DEPARTMENT OF ENERGY & CLIMATE CHANGE

Implementation of changes to the Paris and Brussels Conventions on nuclear third party liability

Working Papers

August 2010

Contents

Introduction

1. We are today publishing two working papers on the Government's proposed approach in relation to two significant issues arising from our planned implementation of changes to the OECD Paris Convention on third party nuclear liability.

2. The papers are for information in advance of a public consultation this autumn. Please note that they are intended to provide an early opportunity to consider how our thinking is developing.

3. The UK is a signatory to the Paris Convention[1] and its supplementary Brussels Convention[2] ("the Conventions"). The Conventions establish an international (largely western European) framework for compensating victims of a nuclear incident. The regime has been in place since the 1960s and is one of the cornerstones of international nuclear liability law. The Conventions are implemented in the UK by the Nuclear Installations Act 1965 ("the 1965 Act").

4. Amendments to the Conventions were agreed by the Paris and Brussels signatory countries in 2004[3]. They upgrade the existing regime and are intended to ensure that, in the event of a nuclear accident, an increased amount of compensation will be available to a larger number of victims in respect of a broader range of damage than is currently the case.

5. The amendments to the Conventions are not yet in force. This will take place once the amendments have been ratified[4] by the signatories to the Conventions[5]. The signatories that are also EU Member States are required to ratify the amendments at the same time[6].

6. The UK is committed to ratifying the amended Conventions as soon as possible. In order for the UK to be able to ratify the amendments, however, we need to implement the changes to the Conventions in UK law. We intend to do this through secondary legislation made under section 76 of the Energy Act 2004 amending the 1965 Act.

7. The two papers cover:

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[1] The Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960 as amended by the additional Protocol of 28 January 1964 and the Protocol of 16 November 1982.
[2] The Convention of 31 January 1963 Supplementary to the Paris Convention as amended by the additional Protocol of 28 January 1964 and the Protocol of 16 November 1982.
[3] The Protocol of 12 February 2004 to amend the Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960, as amended; and the Protocol of 12 February 2004 to amend the Convention of 31 January 1963 Supplementary to the Paris Convention, as amended.
[4] Ratification is an act whereby a State establishes on the international plane its consent to be bound by a treaty.
[5] In the case of the Paris Convention, the amendments will come into force following ratification of two thirds of the signatories, see: Part II(e) of the Protocol amending the Paris Convention and Article 20 of the Paris Convention . For each contracting party ratifying thereafter the amendments shall come into force at the date of such ratification. In the case of the Brussels Convention, the amendments will come into force following ratification of all signatories, see: Part II(e) of the Protocol amending the Brussels Supplementary Convention and Article 21 of the Brussels Supplementary Convention.
[6] Council Decision 2004/294/EC of 8 March 2004 .

- Working Paper 1: Our current proposed approach to implementing the new categories of damage into the Nuclear Installations Act, and

- Working Paper 2: the current position on the availability of insurance to cover the new types of damages.

8. These papers represent work in progress. We are happy to receive comments on these papers at any time but if they are received after mid –September we may not be able to take them into account until after the consultation. Any comments should be sent to:

Paris and Brussels Conventions on nuclear third party liability
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3 Whitehall Place
London, SW1A 2AW
Email: parisbrussels@decc.gsi.gov.uk

9. We intend to conduct a public consultation later this year. This will look generally at how we propose to implement the Convention changes. We hope to bring forward changes to the legislation before mid-2011 with a view to bringing them into force when the amendments to the Conventions come into force.

Background

The Conventions

10. The production and use of nuclear power necessarily involves the use of hazardous radioactive materials and an accident at a nuclear installation or during the transport of radioactive materials to or from a nuclear installation could have far-reaching adverse consequences for human health and the environment. Guarding against these risks is therefore of the highest priority and the UK has in place robust safety, security and environmental protection regimes that comply with frameworks laid down at EU and international level.

11. Given the strength of these regimes, the likelihood of an accident occurring is very small[7]. Nevertheless, if an incident does occur, the Conventions put in place a well established international regime for compensating third parties who suffer damage as a result of the incident.

12. This regime is aimed at ensuring adequate and fair compensation for victims who suffer damage as a result of a nuclear incident at a nuclear installation or during the transport of nuclear substances to and from that installation. At the same time, it is aimed at ensuring that the operators of such installations, who are in the best position to ensure the safety of their installations, take responsibility for any failure in safety. Further, recognising that the effects of a nuclear incident do not stop at national boundaries, it aims to provide uniformity in certain basic rules across its signatory countries.

13. In order to meet these aims, the Paris Convention is based on the following key principles:

    - The operator of a nuclear installation is exclusively liable for personal injury or property damage resulting from nuclear incidents. All claims for injury or damage are “channelled” to the operator and, with limited exception, no other party can be liable. This means victims have an easily identifiable person to bring a claim against in the event of a nuclear incident;

    - The operator is strictly liable for the injury and damage. There is no need for a victim to establish fault on the part of the operator;

    - The operator’s liability is capped in amount per incident;

    - The right to compensation expires if legal action is not brought within ten years of the nuclear incident;

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[7] See the Nuclear Power Generation Cost Benefit Analysis, BERR, April 2007 http: //www.berr.gov.uk/files/file39525.pdf which states that: “The literature suggests a range for the probability of major accidents (core meltdown plus containment failure) from 2x10-6 in France, to 4x10-9 in the UK.

- The operator is under an obligation to maintain insurance or other financial security up to the limit of its liability;

- Where there is a nuclear incident in a nuclear installation in one Paris Convention country, claims for compensation can be brought against the operator in respect of injury or damage incurred in another Convention country; and

- In general, the courts of the State where the nuclear incident has occurred deal with compensation claims (irrespective of where the damage has been incurred).

14. The Brussels Supplementary Convention provides for a system to make additional resources available from public funds to compensate victims where the amount needed to compensate victims for damage caused by a nuclear incident exceeds the operator's liability limit under the Paris Convention[8].

15. The parties to the Paris Convention are largely made up of countries in western Europe[9]. Most, but not all, of the parties to the Paris Convention are parties to the Brussels Supplementary Convention[10]. A number of other countries from around the world, in particular Eastern Europe and Latin America, are parties to the Vienna Convention on civil liability for nuclear damage[11]. The Vienna Convention establishes a third party liability regime that is similar to that established by the Paris Convention.

The Nuclear Installations Act 1965

16. The Conventions are implemented in the UK by the 1965 Act. This piece of legislation establishes both a licensing regime for the operation of nuclear installations and a third party liability regime. In establishing the third party liability regime, the 1965 Act maintains the principles of the Conventions and:

- channels liability for personal injury and property damage exclusively to operators that hold nuclear site licences and certain other operators of nuclear installations;

- imposes strict liability on those licensees and the other operators of nuclear installations;

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[8] The current Brussels Supplementary Convention requires operators' funds to be topped up to a total of 300 million Special Drawing Rights. The top-up funds are made up of public funds from the State where the installation is located and contributions from other signatories to the Brussels Supplementary Convention.

[9] Signatories to the Paris Convention are: Belgium, Denmark, Finland, France, Germany, Greece, Italy, the Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom

[10] Signatories to the Brussels Supplementary Convention are: Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Slovenia, Spain, Sweden, Switzerland and the United Kingdom

[11] The Vienna Convention on Civil Liability for Nuclear Damage of 21 May 1963 amended by the Protocol of September 1997.

- for a standard site, limits the operators' liability to £140m per nuclear incident;

- provides that operators are only to be liable in respect of claims made within 10 years (between 10 and 30 years, claims can be made to the Government);

- provides that compensation is to be made available only in respect of damage incurred in a Paris Convention country;

- requires licensees to put in place financial security (usually through commercial insurance) to cover their liability;

- requires government to provide additional public funds above the operator's cap to meet compensation claims up to a limit of 300m Special Drawing Rights per incident; and

- allows additional compensation to the extent and subject to conditions authorised by Parliament.

Changes to the Conventions

17. Amendments to the Conventions were agreed in 2004. The most significant Convention changes are:

- the introduction of four new categories of damage in respect of which compensation must be made available, in addition to property damage and personal injury. These are discussed in more detail in Sections 3-7;

- an increase in the cap on operators' financial liability to a minimum of €700m for standard nuclear sites;

- an increase in the period in which claims for personal injury can be brought against operators from 10 to 30 years;

- an extension of the geographical scope of the Paris Convention to cover claims for damage incurred in (a) countries which are party to the Vienna Convention and the 1988 Joint Protocol[12], (b) countries with no nuclear installations and (c) countries with equivalent and reciprocal liability arrangements which are based on principles identical to those in the Paris Convention; and

- an increase in additional funds to be made available under the Brussels Supplementary Convention[13].

[12] Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention.
[13] Funds must be made available to top-up the amount available for compensation to €1.5 billion..

18. A summary comparing the key elements of the current UK regime and the amended Conventions is set out at **Table 1** below. **Table 2** illustrates the minimum change in scale of operator liability.

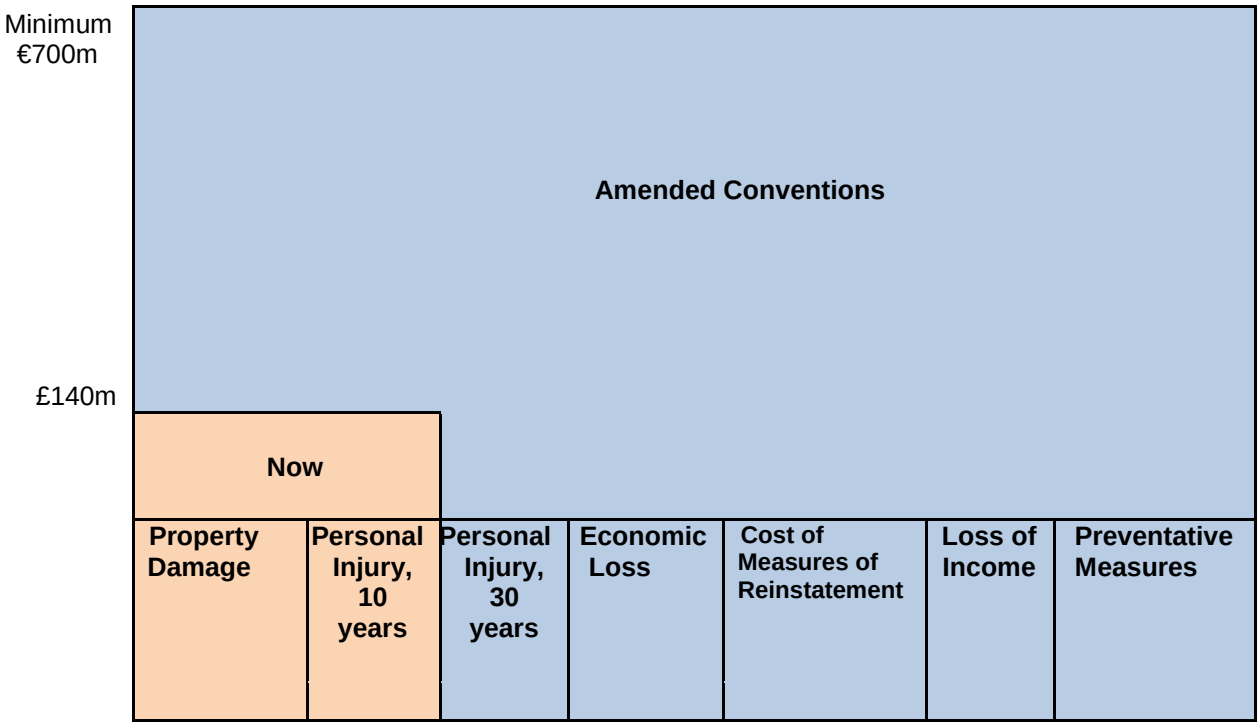
Amendment of the Nuclear Installations Act 1965

19. As already noted, in order for the UK to be able to ratify the amendments to the Conventions we need to implement the changes in UK law. Section 76 of the Energy Act 2004 permits Government to implement the changes to the Conventions through secondary legislation. It provides that amendments may, by Order, be made to the 1965 Act and related legislation for the purpose of facilitating the ratification by the UK of any Protocol amending either of the Conventions.

Table 1: Summary of the position pre and post 2004 Paris/Brussels Amendments

	Current as implemented in the Nuclear Installations Act 1965	Amended Paris/Brussels Conventions
Financial limits	• £140m (standard site) • £10m (for low risk "prescribed" sites) • Accidents in transit £140m from standard sites; and £10m from prescribes sites *(above this limit the government and other Convention signatories provide additional cover of up to the equivalent of about £300m)*	• Minimum €700m (standard site) • Minimum €70m (low risk installations) • Minimum €80m for low risk transit *(above this limit the government and other Convention signatories provide additional cover up to €1,500m)*
Categories of damage	• Property damage • Personal injury/death for the first 10 years	• Property damage • Personal injury/death up to 30 years **New** • Economic loss arising from property damage or personal injury • Cost of measures of reinstatement of impaired environment • loss of income deriving from a direct economic interest in any use or enjoyment of the environment • Cost of preventative measures
Time limits	• Limitation period for all types of claims is 30 years. But Government coves any claims made between 10 and 30 years after an event	• Limitation period for personal injury/loss of life will be 30 years. • Limitation period for all other types of claims will remain at 10 years
Geographical scope	• UK • Other Paris/Brussels signatory states	• UK • Other Paris/Brussels signatory states • Non-nuclear states e.g. Ireland, Luxembourg and Austria • Vienna Convention countries who have ratified the Joint Protocol (once the UK has ratified the Joint Protocol) • Any other country not party to any of the above but that has a reciprocal arrangement

Table 2: Operator Liability: Now and with the amended Conventions



Key		Current liability
		Additional liability after revised Conventions have been implemented

Paper 1: The New Categories of Damages

Overview of the changes

20. The Paris Convention ("the Convention") provides that an operator of a nuclear installation is to be liable to pay compensation for certain categories of third party damage caused by a nuclear incident.

21. Under the provisions of the Convention that are currently in force, the categories of damage are limited to "damage to or loss of life of any person" and "damage to or loss of any property"[14]. The amendments to the Convention add four new categories of damage for which operators will be liable. The new definition of "nuclear damage" means that compensation will be available in respect of the following categories of damage:

> *"1. loss of life or personal injury*
>
> *2. loss of or damage to property*
>
> *and each of the following to the extent determined by the law of the competent court,*
>
> *3. economic loss arising from loss or damage referred to in …-paragraph 1. or 2. above insofar as not included in those …paragraphs, if incurred by a person entitled to claim in respect of such loss or damage;*
>
> *4. the costs of measures of reinstatement of impaired environment, unless such impairment is insignificant, if such measures are actually taken or to be taken and insofar as not included in …paragraph 2 above;*
>
> *5. loss of income deriving from a direct economic interest in any use or enjoyment of the environment, incurred as a result of a significant impairment of that environment; and insofar as not included in …paragraph 2 above;*
>
> *6. the costs of preventative measures, and further loss or damage caused by such measures"[15].*

22. In the case of the categories of damage in paragraphs *1 to 5*, in order to qualify as "nuclear damage" for which an operator is liable to pay compensation, the loss or damage must have been caused by ionising radiation emitted either in the operator's nuclear installation or during the

[14] Article 3 (a) of the Convention. Damage to the nuclear installation itself and any other nuclear installation, including a nuclear installation under construction, on the site where that installation is located; and any property on that same site which is used or to be used in conjunction with any such installation is excluded. The position remains the same under the revisions to the Convention.

[15] Article 1(a)(vii) of the consolidated text of the Convention.

transport of nuclear substances to or from the installation. Provision is made for non-radiological loss to be assimilated with loss caused by radioactivity[16].

23. This definition of nuclear damage brings the Convention into line with the Vienna Convention on civil liability for nuclear damage[17].

Our general approach to implementation

24. The general approach that we propose to take in implementing the new categories of damage is to adopt the wording and definitions used in the Convention without further elaboration, as far as this is possible and sensible. This is in line with the approach taken by other Convention countries. It will help to avoid under or over implementation of the Convention amendments and will secure consistency internationally. These factors are especially important given the reciprocal nature of the regime established by the Convention.

25. The categories of nuclear damage in paragraphs *1 and 2* of the Convention (personal injury and property damage), are the existing categories of damage under the Convention. They are already implemented by the 1965 Act, in particular sections 7, 8, 9, 10 and 12. In the circumstances, we do not consider that any amendments need to be made to the 1965 Act to implement the categories of damage in paragraphs 1 and 2. Section 7(1) imposes a duty on licensees of a nuclear installation to secure that certain occurrences involving nuclear matter or certain emissions of radiation do not cause injury to any person or damage to any property. Sections 8 and 9 apply section 7 to the United Kingdom Atomic Energy Authority and the Crown respectively. Where jurisdiction lies with the UK under the Convention, section 10 imposes on operators of installations in other Convention countries a duty similar (albeit more limited) to that imposed by section 7.

26. Subject to various qualifications, section 12 of the 1965 Act gives a right to compensation where there has been a breach of duty imposed by sections 7, 8, 9 and 10 of the Act. Compensation is payable to victims in respect of the injury or damage that has been caused in breach of the duty. Section 12 also reflects the principles in the Convention relating to the channelling and limitation of liability. It prevents any liability for injury or damage caused in breach of a duty from being incurred by any person other than the person subject to the duty under section 7, 8, 9 or 10 of the 1965 Act and it provides that compensation is payable up to the financial limits in section 16.

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[16] Loss or damage qualifies as nuclear damage "to the extent that the loss or damage arises out of or results from ionising radiation emitted by any source of radiation inside a nuclear installation, or emitted from nuclear fuel or radioactive products or waste in, or of nuclear substances coming from, originating in, or sent to, a nuclear installation, whether so arising from the radioactive properties of such matter, or from a combination of radioactive properties with toxic, explosive or other hazardous properties of such matter."

[17] The 1997 Protocol to amend the Vienna Convention inserted an identical definition of "nuclear damage" except that the 1997 Protocol definition contains an additional category of damage: "any other economic loss, other than any caused by impairment of the environment, if permitted by the general law on civil liability of the competent court". The 1997 Protocol came into force in October 2003.

27. We consider that the category of nuclear damage in paragraph *3* of the Convention (economic loss arising from personal injury or property damage) is sufficiently covered by the existing provision for personal injury and damage in the 1965 Act described above. This means that no amendments to the 1965 Act will be needed to implement this new category of damage. This is explained in more detail in paragraphs 37 to 41.

28. The categories of nuclear damage in paragraphs *4 to 6* of the Convention are new and amendments to the 1965 Act need to be made to implement them. In order to implement these new categories of damage we propose, in particular, to amend the duty imposed on licensees and others in sections 7 to 10 of the 1965 Act and to provide for a right to compensation to reflect the new categories of damage[18].

29. In the case of the categories of nuclear damage in paragraph *4* (costs of measures of reinstatement of the environment) and paragraph *5* (loss of income deriving from a direct economic interest in the environment), the harm that they are intended to address is a (significantly) impaired environment. The level of compensation turns on the cost of reinstating, or on the economic cost of not being able to use, that environment. Accordingly, we propose to make amendments to section 7 to put significant impairment of the environment on the same footing as "injury to any person" and "damage to any property". This means there will be a duty on a licensee to secure that certain occurrences involving nuclear matter or certain emissions of radiation do not cause significant impairment to the environment, as well as personal injury or property damage.

30. In addition, we propose to add new provisions setting out rights to claim compensation in respect of costs of measures of reinstatement of the environment and loss of income deriving from a direct economic interest in the environment. These rights will apply where significant impairment to the environment has been caused in breach of the section 7 duty. Costs of measures of reinstatement are discussed in more detail in paragraphs 42 to 70; loss of income deriving from a direct economic interest in the environment is discussed in more detail in paragraphs 71 to 76.

31. In the case of the category of nuclear damage in *paragraph 6* of the Convention (costs of preventative measures), the definition of "preventative measures" in the revised Convention[19] requires compensation to be available where there is a grave and imminent *threat* of nuclear damage falling within *paragraphs 1 to 5* (as well as where a nuclear incident has actually occurred). We therefore plan to impose a new duty on licensees to secure that no event arises that creates a grave and imminent threat of a breach of the other duties imposed by section 7 of the 1965 Act. In addition, we propose to include a new provision setting out a person's right to claim compensation for the costs of preventative measures and further loss or damage caused by such measures. This right will apply where the person has taken the preventative

[18] For simplicity, the remainder of this section on heads of damage refers only to the duties imposed on licensees by section 7 but the points will apply similarly in relation to the duties imposed by sections 8 to 10.
[19] Article 1(a)(ix) of the Convention

measures because of a breach of duty. Costs of preventative measures are discussed in more detail in paragraphs 77 to 89.

32. Provision to ensure channelling and limitation of liability will need to cover the new categories of damage.

33. In the event of a nuclear incident, it may be that a person suffers loss or damage that could be treated as falling within more than one category of damage. Generally speaking, unless the Convention provides otherwise, we do not propose to be prescriptive about what category of damage a claim is brought under. But we do wish to provide a regime that precludes the possibility of recovering compensation more than once for the same loss or damage.

34. The categories of damage in *paragraph 4* (costs of measures of reinstatement of the environment) and *paragraph 5* (loss of income deriving from a direct economic interest in the environment) stipulate that these categories are to qualify as "nuclear damage" only "insofar as not included in…paragraph 2" (property damage). This suggests that where a claim for compensation for particular loss or damage could be brought through either a claim for property damage or a claim for costs of measures of reinstatement or loss of income deriving from a direct economic interest in the environment, then it should be pursued through a claim for property damage.

35. In addition, there is a question whether we should provide that an operator (or government where the operator's liability limit is exceeded) should meet claims for compensation for certain categories of nuclear damage before it meets claims for other categories of nuclear damage. Or should it be first-come first-served?

36. With regard to guidance, our current view is that it may be helpful for Government to produce non-statutory guidance on the categories of damage as reflected in the 1965 Act. Such guidance would not affect the meaning of provisions in the 1965 Act and could not require the court to adopt a particular interpretation of these provisions. Further, it is unlikely to be able to cover all possible circumstances or scenarios. However, it may still be of practical assistance. Areas where it is thought guidance might be useful are highlighted below.

Economic loss arising from personal injury or property damage

37. The new definition of "nuclear damage" means that operators are to be required to meet claims for:

    "economic loss arising from loss or damage referred to in …-paragraph 1. or 2. above insofar as not included in those sub-paragraphs, if incurred by a person entitled to claim in respect of such loss or damage;"

Aim

38. This new category of nuclear damage is aimed at ensuring compensation is available in respect of economic (i.e. monetary or financial) loss arising from the categories of damage relating to personal injury or property damage. In order for compensation to be available there must be a causal link between the economic loss and personal injury or property damage. And the right to claim compensation for this category of damage is to extend only to a person who has a right to claim compensation for the personal injury or property damage from which the economic loss arose. In other words, this category of damage is intended to give rise to an entitlement to compensation for consequential economic loss as opposed to pure economic loss. Further, compensation for this category of damage is only required to be made available where it is not already included (according to the applicable national law) in the compensation that can be claimed for personal injury or property damage.

Implementation

39. We consider that this category of nuclear damage is sufficiently covered by the existing provision for personal injury and property damage in the 1965 Act. The amount of compensation for personal injury or property damage caused in breach of a duty under section 7 of the 1965 Act is determined in accordance with the normal rules that apply for assessing damages which aim to put victims in the same position as they would have been if they had not suffered the injury or damage. Once it is established that personal injury or property damage has occurred in breach of a duty under the 1965 Act, the person in breach will be liable for the foreseeable losses caused by the breach providing they are not too remote[20].

40. The question of what is reasonably foreseeable and not too remote would need to be answered on a case-by-case basis. However, in our view, it would be capable of covering this category of economic loss arising from personal injury or property damage. In the case of personal injury, it might be expected to include consequential economic losses such as loss of earning capacity, or loss of support in the case of a claim by a dependent. In the case of property damage, consequential losses might include, for example, the diminution in

[20] See *Blue Circle Industries Plc v Ministry of Defence* CA Judgment of 10 June 1998. This case relates to property damage .

value of a property over and above the cost of repairs or remedial work, the costs incurred by a householder as a result of the loss of use of property or the loss of income or profit from a business premises.

41. In the circumstances, we consider that no amendments to the 1965 Act are needed to implement this new category of damage.

Impairment of the environment

42. A nuclear accident may cause damage to the environment, which may in turn have economic consequences. In particular, costs may be incurred repairing and restoring the environment and third parties may suffer loss of income or profits. Currently, compensation for losses of this kind can only be claimed under the Convention and the 1965 Act if the claim can be brought as part of a claim for property damage (or possibly personal injury). The new categories of damage in *paragraphs 4 and 5* (as set out in paragraph 21 above) are aimed at ensuring the availability of compensation for such losses where a claim cannot be brought as part of a claim for property damage.

Costs of measures of reinstatement of impaired environment

43. The new definition of "nuclear damage" means that operators are to be required to meet claims for:

"the costs of measures of reinstatement of impaired environment, unless such impairment is insignificant, if such measures are actually taken or to be taken and insofar as not included in …paragraph 2 above;"[21]

Aim

44. Where there has been a breach of the existing duty in section 7 of the 1965 Act not to cause property damage, a claimant (with a sufficient interest in the property) will generally be able to recover his or her reasonable reinstatement costs, among other things[22]. Compensation in such cases is aimed at protecting a private interest in property. By contrast, we think that this new category of nuclear damage is aimed at the compensation of those who incur expense reinstating the environment in the public interest. Domestic case law has recognised such a distinction between claims for costs incurred by

[21] This wording bears a striking resemblance to part of the wording in the definition of "pollution damage" in the 1992 International Convention on Civil Liability for Oil Pollution Damage :
"loss or damage caused outside the ship by contamination resulting from the escape or discharge of oil from the ship, wherever such escape or discharge may occur, provided that *compensation for impairment of the environment other than loss of profit from such impairment shall be limited to costs of reasonable measures of reinstatement actually undertaken or to be taken".*

[22] The principle measure of compensation in the case of damage to land is the diminution in value to the claimant or the cost of reasonable reinstatement (see e.g. *Blue Circle Industries Plc v Ministry of Defence;* Halsbury's Laws of England Volume 12(1), paragraph 868).

authorities or bodies acting in the public interest and private claims for property damage[23].

45. Various arrangements exist for public authorities or other bodies to take steps in the public interest to reinstate the environment in the event of a nuclear incident[24]. Different arrangements for reinstatement may apply in different parts of the UK[25] and of course the different countries covered by the Convention will have their own arrangements for reinstatement.

46. It seems to us that this new category of damage is aimed at ensuring that claims can be made against operators for the costs of reinstatement measures incurred by authorities or other public bodies acting under these various arrangements for reinstatement of the environment, subject to the parameters on cost recovery set out in the Convention. We therefore think we are required to provide for a flexible cost recovery regime that will work in relation to the different arrangements for reinstatement that may apply in the UK and in other countries covered by the Convention. We do not think this new category of damage requires us to create a new free-standing regime for the reinstatement of the environment.

47. According to this approach the compensation that operators can be required to pay for will be determined by:

    - the underlying arrangements for the reinstatement of the environment (including the scope of the powers of the relevant authority or body); and in addition

    - the parameters set by the Convention such as the requirements that the impairment of the environment is not insignificant and that the reinstatement measures are reasonable.

Implementation

48. In order to implement this new category of damage, in section 7 of the 1965 Act we propose to impose on licensees a duty to secure that certain occurrences involving nuclear matter or certain emissions of radiation do not cause significant impairment to the environment, as well as personal injury or property damage. In addition, there will be a new provision setting out an entitlement to claim the costs of measures of reinstatement which will apply where significant impairment to the environment has been caused in breach of the section 7 duty.

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[23] *Bartoline Ltd v Royal & Sun Alliance Insurance plc* [2007] 1 All ER (Comm) 1043.

[24] Arrangements in the UK include those in the Environmental Permitting (England and Wales) Regulations 2010, the Radioactive Substances Act 1993 and the radioactive contaminated land regime under Part 2A of the Environmental Protection Act 1990 as modified by the Radioactive Contaminated Land (Modification of Enactments)(England) Regulations 2006 (SI 2006/1379) as amended by SI 2007/3245 and SI 2008/520; the Radioactive Contaminated Land (Modification of Enactments) (Wales) Regulations 2006 (SI 2006/2988) as amended by SI 2007/3250 and SI 2008/521; the Radioactive Contaminated Land (Scotland) Regulations 2007 (SSI 2007/179) as amended by SI 2007/3240 and SSI 2009/202 ;and the Radioactive Contaminated Land Regulations (Northern Ireland) 2006 (S.R. (NI) 2006 No 345) as amended by SI 2007/3236. .

[25] For example, see section 22 of the Water Environment and Water Services (Scotland) Act 2003.

49. As already mentioned, we believe we need to create a flexible cost recovery regime that will work in relation to different arrangements for reinstatement of the environment that may apply in the UK and in other countries covered by the Convention. In the circumstances, we do not propose to limit further what is covered by "the environment", for example by limiting the term to particular components of the environment, such as land or water. We do not think there is justification to exclude the ability to claim compensation for the reinstatement of particular components of the environment. Of course the scope of a particular underlying reinstatement regime will determine what components of the environment can be reinstated.

50. However, in order to achieve our objective of creating a flexible, cross-cutting cost recovery regime, it may be necessary to adjust particular existing reinstatement regimes in order to make them compatible with the Paris costs recovery provisions[26]. It may be necessary to make amendments to cost recovery provisions in particular. Any amendments will need to fall within our power to amend legislation conferred by section 76 of the Energy Act 2004[27].

51. In some cases, a claim for property damage and a claim for costs of reinstatement could relate to the same underlying damage (for example, radioactive contamination of land). It will be important to ensure that the compensation payable in respect of one type of claim takes into account any compensation payable in respect of the other, so as to avoid double recovery. For example, the compensation awarded to a property owner would need to take into account any compensation awarded for the costs of reinstatement measures carried out, or to be carried out, by an authority or other body in relation to that property.

52. The remainder of this section on costs of measures of reinstatement looks at specific implementation issues relating to the parameters set by the Convention.

Significant impairment

53. The new definition of "nuclear damage" includes the "costs of measures of reinstatement of impaired environment, *unless such impairment is insignificant*". This means that, under the Convention, operators are not liable for the costs of reinstating the environment where the damage to the environment is insignificant. In order to reflect this limit we intend to limit the right to compensation to cases where *significant* impairment of the environment has been caused in breach of the duty in section 7.

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[26] For example, see footnote 24.

[27] Section 76 provides the power to amend legislation (other than the 1965 Act) that has effect in relation to a matter to which the Convention amendments relate for the purpose of facilitating our ratification of the Convention amendments.

54. In line with our policy of providing a flexible cost recovery regime, we do not propose to define or limit the meaning of "significant impairment". We think it is desirable that all relevant circumstances relating to a particular case are taken into account when deciding whether or not impairment of the environment is significant for the purposes of the 1965 Act. It seems likely that the level of radioactivity and its impact on human health and the geographical extent of the impact will be relevant factors. But there may be others, such as whether habitats or species protected under national or EU law are affected. We think it may be helpful to publish guidance that would look in more detail at likely relevant factors. In any event, the underlying reinstatement regimes which provide the authority to undertake reinstatement measures may set their own thresholds for intervention[28].

Definition of "measures of reinstatement"

55. The amended Convention defines "measures of reinstatement" as:

> *"any reasonable measures which have been approved by the competent authorities of the State where the measures were taken, and which aim to reinstate or restore damaged or destroyed components of the environment, or to introduce, where reasonable, the equivalent of these components into the environment. The legislation of the State where the nuclear damage is suffered shall determine who is entitled to take such measures"[29].*

Who can take measures of reinstatement?

56. The definition provides that "the legislation of the State where the nuclear damage is suffered shall determine who is entitled to take such measures". This reflects the fact that different countries will have their own reinstatement arrangements. We think that this wording permits us to determine who in the UK can claim for the costs of measures of reinstatement. Given our view that this new category of nuclear damage is aimed at the compensation of those who incur expense reinstating the environment in the public interest, we plan to extend the right to claim to certain public authorities that have powers to take reinstatement measures (or to arrange for such measures to be taken on their behalf) such as the Government and the environment agencies.

What are measures of reinstatement?

57. The definition of "measures of reinstatement" in the amended Convention defines such measures as those that "aim to reinstate or restore damaged or destroyed components of the environment, or to introduce, where reasonable, the equivalent of these components into the environment". As already mentioned, we intend to insert a new provision in the 1965 Act setting out an entitlement to claim the costs of measures of reinstatement. It is proposed that this provision will contain wording that mirrors the Convention definition of "measures of reinstatement".

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[28] For example the radioactive contaminated land regime effectively sets a threshold of 3mSv per year.
[29] Article 1(a)(viii).

58. The amended Convention does not specify what is meant by "reinstating" or "restoring" the environment or introducing "equivalent" components. Similarly, we do not propose to define these terms any further in the 1965 Act. We do not think the term "measures of reinstatement" should be construed restrictively. We think such measures could potentially cover clean-up costs (such as the costs of removing and disposing of contaminated material), the cost of implementing shielding options (such as dilution or using shielding material) as well as restorative or replacement actions (such as replacing top-soil or organisms).

59. We think reinstatement measures could also cover assessment or monitoring of the environment in circumstances where it is sufficiently closely connected to possible reinstatement action. For example, assessing the condition of the impaired environment to establish what reinstatement action (if any) should be taken would, we believe, be covered. However, assessing more generally or taking steps to discover if there is an impairment seems to go beyond what is contemplated by the Convention. Further, although some on-going monitoring may be covered as part of a reinstatement programme, it seems doubtful that monitoring the environment after such a programme has been implemented would be covered.

60. Some reinstatement measures (for example, removal or shielding options) might also be characterised as "preventative measures" (considered in paragraphs 77 to 89 below). Our current thinking is that, where there is a genuine overlap, we should not be prescriptive about which category of damage a claim is brought under. But we should ensure that a person cannot recover more than once in respect of the same measures.

Reasonable measures

61. The definition of "measures of reinstatement" means that operators should only be liable to pay the costs of "reasonable measures". The amended Convention defines "reasonable measures" as follows:

    "measures which are found under the law of the competent court to be appropriate and proportionate, having regard to all the circumstances, for example:

    - *the nature and extent of the nuclear damage incurred*
    - *the extent to which, at the time they are taken, such measures are likely to be effective; and*
    - *relevant scientific and technical expertise."*

62. We intend to include the requirement of reasonableness in the new provision in the 1965 Act setting out an entitlement to claim the costs of reinstatement measures. We will provide that the costs of measures of reinstatement will only be recoverable to the extent that the measures are "reasonable". Measures will be deemed to be reasonable if they are "appropriate and proportionate" in the circumstances. Generally, we think this will have the

effect of requiring the measures be the right *sort* of response at the right *level or intensity*, taking into account the benefits and disadvantages of the response.

63. There is a question whether we should set out in the 1965 Act particular matters that must be taken into account when assessing the reasonableness of reinstatement measures[30]. Given our desire to create a flexible cost recovery mechanism that can apply in relation to a variety of underlying reinstatement regimes, we do not propose to take this approach. In principle, we think it should be possible to take into account all matters that are relevant in a particular case and beyond this we would not wish to impose any limits. This approach is taken in some other regimes that allocate responsibility for reinstatement measures, for example the International Maritime Organisation regime for compensation of damage caused by oil pollution[31].

64. Although we do not propose to include in the 1965 Act a detailed framework for assessing the reasonableness of reinstatement measures, it seems to us that this is an area where guidance may be of practical assistance.

65. We are considering another question that arises in relation to the requirement of reasonableness. It seems to us that, if an authority takes measures that are found to be *unreasonable*, although it should not be able to recover all of the costs it has incurred, the authority should be able to recover an amount that represents the costs of reasonable measures that could have been taken in a particular case. The alternative is that the authority should not be able to recover any compensation for the reinstatement costs that it has incurred.

66. Lastly on the issue of reasonableness, we are currently considering whether there would be merit in specifying that the *costs* of the measures of reinstatement should be reasonable, as well as the measures themselves. Such a requirement is not made express in the Convention but seems to be implied.

Approval of measures by the competent authorities

67. The definition of measures of reinstatement refers to "any reasonable measures which have been approved by the competent authorities of the State where the measures were taken". Where reinstatement measures are taken, or to be taken, in the UK we propose to provide that that before an operator can be required to pay compensation in respect of the costs of those

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[30] See for example, the list of factors in Schedule 4 to the Environmental Damage (Prevention and Remediation) (England) Regulations 2009 SI 2009/153.

[31] See International Convention on Civil Liability for Oil Pollution Damage (CLC), 1969 http://www.imo.org/conventions/contents.asp?doc_id=660&topic_id=256
See also the Water Resources Act 1991: where the Agency carries out works, operations or investigations under section 161 or 161ZA, section 161ZC (2)) confers an entitlement on the Agency to recover expenses reasonably incurred ; and the Radioactive Substances Act 1993: section 29(3) confers a right on the Secretary of State to make reasonable charges for the use of facilities for disposal or accumulation of radioactive waste and section 30(1) confers a power on the Agency to recover any expenses reasonably incurred in disposing of radioactive waste.

Note also the courts already assess the reasonableness of reinstatement in claims for property damage (see paragraph 44).

measures, the measures must be approved by the Secretary of State[32]. It will be possible for an authority (of the kind mentioned in paragraph 56 above) to seek approval either before or after the measures have been taken. It is intended that approval will be given where the Secretary of State is satisfied that the measures have been, or are to be, taken by or on behalf of an appropriate authority and where the measures meet the requirements for reinstatement measures laid down in the amended 1965 Act (as to significant impairment, reasonableness and so forth).

68. If an incident at a nuclear installation in the UK harms the environment in another country covered by the Convention (namely another Convention country, a non-nuclear country or a country with reciprocal arrangements), the definition of measures of reinstatement contemplates that any reinstatement measures will be approved by "competent authorities" in that country. However, it should be noted that under Article 13 of the Convention, jurisdiction in such as case would ultimately lie with courts in the UK.

69. Our current plan is to provide a right to appeal to courts in the UK against both a decision by the Secretary of State and a competent authority in another country. The right of appeal should be available to the authority which made the application for approval of the reinstatement measures and the operator who would be required to pay the costs of those measures[33]. We plan to make the appeal a full appeal on the merits as we think this fits with the scheme of the revised Convention and takes into account there may be claims from other countries as well as the UK.

70. We will need to ensure that the approval and appeal procedures fit with any court proceedings to determine whether there has been a breach of duty under section 7 of the 1965 Act.

[32] Except where the Secretary of State is the person taking the reinstatement measures. The issue of appeal in this case will need to be considered.

[33] The decision could be challenged by way of judicial review by others with sufficient standing in the usual way.

Loss of income deriving from a direct economic interest in the environment

71. The new definition of "nuclear damage" means that operators are to be required to meet claims for:

> *"loss of income deriving from a direct economic interest in any use or enjoyment of the environment, incurred as a result of a significant impairment of that environment; and insofar as not included in …paragraph 2 above;"*

Aim

72. As discussed in paragraphs 37 to 41 above, it is possible for a person to claim consequential economic loss where they have suffered personal injury or property damage in breach of section 7 of the 1965 Act. By contrast this category of nuclear damage is aimed at economic loss which is not related to personal injury or property damage.

73. An example of this type of loss would be that suffered by fishermen where fish in the sea are contaminated by radiation and can no longer be sold. Since the fishermen do not own the fish or the sea, this kind of loss could not be recovered through a claim for property damage (although they could of course bring a property damage claim for loss caused by damage to their vessels or equipment).

74. Generally speaking, in the UK pure economic loss can only be recovered in very limited circumstances. Therefore we believe this new category of damage will provide a new entitlement to compensation. That said, we do not think this category is wide in scope. The term "*direct* economic interest" is intended to ensure that compensation will not be awarded for loss that is too remote from the impairment to the environment. Taking the example of contaminated fish in the sea, while fishermen are likely to be considered to have a direct economic interest in the contaminated fish and sea, it is unlikely that a supplier of goods to those fishermen or a purchaser of the fish caught by the fishermen would be able to demonstrate such a direct economic interest. Further, given the wording "insofar as not included in…paragraph 2 above", our view is that a person will not be able to bring a claim for this category of damage where the environment in question is property in respect of which he or she could claim for property damage.

Implementation

75. In order to implement this new category of damage, as already mentioned, in section 7 we propose to impose on licensees a duty to secure that certain occurrences involving nuclear matter or certain emissions of radiation do not cause significant impairment to the environment, as well as personal injury or property damage. There will also be a new provision setting out an entitlement to claim in respect of a loss of income derived from the environment where

significant impairment to the environment has been caused in breach of the section 7 duty. In line with the Convention, the loss will be limited to:

- income deriving from a direct economic interest in any use or enjoyment of the environment; and
- loss incurred as a result of the significant impairment to the environment.

76. Consistent with our approach in relation to the category of damage relating to costs of measures of reinstatement, we do not propose to define "significant impairment" or "the environment". Further we do not propose to make provision about what constitutes "a direct economic interest in any use or enjoyment of the environment". Although in the UK damages are not generally available for pure economic loss, the courts are accustomed to considering the kinds of issues that will need to be taken into account when applying the new provision - such as remoteness, the nature of a claimant's interest and the nature of the causal link between the harm (impairment to the environment) and the loss or damage sustained by a claimant[34].

[34] In particular note the cases concerning oil pollution from shipping accidents e.g. *Land v The International Oil Pollution Compensation Fund* [1992] 2 Lloyd's Rep 316; *P&O Scottish Ferries v The Braer Corporation and International Oil Pollution Compensation Fund* [1999] 2 Lloyd's Rep 535; *Algrete Shipping Co Inc v International Oil Pollution Compensation Fund and Others* [2003] 1 Lloyd's Rep 327.

Costs of preventative measures

77. The new definition of "nuclear damage" means that operators are to be required to meet claims for:

> *"the costs of preventative measures, and further loss or damage caused by such measures".*

78. The amended Convention defines "preventative measures" as:

> "*any reasonable measures taken by any person after a nuclear incident or an event creating a grave and imminent threat of nuclear damage has occurred, to prevent or minimise nuclear damage referred to in…paragraphs 1 to 5 subject to any approval of the competent authorities required by the law of the State where the measures were taken".*

Aim

79. In the event of a nuclear incident, or where there is a serious threat of one, a range of actions may be taken by a range of persons to prevent or mitigate the damage that might result from the incident. Public authorities such as the police, fire brigade, NHS bodies, local authorities, government departments and advisory bodies may take action to protect the public and the environment. Their actions may include securing the area affected, monitoring radiation, evacuating the local population and providing alternative accommodation, decontamination activities, distributing iodine tablets and taking measures to prevent the consumption of contaminated food. In addition, private individuals and organisations could take actions such as leaving the affected area on their own initiative and finding alternative accommodation, evacuating animals, taking iodine tablets and seeking hospital treatment.

80. We think that this category of nuclear damage is designed to ensure that the costs of the kinds of actions described above can be claimed from an operator, subject to the parameters set out in the Convention. It assumes there are existing national plans and powers to take preventative measures and, as in the case of the category of damage for costs of reinstatement measures, we believe it requires us to provide for a flexible cost recovery regime that will work in relation to the different arrangements for preventative measures that may apply in the UK and in other countries covered by the Convention. We do not consider that this category of damage requires us to create a new free-standing regime for taking preventative measures[35].

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[35] Emergency plans exist at various levels. For example, the Radiation (Emergency Preparedness and Public Information) Regulations 2001 (SI 2001/2975) require operators and local authorities to have emergency plans. The Nuclear Emergency Planning Liaison Group has produced Guidance on emergency planning

http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/nuclear/issues/emergency_plan/neplg/guidance/guidance.aspx

Implementation

81. The definition of "preventative measures" means compensation needs to be available in respect of costs of measures taken after an event that creates a "grave and imminent threat of nuclear damage", as well as following a nuclear incident. It seems to us that this will require us to create a new sort of breach of duty. Accordingly, we plan to impose a new duty on licensees to secure that no event arises that creates a grave and imminent threat of a breach of the other duties imposed by section 7 of the 1965 Act.

82. In addition, we propose to include a new provision setting out a person's right to claim compensation for the costs of preventative measures and further loss or damage caused by such measures. This right will apply where the person has taken the preventative measures because of a breach of duty. We intend to include a definition of preventative measures that reflects the Convention definition.

83. The Convention definition of "preventative measures" makes it clear that compensation is only to be available in respect of preventative measures that are "reasonable measures". The definition of "reasonable measures" is the same as that which applies in the case of reinstatement measures (see paragraph 60). We intend to include this requirement of reasonableness in our new provision setting out the entitlement to compensation. Further, as for reinstatement measures, we propose to provide that preventative measures are reasonable if they are "appropriate and proportionate" in the circumstances. The comments in paragraphs 61 to 66 on implementing the reasonableness requirement in relation to reinstatement measures are also relevant in this context.

84. In order to achieve our objective of creating a flexible, cross-cutting cost recovery regime, it will be necessary for us to check to see whether we need to adjust any existing arrangements for taking preventative measures (in particular, any cost recovery provision) in order to make them compatible with the Convention cost recovery provisions. Any amendments will need to fall within our power to amend legislation conferred by section 76 of the Energy Act 2004[36].

85. Some actions that fall within the definition of "preventative measures" might also be regarded as falling within one of the other categories of nuclear damage. For example, the disposal of radioactive matter or shielding actions might be regarded as measures of reinstatement of impaired environment as well as preventative measures. Our proposed approach is not to be prescriptive about what head of damage a claim is brought under. However, we will ensure that it is not possible to recover more than once in respect of the same measures.

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[36] See footnote 27.

86. Some actions that could be taken as preventative measures could also be taken to mitigate injury or damage under one of the other categories of nuclear damage. For example, steps taken by individuals after an incident to leave the affected area, to move property or consume iodine tablets could be regarded both as mitigation and preventative measures. The costs of reasonable steps to mitigate injury or damage may be recoverable as part of a claim for compensation for that injury or damage caused in breach of a duty under section 7 of the 1965 Act. Where particular actions could be treated as either preventative measures or steps in mitigation, again we do not propose to be prescriptive about which category of damage a claim for the costs of those actions is made under. However, we will ensure that it is not possible to recover more than once in respect of those costs.

87. This category of damage includes "further loss or damage" caused by preventative measures. It seems to us that such "further loss or damage" could be suffered by someone other than the person taking the preventative measures. For example, it could include damage to a person's property caused by preventative works and operations undertaken by another person; it could also include the cost of accommodation paid by a person where they have been evacuated by a public authority. We intend to provide that claims for such "further loss or damage" should be brought directly against the operator, rather than the person who took the preventative measures.

88. However, in line with the Convention, we will ensure that the operator is liable only to pay compensation in respect of loss or damage caused by *reasonable* preventative measures. If preventative measures are taken that are unreasonable, we think the operator should be liable to pay what it would have had to pay for further loss or damage if the measures had been reasonable. Similarly, if preventative measures are taken negligently or recklessly, the operator should be liable only to pay what it would have had to pay if the preventative measures had not been taken negligently or recklessly. In these circumstances, it should be possible for a person who has suffered further loss or damage to make a claim outside the 1965 Act against the person who carried out the preventative measures for an additional amount in respect of the loss or damage attributable to the unreasonable, negligent or reckless nature of the preventative measures.

89. The words "subject to any approval of the competent authorities required by the law of the State where the measures were taken" in the definition of preventative measures indicate that it would be open to us to limit the measures for which compensation can be claimed to measures approved by the Secretary of State or some other public authority. However, given the range of preventative measures that could be taken following a nuclear incident or where there is a grave and imminent threat of one, the range of persons they could be taken by, and the likely urgency of such measures, we do not propose to require the approval of preventative measures. This contrasts with our position in relation to reinstatement measures (paragraphs 67 to 70).

Paper 2: Financial Security

Overview

90. One of the key features of the Paris liability regime is the requirement on operators to maintain insurance or other financial security to cover their liabilities under the Convention. The aim of this requirement is to ensure that operators always have sufficient funds to meet any claims for compensation.

91. Operators in the UK meet this requirement largely by purchasing insurance provided by a number of commercial insurers who pool their capacity and act through the intermediary, Nuclear Risk Insurers Ltd. At the present time UK operators are able to obtain insurance to cover the full extent of their liabilities under the 1965 Act[37].

92. The requirement to maintain insurance or other financial security to cover operators' liabilities will continue to apply under the amended Convention. However, the amendments to the Convention require us to increase significantly the liabilities imposed on operators. In particular:

- the financial limit is to be increased from £140m to a new minimum €700m;
- a broader range of damage will qualify for compensation;
- operators will be exposed to claims for damage incurred in an increased number of countries; and
- operators will be exposed to claims for personal injury for a period of 30 years rather than 10 years.

93. These increased liabilities will need to be covered by insurance or other financial security.

94. At this point it is not possible to set out precisely what commercial insurance will be available to cover the increased liabilities. The requirement to cover the increased liabilities will not come into effect until the amendments to the 1965 Act have come into force (the timing of which will, in turn, be dependent on when the Convention changes are ratified and come into force). The commercial insurance market is fluid and the insurance on offer is likely to change over time. That said, the current indications are that it is likely that commercial insurance will be available to cover a large part but not all of the increased liabilities. The resulting gap in insurance is not unique to the UK. Other countries that are Contracting Parties to the Conventions also actively

[37] Except in the case of authorised discharges.

looking at ways in which the gap in insurance in their market may be covered.

95. The purpose of this section is to explain our understanding of the position on insurance at present; consider how any gaps in cover may be met by the operators through alternative financial security measures and where insurers or operators cannot provide a satisfactory solution, the role Government could play in providing, as a last resort, the necessary financial security in return for a commercial charge.

Requirement to provide financial security

96. Article 10(a) of the Convention currently provides that:

"To cover liability under this Convention, the operator shall be required to have and maintain insurance or other financial security of the amount of [the liability level established by the relevant Contracting Party] and of such type and terms as the competent public authority shall specify".

97. Article 10(a) will remain largely unchanged by the 2004 amendments[38].

98. Article 10(a) of the Convention is implemented by section 19 of the 1965 Act. Section 19(1) obliges the licensee of a nuclear site to make provision (either by insurance or by some other means) for sufficient funds up to the financial limit in section 16 to be available at all times to satisfy any claims established against it under the 1965 Act[39]. The arrangements put in place by a licensee are required to be approved by the Secretary of State for Energy and Climate Change[40] who in turn needs the consent of the Treasury to approve the arrangements. The obligation in section 19(1) will remain after we have amended the legislation to increase the liabilities imposed on licensees

Current insurance arrangements for nuclear third party liability

99. There are at present over 30 civil nuclear licensed sites in the UK. Currently these site licensees satisfy their obligations under section 19 of the Act largely through the purchase of commercial insurance.

100. Operators obtain this cover from the UK "Nuclear Pool" – which is made up of over 20 commercial insurers including Lloyds syndicates and the general insurance market, who pool their capacity for nuclear risks. As noted above, the commercial insurers act through the intermediary, Nuclear Risk Insurers

[38] Although it has been amended to reflect the changes in relation to financial limits in Articles 7 and 21.
[39] The funds must be available in respect of certain "cover periods".
[40] Section 19 refers to "the Minister" which is defined in section 26 as "in the application of this Act to England and Wales the Minister of Power [whose functions are now generally exercised by the Secretary of State for the Department of Energy and Climate Change]; in the application of this Act to Scotland, the Secretary of State"

Ltd. When the amendments to the Convention are implemented in the UK extending the scale and scope of operators' liabilities, we expect that nuclear operators will want to continue to rely on commercial insurance to help provide the necessary cover for their liabilities. It is therefore important to understand the availability of such insurance for the new liabilities.

Availability of coverage from the insurance market

101. Nuclear Risk Insurers Ltd has indicated that its insurers are willing to provide insurance of at least €700m for any confirmed sudden and accidental release of radiation covering:

    i. the existing types of liabilities ie property damage and personal injury for the first 10 years; and

    ii. the new liabilities covering:

    - Economic loss arising from property damage and personal injury;
    - Costs of measures of reinstatement of the impaired environment insofar as they are restricted territorially to the UK; and
    - Loss of income deriving from a direct economic interest in the environment; and
    - Preventative measures[41].

102. Nuclear Risk Insurers Ltd has indicated that insurers will not be prepared to provide cover for personal injury beyond 10 years. But, as noted in paragraph 92, the Convention changes mean that operators should be made liable for personal injury claims for a period of 30 rather than 10 years.

103. The commercial insurance market is generally very wary of covering liabilities that will persist for long periods of time – known as "long-tail liabilities". In the past insurers have experienced serious difficulties in meeting claims for such long-tail liabilities. One of the main problems with insuring this type of liability is that it is very difficult for insurers to estimate what funds they need to reserve to cover these liabilities over such a long period of time. In the circumstances, it seems unlikely that commercial insurance will be available to cover the long-tail liabilities for personal injury that we propose to impose on operators. That said, insurers should consider whether they would be willing to provide cover in respect of some additional years, for example up to 15 - 20 years.

104. Nuclear Risk Insurers has also indicated that insurance will not be available to cover the costs of measures of reinstatement of the impaired environment

[41] But note paragraphs 8.17 and 8.18.

outside the UK. Under the revised Paris Convention, operators will be required to pay compensation in respect of the costs of measures of reinstatement of the impaired environment, not only where the environmental impairment occurs in the UK, but also where it occurs in other Convention countries and other countries covered by the Convention (including countries with no nuclear installations or with equivalent and reciprocal liability arrangements). As explained in Working Paper 1, we want to establish a regime for the recovery of reinstatement costs that will work in relation to the different arrangements for reinstatement that will apply in the UK and in other countries covered by the Convention.

105. At present, therefore, it seems that there may be a gap in insurance cover for non-UK reinstatement costs. This may be due to a lack of information about, and understanding of, the potential financial impact of a nuclear incident in this area and how claims for these reinstatement costs may develop. Over time, as a claims history develops and the general insurance market for environmental impairment liability exposures matures, insurers may be encouraged to provide greater cover. In addition, greater cover may become available as it becomes clearer to insurers how the revised 1965 Act provisions on jurisdiction will work.

106. More generally, it seems unlikely that insurance cover will be available for damage caused by gradually occurring events or damage arising from normal operations. By contrast, the Paris Convention does not distinguish between foreseeable/gradually occurring events and sudden/extraordinary events giving rise to nuclear damage and it obliges us to impose liability on operators (and to require insurance or other financial security) in both cases.

107. It is important to note that this is the position at the present time. As already mentioned, insurance for the increased liabilities will not need to be put in place until the amendments to the 1965 Act come into force. Insurance markets are fluid and it may be that the insurance on offer will change in the period before the 1965 Act amendments come into force.

108. In addition, Nuclear Risk Insurers' current position is based on the terms of the Convention amendments only. It has not had information on how we propose to implement the changes to the Convention, in particular the new categories of damage. We hope that as it becomes clearer how precisely we propose to implement the Convention changes (for example, through these working papers and the consultation) insurers may consider taking on additional risk.

Operator solutions

109. Whilst commercial insurance will be available to cover the new liabilities to a large extent, operators will wish to consider what alternative financial security arrangements are open to them, either to fill any gaps in insurance or more generally to supplement their insurance cover.

110. Operators should consider the extent to which they could retain elements of the risk. It seems to us that this solution may be particularly appropriate for risks associated with less severe incidents. Retention of some of the risk is also likely to reduce the cost of insurance.

111. A standard way for an insured to retain risk is through a provision, referred to as an excess or deductible, under which the insured has to pay the first part of his own loss. An alternative would be to utilise a so-called franchise structure. Under this type arrangement, insurers would not be liable if established claims do not exceed the franchise figure, but if the established claims exceed the franchise figure then the insurers are liable for the full amount. Another possibility may be a so-called fronting arrangement under which the operator takes out insurance for all risks but then undertakes to reimburse the insurer for part or all of the sums paid out by the insurer in respect of claims. There may be other ways of dividing risks between operators and insurers.

112. Where an operator does retain elements of risk it would be for that operator to determine what provision it makes to cover the retained risks. The use of a captive insurer to provide additional coverage is another method that could certainly be considered by the industry, subject to the requirement that any such structure were designed purely for sound commercial reasons. There could be other loss funding mechanisms (such as parent company security, an external fund, industry risk pooling , the issue of bonds on the capital market and so forth). Operators who have installations in a number of Paris countries will no doubt want to consider solutions across their organisation. Section 19(1) of the 1965 Act means that the Government would have to approve any arrangements proposed by a licensee.

Government intervention

113. Government is mindful that even with the use of alternative financial security mechanisms there is a possibility that there may still be gaps in the provision of insurance or other financial security. This is likely to be a particular issue for the long tail liabilities for personal injury. It should be noted long tail liabilities are an issue in general for the insurance market.

114. It is important however to find a solution to the insurance/financial security issue to enable us to ratify and fully implement the amendments to the Conventions. It seems to us that this is a case where the Government may consider stepping in as a last resort to fill any gap in the provision of commercial insurance or other financial security in return for a charge.

115. Governments around the world have periodically stepped in to provide insurance or reinsurance schemes where there has been a failure of the commercial markets to provide appropriate cover[42]. The possibility of

[42] .For example, in the UK , Pool Re for terrorism risks; in US, the National Flood Insurance Programme, the California Earthquake Authority and the Terrorism Risk Insurance Act.

Government doing so in this context has been proposed previously - see, for example, paragraph 4.14 of the *"Future of Nuclear Power, The Role of Nuclear Power in a Low Carbon UK Economy, May 2007": to the extent commercial cover cannot be secured for all aspects of the new operator liabilities, the Government will explore the alternative options available – including providing cover from public funds in return for a charge.*

116. We will assess the situation at the time the revised legislation comes into force.

Next steps

117. We are committed to introducing into UK law the significant changes to the Conventions agreed in 2004. We intend to publish a consultation paper later this year with the aim of introducing legislation by Spring next year.

118. The Paris regime is aimed at ensuring adequate and fair compensation for victims who suffer damage as a result of a nuclear incident at a nuclear installation or during the transport of nuclear substances to and from that installation. It also ensures that the operators of such installations, who are in the best position to ensure the safety of their installations, take responsibility for any failure in safety. We consider it important therefore to continue to be a party to the Conventions and implement the amended Conventions as fully as possible.

119. The amendments to the Conventions will result in an improved compensation regime. They are designed to provide compensation to a wider set of victims than today. They also transfer more of the financial responsibility to the operator. We consider both these changes to be right and proper.

120. We are pleased to note that the insurance market is beginning to respond to the requirements of the revised Conventions. The position will need to be reassessed at the time the revised legislation comes into force.

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