the Cap. In return for this guarantee the Final Price will include a Risk Fee. The Cap and the Risk Fee will be indexed for inflation. The Cap will be set at a level that reflects the Government's current analysis of risk and uncertainty around waste disposal costs and gives a very high level of confidence that actual cost will not exceed the Cap.*

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- xviii Minutes, Geological Disposal Implementation Board, 2 March 2009.
- xix <http://www.davidsmythe.org/nuclear/cumbria%20bgs%20exclusion%20report%20review%20for%20website.pdf>
- xx Paragraph 3.2.18 (WTP) is also very relevant to whole pricing system - e.g. the expected Price at the end of the Deferral Period (3.3.8-3.39 WTP) is based on uncertainty.
- xxi <http://www.choosenuclearfree.net/energy/nuclear-power-and-climate-change/nuclear-power-%E2%80%93-a-slow-response-to-an-urgent-problem/>
- xxii CoRWM ( 17th January 2006) Inventory Summary Information , Doc 1531  
[http://www.corwm.org.uk/Pages/Archived%20Publications/Tier%202%20\(6\)%20-%20Reporting/Tier%203%20-%20CoRWM%20inventory/1531%20-%20Inventory%20summary%20information,%20including%20new%20build%20\(the%20One%20Pager\).doc](http://www.corwm.org.uk/Pages/Archived%20Publications/Tier%202%20(6)%20-%20Reporting/Tier%203%20-%20CoRWM%20inventory/1531%20-%20Inventory%20summary%20information,%20including%20new%20build%20(the%20One%20Pager).doc)
- xxiii Page iv, <http://www.nda.gov.uk/documents/upload/Geological-Disposal-Feasibility-studies-exploring-options-for-spent-fuel-from-new-nuclear-power-stations-November-2010.pdf>
- xxiv Prof. Stuart Hazeldine, presentation to MRWS Partnership meeting on Thursday, 3rd March.
- xxv Para 3.2.2 OND Pre-consultation discussion paper No. 3: Establishing a fixed unit price for the disposal of intermediate level waste and spent fuel from new nuclear power stations – a worked example May 2009
- xxvi *3.3.19 The Assumed Disposal Date will be determined alongside the Final Price, and an Expected Assumed Disposal Date will be provided to the operator alongside an Expected Price. In the event that the Final Price is set before GDF Site Selection, the Default Pricing Mechanism will also determine the Assumed Disposal Date.*
- xxvii <http://www.decc.gov.uk/en/content/cms/consultations/plutonium/plutonium.aspx>
- xxviii <http://www.nda.gov.uk/documents/upload/Plutonium-Credible-Options-Analysis-redacted-2010.pdf>
- xxix see also 2b.4: Under the Energy Act, as one of a number of approvals to build a new nuclear power station, operators will be required to submit an FDP to the Secretary of State for approval. The Energy Act requires such operators to provide to the Secretary of State details of their plans for managing and disposing of all wastes.
- xxx The arrangements for the management and disposal of waste from new nuclear power stations, page 13, para 52 <http://data.energynpsconsultation.decc.gov.uk/documents/wasteassessment.pdf>
- xxxi Page 16, 9.0 [http://www.westcumbriamrws.org.uk/documents/94-Inventory\\_critique\\_Pete\\_Roche.pdf](http://www.westcumbriamrws.org.uk/documents/94-Inventory_critique_Pete_Roche.pdf)
- xxxii Paras 70-72 <http://www.publications.parliament.uk/pa/cm200910/cmselect/cmenergy/231/23106.htm#a16>
- xxxiii Section 5, para 5.3.25  
[http://www.decc.gov.uk/assets/decc/Consultations/nuclearfixedunitprice/1\\_20100324145948\\_e\\_@@\\_ConsultationonFixedUnitPricemethodologyandupdatedcostestimates.pdf](http://www.decc.gov.uk/assets/decc/Consultations/nuclearfixedunitprice/1_20100324145948_e_@@_ConsultationonFixedUnitPricemethodologyandupdatedcostestimates.pdf)  
On Phase 3 (2b-30-2b.32 FDP) after the end of electricity generation, it is noted that:  
*Decommissioning ends when all station buildings and facilities have been removed and the site has been remediated in accordance with relevant legal and licensing requirements.*
- xxxiv *ibid see.3.2.28*
- xxxv See page 52 [http://www.nao.org.uk/publications/0506/restructuring\\_of\\_british\\_energ.aspx](http://www.nao.org.uk/publications/0506/restructuring_of_british_energ.aspx)
- xxxvi <http://www.publications.parliament.uk/pa/cm200607/cmselect/cmpublicacc/892/892.pdf>
- xxxvii <http://www.greenpeace.org.uk/files/pdfs/nuclear/GPUKJustificationResponse.pdf>