

**A further note on the legal structure
and incentives 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

20 August 2001

1. Introduction

1.1 The main difficulties that regulatory agencies encounter when trying to implement socially beneficial outcomes stem from

- the imbalance of information between the regulatory agency and those it seeks to regulate and
- the associated problem of implementing incentive structures that encourage appropriate actions and provide transparency.

In the light of these constraints I have argued (in ‘The structure of the nuclear power industry with regard to management of radioactive waste’) that separation between short-term management and long-term management of waste seems the most sensible structure. The government has to act as guardian of future generations’ interests. If all waste management is under single management then it is difficult for the regulatory agencies to ensure that this primary objective is met effectively. The paper also argues for the establishment of clear property rights. In particular, the liability for long-term management should be transferred under a legally binding contract. This gives the Liabilities Management Agency (LMA) and the waste producers a guaranteed exit route at a guaranteed price. Providing the waste is conditioned and packaged as specified in the contract then all future risk sits with the Waste Management Organisation (WMO). I have also backed the proposal to create a segregated fund to deal with waste management (see ‘Financial issues in the management of radioactive liabilities’).

1.2 The two earlier papers are concerned with the high level implications arising from the application of fundamental economic principles. The note starts the process of fleshing out the precise legal and governance structure. I first outline a possible legal regulatory framework, then consider potential models for the LMA and WMO and finally discuss the impact on incentives.

2. Suggestions for a 'economic' regulatory framework

2.1 It makes little sense to design a tight legal framework to ensure that the agencies (i.e., the LMA and WMO) are accountable if there is insufficient regulatory structure or if regulatory mechanisms that oversee them do not themselves face a strong framework that guarantees, in as much as is possible, their accountability. Currently a central element that is not adequately covered is an accountable regulatory function to ensure that the LMA and WMO are performing their obligations at minimum, reasonable incurred cost. This can be thought of as 'economic regulation' although this should be interpreted quite broadly.¹

2.2 If this regulatory agency is answerable to departments and elected politicians then the whole process is still prey to a lack of certainty and transparency since there is no mechanism that ensures that the appropriate incentives are put in place. Indeed, this lack of transparency within the overall regulatory framework is at least as strong a barrier to the achievement of public confidence as it is for the achievement of an economically efficient outcome. A natural solution to this problem is to implement a system that places specific duties on the regulatory bodies and makes the regulators accountable against these duties. While such a system can never precommit politicians a statutory mechanism maximises transparency since changes require approval of Parliament.

2.3 The model that is used for the regulated utilities meets these criteria and is a good starting point. In each of these industries an act, e.g., Telecommunications Act (1984), Gas Act (1986), Electricity Act (1989), Water Industry Act (1991), specifies that the Secretary of State is charged with appointing an officer, the Director General (DG), and specifies duties of the Secretary of State and the DG. For example, in the Gas Act the DG and the Secretary of State both have duties to

¹ This may not in itself require a new regulatory body since the functions that Ofgem perform for the gas and electricity industries could easily be extended to cover the regulation of radioactive waste.

ensure that all reasonable demands are met and that companies are able to finance their functions. Subject to this they must protect the interests of consumers, ensure continuity and quality of supply, promote efficiency and economy, protect the public from dangers arising from gas distribution and enable persons to compete effectively. [The appendix provides a brief summary of the duties of the DG and Secretary of State within the four acts named above.]

- 2.4 The individual companies are then licensed by the DG and it is the licences that impose obligations on the companies. For example, BT's licence specifies details of universal provision and rules determining supply in rural areas. In the days when access charges were negotiated with companies the licence also specified loosely how BT's charges to other operators should relate to its costs. In particular the costs and losses had to be reasonably incurred as a consequence of fulfilling an obligation imposed in the licence.
- 2.5 A similar type of structure could be applied in this context. An act relating to the management of waste could impose duties on the government and regulatory bodies. It would probably be most productive to have these set at a relatively high level (as with the examples in the Appendix). For example, there could be duties to ensure the safe management of waste, to promote efficiency and economy, to protect the public from dangers arising from the conditioning, packaging and management of waste, to ensure continuity, etc. Obviously a precise list of duties is a major task but is certainly possible to construct.²
- 2.6 In the case of regulated utilities the licences are detailed and have become more so over the years. It is less obvious whether this is necessary or beneficial in the waste management context. Given the uncertain nature of the long-term solution, a more general set of obligations might be more useful. The LMA and the WMO would be held to the obligations within the licences and the precise meaning of these would be

² Cm 2919 discusses safety standards and itself contains a statement of the IAEA principles of waste management. These are clearly relevant but are purely focussed on safety rather than concerning broader duties and are rather too broad to be practical.

fleshed out over time.³ A natural analogue here is the standard competition law model. For example, Article 82 of the Treaty of Amsterdam is the legal basis of the control of monopoly power or dominance. This is no more than half a page. The interpretation of this article has been developed over time in case law and EC notices. In a similar manner the practical interpretation of a relatively broadly worded set of obligations within a licence could be developed over time through a series of interpretations by the 'economic' regulator and challenges by interested parties. This is likely to be a better model than one where there is an enormously detailed licence. Indeed, it may be extremely hard to write such a licence given the current uncertainty as to the optimal form of radioactive waste management. Any attempt to provide a vastly detailed licence may risk ossifying the solution and could potentially allow the LMA or WMO to side-step some of their legitimate responsibilities.

2.7 The attraction of a formal set of duties and obligations is that there is clear accountability. For example, the WMO and LMA would be required to meet their obligations and if any party feels that they are not doing so they have immediate recourse to the regulator. This would include disputes between the LMA and WMO as to the exact price for the transfer of liabilities. The regulators and the government would also be accountable under the duties in the act.

2.8 This would be an enormous step in increasing public confidence. For example, if on a specific issue an organisation, e.g., an NGO, the LMA or WMO, believed that the 'economic' regulator was not fulfilling its duties under the act then the organisation would have legal recourse. The courts would then decide whether the 'economic' regulator was fulfilling its duties in the particular respect. The whole regulatory structure would have clear property rights and be far less prey to short term changes in government policy. Indeed, the process of passing the act and revising it would require legislation that increases the transparency of the exercise.

³ Throughout I use the terminology duties to reflect the requirement placed on the regulator and obligations to reflect the requirements placed on regulated agencies.

3. The organisational form

3.1 The above discussion leaves open the organisational form of the LMA and WMO. The WMO could either be a government agency or a limited company. If it is the latter then there is no reason why it should be fully owned by government. If the objective is to deliver waste management in a cost effective way then there are good arguments to include some degree of private ownership, e.g., 15% of the shares could be owned by private consortia or companies. The introduction of the discipline of private funding may be extremely beneficial. Indeed, the main constraint on the scale of private ownership would seem to be social and political not economic. While the aggregate cost of long run management is not prohibitive to private funding it is difficult to imagine public confidence in a situation where the government is minority shareholder. Indeed, public opinion may make any private funding difficult to achieve.

3.2 An alternative model is one where the government fully owns the agency. Here it is necessary to incentivise the WMO senior management and employees. One mechanism is to have a PPP relationship where the company is managed by a team under private contract. The management team needs to be sufficiently small so that it is feasible to replace it without damaging most of the inherent knowledge in the organisation. A possible model is for specialist employees to have long term contracts with the WMO but be managed by a team with a short-term contract, say 5 to 10 years, with the government. The contractual structure of non-specialist employees is not central. These can be contracted to the WMO, the management team or to third parties. The nature of the management team's contract can change over time as the relevant duties of the WMO change. Here failure to deliver in the franchise period manifests itself in failure to have the contract renewed. A third possible model is to have the managers employed as part of the WMO and rely on the government to replace them if they fail in their duty. This appears to be a less powerful mechanism. However, the WMO still has to meet the obligations in the

licence and so failure to deliver in a cost effective manner will be transparent and limit the scope for a cosy relationship with the government.

- 3.3 Similar alternatives arise for the LMA. Here, however, the model of a limited company owned, in part, by the private sector seems difficult to imagine. The LMA's primary purpose is to bring the public sector liabilities together (under LMA ownership), ensure cost effective short and medium term waste management to minimise these liabilities and be charged with effecting a cost effective, legally binding exit of these liabilities. It has nothing to 'sell' to the private sector and there appears to be little scope for private ownership of the LMA as an entity. However, the management of the LMA could be performed by the private sector. A model where a management team performs these functions under contract and is replaced if they fail in their duty seems possible. Of course, there is also the traditional alternative where the management team has conventional contracts within the LMA. Regardless of the management model adopted there are good arguments for the LMA to be a separate entity operating under licence.

4. The incentive framework

- 4.1 How is this model likely to perform as an incentive structure? To address this question it is useful to separate the issue into the cost of waste management, the price of liability transfer and the protection of standards.
- 4.2 With regard to the cost of provision of waste management there are internal and external effects. The former comes from the direct drive for cost minimisation within the WMO. The evidence from the regulated utilities appears to be that, once prices have been fixed for activities, the companies have been extremely successful, in reducing costs. Indeed, there is a general view that they may have been too successful in this regard. For example, in recent years Ofgem have implemented the 'Information and Incentives' project to ensure that cost reduction does not erode the quality of delivery. Thus the indication from existing evidence is that a WMO structured as a limited company with some private ownership will provide pressure

to ensure that management takes place at minimum cost. Indeed, the argument for separation for the WMO from the LMA is based on the view that powerful incentives to reduce cost will be difficult to regulate if there is scope to manipulate short term and long term management within a single organisation.

4.3 Indirect effects come from the regulatory agencies own internal pressures, since they are charged with ensuring that waste is managed in an efficient manner, and the external pressures brought to bear on the WMO by the LMA and private new build. These latter agencies will have an incentive to pressurise the WMO directly and indirectly through applying pressure on the regulatory agencies.

4.4 Although the WMO has a strong incentive to minimise cost there is a counter incentive for the WMO to protect its position by pressing for high prices. To the extent that the government is concerned with minimising its budgetary implications this is almost an irrelevance since any lax prices paid by the LMA on behalf of the government will create profit to the WMO which returns to the shareholders – primarily the government. That is, lax prices do not impact on the public sector budget. However, it is important that the prices paid by the LMA are correct signals of the most cost effective, safe process of waste management. The process for doing this stems from two sources, first, the negotiation between the LMA and the WMO and second, the regulatory structure. The LMA will have an obligation to minimise costs and will have an incentive to push for low prices from the WMO. A major source of power for the LMA is that, subject to meeting its obligations, it can withhold agreement to transfer liabilities until satisfied with the outcome. This will place pressure on the WMO to provide cost reflective prices. If the parties cannot agree then the LMA will have recourse to the regulatory agency that is charged with overseeing prices (possibly Ofgem). The WMO will have to justify its position and the regulatory agency will be empowered to set appropriate prices if the parties cannot agree or if the regulator is not satisfied with the agreed prices. Again having separate agencies enhances transparency and will aid the regulator in coming to this judgement.

4.5 I have argued that the incentives to deliver low cost management and the mechanisms to provide correct prices appear strong. Of greater concern is the pressure on the WMO to fulfil its obligations within the licence whilst seeking to minimise costs. The duty falls on the ‘economic’ regulatory agency and it is essential that the regulator agency itself faces appropriate pressures. As indicated in Section 2, an act or equivalent legal duties can provide a formal and transparent mechanism through which the regulator is held accountable.

APPENDIX

Telecommunications Act 1984

3. (1) The Secretary of State and the Director shall each have a duty to exercise the functions assigned or transferred to him by or under Part II or Part II of this Act in the manner which he considers is best calculated-
- (a) to secure that there are provided throughout the United Kingdom, save in so far as the provision thereof is impracticable or not reasonably practicable, such telecommunication services as satisfy all reasonable demands for them including, in particular, emergency services, public call box services, directory information services, maritime services and services in rural areas; and
 - (b) without prejudice to the generality of paragraph (a) above, to secure that any person by whom any such services fall to be provided is able to finance the provision of those services.
- (2) Subject to subsection (1) above, the Secretary of State and the Director shall each have a duty to exercise the functions assigned or transferred to him by or under Part II or Part III of this Act in the manner which he considers is best calculated-
- (a) to promote the interests of consumers, purchasers and other users in the United Kingdom (including, in particular, those who are disabled or of pensionable age) in respect of the prices charged for, and the quality and variety of, telecommunication services provided and telecommunication apparatus supplied;
 - (b) to maintain and promote effective competition between persons engaged in commercial activities connected with telecommunications in the United Kingdom;
 - (c) to promote efficiency and economy on the part of such persons;
 - (d) to promote research into and the development and use of new techniques by such persons;
 - (e) to encourage major users of telecommunication services whose places of business are outside the United Kingdom to establish places of business in the United Kingdom;
 - (f) to promote the provision of international transit services by persons providing telecommunication services in the United Kingdom;
 - (g) to enable persons providing telecommunication services in the United Kingdom to compete effectively in the provision of services outside the United Kingdom;
 - (h) to enable persons producing telecommunication apparatus in the United Kingdom to compete effectively in the supply of such apparatus both in and outside the United Kingdom.

Gas Act 1986

4. (1) The Secretary of State and the Director shall each have a duty to exercise the functions assigned to him by this Part in the manner which he considers is best calculated-
- (a) to secure that persons authorised by or under this Part to supply gas through pipes satisfy, so far as it is economical to do so, all reasonable demands for gas in Great Britain; and
 - (b) without prejudice to the generality of paragraph (a) above, to secure that such persons are able to finance the provision of gas supply services.
- (2) Subject to subsection (1) above, the Secretary of State and the Director shall each have a duty to exercise the functions assigned to him by this Part in the manner which he considers is best calculated-
- (a) to protect the interests of consumers of gas supplied through pipes in respect of the prices charged and the other terms of supply, the continuity of supply and the quality of the gas supply services provided;
 - (b) to promote efficiency and economy on the part of persons authorised by or under this Part to supply gas through pipes and the efficient use of gas supplied through pipes;
 - (c) to protect the public from dangers arising from the transmission or distribution of gas through pipes or from the use of gas supplied through pipes;
 - (d) to enable persons to compete effectively in the supply of gas through pipes at rates which, in relation to any premises, exceed 25,000 therms a year.
- (3) In performing his duty under subsection (2) above to exercise functions assigned to him in the manner in which he considers is best calculated to protect the interests of consumers of gas supplied through pipes in respect of the quality of the gas supply services provided, the Secretary of State or, as the case may be, the Director shall take into account, in particular, the interests of those who are disabled or of pensionable age.

Electricity Act 1989

3. (1) The Secretary of State and the Director shall each have a duty to exercise the functions assigned or transferred to him by this Part in the manner which he considers is best calculated-
- (a) to secure that all reasonable demands for electricity are satisfied;
 - (b) to secure that licence holders are able to finance the carrying on of the activities which they are authorised by their licences to carry on; and
 - (c) subject to subsection (2) below, to promote competition in the generation and supply of electricity.
- (2) The Secretary of State and the Director shall each have a duty to exercise the functions assigned or transferred to him by this Part in the manner which he considers is best calculated to secure-
- (a) that the prices charged to tariff customers by public electricity suppliers for electricity supplied in pursuance of section 16(1) below to premises in any area of Scotland specified in an order made by the Secretary of State are in accordance with tariffs which do not distinguish (whether directly or indirectly) between different parts of that area; and
 - (b) that public electricity suppliers are not thereby disadvantaged in competing with persons authorised by a licence or exemption to supply electricity to such premises.
- (3) Subject to subsections (1) and (2) above, the Secretary of State and the Director shall each have a duty to exercise the functions assigned or transferred to him by this Part in the manner which he considers is best calculated-
- (a) to protect the interests of consumers of electricity supplied by persons authorised by licences to supply electricity in respect of-
 - (i) the prices charged and the other terms of supply;
 - (ii) the continuity of supply; and
 - (iii) the quality of the electricity supply services provided;
 - (b) to promote efficiency and economy on the part of persons authorised by licences to supply or transmit electricity and the efficient use of electricity supplied to consumers;
 - (c) to promote research into, and the development and use of, new techniques by or on behalf of persons authorised by a licence to generate, transmit or supply electricity;
 - (d) to protect the public from dangers arising from the generation, transmission or supply of electricity; and
 - (e) to secure the establishment and maintenance of machinery for promoting the health and safety of persons employed in the generation, transmission or supply of electricity;
- and a duty to take into account, in exercising those functions, the effect on the physical environment of activities connected with the generation, transmission or supply of electricity.

- (4) In performing his duty under subsection (3)(a)(i) above, the Secretary of State or the Director shall take into account, in particular, the protection of the interests of consumers of electricity in rural areas.
- (5) In performing his duty under subsection (3)(a)(ii) above, the Secretary of State or the Director shall take into account, in particular, the interest of those who are disabled or of pensionable age.
- (6) In this section references to the functions assigned to the Secretary of State by this Part do not include references to functions under section 36 or 37 below and references to the functions so assigned to the Director do not include references to functions relating to the determination of disputes.

Water Act 1989

7. (2) The Secretary of State or, as the case may be, the Director shall exercise and perform the powers and duties mentioned in subsection (1) above in the manner that he considers is best calculated-
- (a) to secure that the functions of a water undertaker and of a sewerage undertaker are properly carried out as respects every area of England and Wales; and
 - (b) without prejudice to the generality of paragraph (a) above, to secure that companies holding appointments under Chapter I of Part II of this Act as water undertakers or sewerage undertakers are able (in particular, by securing reasonable returns on their capital) to finance the proper carrying out of the functions of such undertakers.
- (3) Subject to subsection (2) above, the Secretary of State or, as the case may be, the Director shall exercise and perform the powers and duties mentioned in subsection (1) above in the manner that he considers is best calculated-
- (a) to ensure that the interests of every person who is a customer or potential customer of a company which has been or may be appointed under Chapter I of Part II of this Act to be a water undertaker or sewerage undertaker are protected as respects the fixing and recovery by that company of-
 - (i) charges in respect of any services provided in the course of the carrying out of the functions of a water undertaker or sewerage undertaker; and
 - (ii) amounts of any other description which such an undertaker is authorised by or under any enactment to require such a person to pay;and, in particular, that the interests of customers and potential customers in rural areas are so protected and that no undue preference is shown, and that there is no undue discrimination, in the fixing of those charges and amounts;
 - (b) to ensure that the interests of every such person are also protected as respects the other terms on which any services are provided by that company in the course of the carrying out of the functions of a water undertaker or sewerage undertaker and as respects the quality of those services;
 - (c) to ensure that the interests of every such person are further protected as respects benefits that could be secured for them by the application in a particular manner of any of the proceeds of a disposal (whether before, on or after the transfer date) or any of that company's protected land or of any interest or right in or over any of that land;
 - (d) to promote economy and efficiency on the part of any such company in the carrying out of the functions of a water undertaker or sewerage undertaker; and
 - (e) to facilitate effective competition, with respect to such matters as he considers appropriate, between persons holding or seeking appointments under that Chapter.

- (4) In performing his duty under subsection (3) above, so far as it requires him to do anything in the manner which he considers is best calculated to ensure that the interests of the customers and potential customers of any company are protected as respects the quality of any services provided by that company in the course of the carrying out of the functions of a water undertaker or sewerage undertaker, the Secretary of State or, as the case may be, the Director shall take into account, in particular, the interests of those who are disabled or of pensionable age.