

Financial Issues in the Management of Radioactive Liabilities

Paul A. Grout

Professor of Political Economy

and

Director of the Leverhulme Centre for Market and Public Organisation

University of Bristol

14 June 2001

In confidence Prepared for UK Nirex Ltd

1. Introduction

- 1.1 This note looks at some of the financial issues in the management of radioactive waste liabilities. Section 2 of this note echoes a theme of the earlier paper that the abnormal long run nature of radioactive waste management causes major incentive problems. It argues that segregation of funding will help enormously to sharpen the focus and to minimise the incentivisation problem and it suggests that single management of the two funds, that of the LMA and WMO, is sensible. It is also argued that negotiations about how to deal with the waste should begin once the LMA and WMO structure is in place. The LMA, representing the public sector waste producers, will then have a watertight agreement that guarantees that, providing the waste is conditioned and packaged as specified, then the WMO is bound to take full liability of the waste at the agreed price. Although the LMA and the waste producers still technically hold the liability at this point they have a guaranteed exit route at a guaranteed price. This process creates a transparent structure of property rights and accountability. The formal transfer can then take place at a variety of stages in the management process and different time frames may be appropriate for different materials. The paper points out that there is no reason why the transfer of funds should match the timing of transfer of liabilities to the WMO as long as the parties enter into a contractual commitment.
- 1.2 Section 3 looks at the distinction between future liabilities arising from new build and past liabilities. To ensure efficient allocation of resources the producers of future liabilities should pay the social cost associated with their actions, i.e., make payments to cover the cost of the transfer their liability. The role of existing liabilities in the presence of private funding is discussed. It is suggested that if a privatisation or PPP arises there should be no transfer of liability to the private sector. Any funds that arise from the sale of assets or involvement of private money should then be transferred in full to the LMA fund.

2. Funding and timing of transfers

Segregated funds

- 2.1 In the model outlined in the note on 'The structure of the nuclear power industry with regard to management of radioactive waste' it is suggested that the WMO take final responsibility for waste management. The job of the LMA is to gather the existing liabilities of the public sector, to oversee the immediate management of these liabilities and to negotiate on behalf of the existing holders with the WMO to effect a final transfer of liabilities at an agreed price. The finance associated with this transfer will pass directly or indirectly to the WMO and be managed until needed.
- 2.2 The natural way to conduct this operation is for the WMO and the LMA to hold funds for this purpose. There are good reasons why these ought to be segregated from general government funds. The aim is for the LMA to achieve a real transfer of liabilities and for this to occur at a rigorous estimate of the cost of the most efficient process of dealing with each type of waste. It is important to recognise the role that the structure plays in creating the incentives for this to happen. There is a real danger that the abnormally long-term nature of the radioactive waste management problem will fail to concentrate the minds of the parties involved. Indeed, one can argue that to date this has been a core problem. Segregation of funding will maximise the accountability of the parties and in particular provide the incentives for the management of the WMO to press for maximum accuracy, rigour and efficiency in the long-term solution. It adds direct pressure on negotiations between the LMA and WMO. Furthermore, public confidence will be helped by the presence of a segregated fund since the ownership of funds clearly signals property rights and responsibilities; a feature that is lacking in the public sector part of the current system.
- 2.3 Normally, the presence of economies of scale in fund management suggests there is limited sense in segregating funds. However, the ability of segregation to improve

the incentives that are otherwise dulled by the abnormal long term nature of the problem seem to override the conventional approach in this case.

One or two funds?

- 2.4 Given that some degree of segregation is desirable, the issue arises as to how much segregation there should be. In particular should the LMA and the WMO have separate funds? It is clear that the funds of the LMA and WMO should be clearly identifiable and separable in a legal sense otherwise the contractual transfer of liabilities to the WMO would be meaningless. However, this does not imply that the 2 funds should be separately managed. Indeed, this seems an unnecessary duplication. A better model would be for the two funds to be brought together under single management. The management, (most probably an independent fund management) may adopt a different investment strategy for each fund and may well be given different investment guidelines because of the difference in purpose and time horizon between the funds under joint management. This is a standard model used in the investment industry where funds are brought together under single management but are ring-fenced so that any issues regarding a particular fund cannot impact on other funds.
- 2.5 The central point is that a legal commitment to transfer specified moneys from the LMA side of the fund to the WMO side of the fund will be agreed when the liability moves to the WMO. Once this happens, the LMA will not be able to escape this obligation unless the WMO fail to carry out their contractual obligations.
- 2.6 There is an issue as to where the funds should be held. The broader the investment possibilities, the more significant the potential variability in investment performance. Disputes could arise if the funds over-perform rather in the way that pension fund disputes appear when they are over-funded. It is important that a precise view is taken in advance as to how over and under funding is to be treated since such uncertainty weakens the incentives on and signals to all parties.

Timing

- 2.7 There are three stages associated with the transfer process. The negotiation between LMA and WMO, the transfer of liabilities and the payment for the transfer of liabilities. Here we first discuss the timing of negotiation and the transfer of liabilities and then consider the relationship between transfer of liabilities and transfer of funds.
- 2.8 The lead times for phased deep disposal are long. Obviously, at the very least, both current and new waste producers and the LMA will wish to negotiate an agreement specifying the timing of transfer of liabilities to the WMO well before a waste management facility is built. Furthermore, deciding to wait to transfer liabilities to the WMO until build has taken place is a poor incentive model for the WMO. It essentially enables the WMO to avoid accountability until it finishes one of its main functions whereas the whole point of the process is to bring real pressures to bear on those carrying out these functions.
- 2.9 I would argue that the negotiations should begin as soon as the LMA and WMO structure is in place. The agreement for transfer of a particular waste should certainly take place before conditioning and packaging of the waste. The legal agreement to transfer liabilities will specify the price for the transfer and include the agreed process of conditioning and packaging. The LMA, representing the public sector waste producers, will then have a watertight agreement that guarantees that, providing the waste is conditioned and packaged as specified, then the WMO is bound to take full liability of the waste at the agreed price. The central point is that the WMO is legally bound to accept full liability once the agreement is reached unless the contractual agreement is broken by the LMA. In this sense the liability can be thought of as being transferred very early in the process. Although the LMA and the waste producers still technically hold the liability they have a guaranteed exit route at a guaranteed price. This process creates a transparent structure of property

rights and accountability. Note that this does not lock the technology in place at this point since it is always possible for the WMO to ask for changes but the LMA will need to be compensated for any additional cost.

- 2.10 The LMA will oversee the conditioning and packaging and the full transfer of liability to the WMO can take place at any point after this. The transfer could take place at a variety of stages in the management process and different time frames may be appropriate for different materials. Contractual agreements between the LMA and the WMO may include the WMO managing surface stores if this is a sensible route in some cases.
- 2.11 Starting negotiations once the LMA/WMO structure is up and running implies that the WMO will enter into agreements before it is fully certain what the final solution will look like. This may appear to be placing significant risk on the WMO and indeed it is. However, it is not creating a new risk. If there is uncertainty as to how the waste will be finally managed then someone in the process is holding this risk. Currently it is the waste producers and the proposal here transfers it to the WMO. This is where the risk should sit since the WMO have a well-defined brief to provide a cost effective safe long-term solution. The purpose of the WMO is to allow the LMA to negotiate the full transfer of all liabilities away from existing and new users in a reasonable time frame and so the risk should sit with the WMO and its shareholders, mainly but not necessarily exclusively the government.
- 2.12 The final part of the transfer concerns the financial transfer. A legal commitment to transfer funds when the liability moves to the WMO does not necessarily imply that the funds actually move at this point. The variety of liability arrangements and the lumpy nature of the WMO spend could easily lead to a wide array of financial agreements. For example, in some cases a specific waste agreement could involve almost immediate transfer of the liability to the WMO but a time frame for payments from the LMA, or from those responsible for new build, that is spread over many

more years, say 15 or 20 years, as with mortgages on buildings. The liability will have been transferred in exchange for an agreed flow of payments.

3. Future and existing liabilities and private finance

Future liabilities arising from new build

- 3.1 Where future liabilities for new nuclear build are concerned, producers should make payments to cover the cost of waste management. In the short run they will presumably be meeting the cost of their own waste management and setting aside funds for long-term waste management. Cost here should have its broadest interpretation, i.e., social cost, since it could be the case that the WMO may be subsidised or taxed by the government to reflect differences between the physical and social cost of long term management.
- 3.2 The charges for long-term management should be agreed, where possible, between the waste producer and the WMO, but will be approved by a regulatory body much in the way that prices in regulated industries are approved.¹ This is a well-established model. Different prices for different types of waste should ideally reflect actual costs so that those generating waste can make the correct packaging and reprocessing decisions. As indicated earlier, separation of long-term from other management will increase transparency in this exercise. Judging from the experience of regulated utilities it is likely that there will be a whole range of problems that arise from averaging of prices, e.g., geographic averaging, if long term management takes place in many different sites. It is likely that these problems will also apply to existing liabilities.
- 3.3 Where future liabilities arise from private involvement an issue arises as to the role of the LMA. There is logic in having the LMA closely involved. The LMA will be in a strong position when negotiating with the WMO and private groups may well want

¹ This could be an existing regulatory body such as Ofgem.

the LMA to negotiate on their behalf. Furthermore, LMA negotiations set prices for the whole sector and it is attractive for future investment to have transparent prices that are available to all. On the other hand, the ability to strike separate deals may increase the scope for innovation in relationships between short term and long term management. Giving private entities the choice of going with the LMA or striking a separate deal is probably the best way forward.

Existing liabilities

3.4 How should existing liabilities be treated should any of the public sector waste generating entities be privatised? Here there is a genuine conflict between efficiency and political considerations. At present almost all radioactive waste sits directly or indirectly in the public sector. For this reason even if the activities are privatised the public sector can never escape the liability for waste, past or future, all they can do is sell it on to the private sector. The reason is that transfer of assets to the private sector will command a fee but the size of this will depend on the liabilities that are passed over at the time of privatisation. The more liabilities are passed on with the transfer the lower the price that the government can receive in any privatisation or public/private partnership.

3.5 A natural analogue is to think of a house that has something wrong with it. The price of the house will reflect the proposed treatment of the problems. If the seller wishes the new owner to deal with all future liabilities instead of the previous owner agreeing to meet any costs then the price will fall to reflect this. In this sense, the seller cannot escape the cost associated with the future liability but can only sell it on at the market price. What the seller can do is pass on the risk of future liabilities. That is, the price reflects the expected cost of meeting the liabilities and if they are passed on at sale then the new owner bears the risk that they may differ from their expected value.

- 3.6 This suggests that the decision as to how much liability should be passed on in a privatisation or public private partnership cannot be an equity issue between the public and private sector. It should be an incentive issue only.² Until recently experience of the sale of public assets has been that the stock market underpays. This indicates that the government may wish to downgrade the asset base by selling on liabilities thereby minimising the aggregate gap between value and asset base. Note, however, that recent auctions of 'assets', notably spectrum, have displayed opposite effects. On the other hand, having to hold the risk of all future payments for the long term management of nuclear waste may be the very type of risk that the stock market finds difficult to carry. It may damage the price by more than the value of the reduced liability for the public sector. In which case, as little as possible of the existing liabilities ought to be passed on.
- 3.7 Without further analysis it is difficult to know the answer, but I suspect that the stock market will attach a significant negative price to this extreme form of very long-term environmental risk, and so it may not be sensible to try to involve private money without first discharging these liabilities. The LMA should have first call on all funds raised from privatising activities to the extent that these are necessary to discharge the liabilities. That is, upon privatisation or PPP, all liabilities should remain with the LMA but all proceeds from any privatisation should enter the LMA fund to be used to cover the cost of the liability held with the LMA.

² Of course, it makes sense to expect a privatised supplier to pay the true cost of future waste storage since this will lead to efficient decisions about levels and type of waste generation.