

<b>Title:</b> Creation of the Statutory Office for Nuclear Regulation (ONR)	Impact Assessment (IA)
<b>IA No:</b> DECC0071	<b>Date:</b> 27/10/2011
<b>Lead department or agency:</b> Department of Energy and Climate Change (DECC)	<b>Stage:</b> Final
<b>Other departments or agencies:</b> HSE/ONR	<b>Source of intervention:</b> Domestic
	<b>Type of measure:</b> Primary legislation
	<b>Contact for enquiries:</b> Anthony Moulds
<b>Summary: Intervention and Options</b>	<b>RPC:</b> RPC Opinion Status

<b>Cost of Preferred (or more likely) Option</b>				
Total Net Present Value	Business Net Present Value	Net cost to business per year	In scope of One-In, One-Out?	Measure qualifies as
£25.7m	Out of Scope	Out of Scope	No	Zero Net Cost

### **What is the problem under consideration? Why is government intervention necessary?**

The UK's nuclear regulator needs to be effective, independent, fully resourced, transparent and accountable. It must also be sufficiently flexible to meet future challenges in an industry that deals in long timescales. The current nuclear regulator (the interim Office for Nuclear Regulation (**ONR**), an agency of the HSE) does not adequately meet these requirements due to certain inherent constraints. Examples include being subject to the constraints inherent in being part of the Civil Service so that it cannot attract and retain staff in a competitive and increasingly international market; and performing statutory functions that are in law held by the Secretary of State, rather than the regulator. Such issues can only be resolved using legislative means.

### **What are the policy objectives and the intended effects?**

The policy objective is to deliver an effective, independent, fully resourced, transparent and accountable nuclear regulator. It is proposed that this will be done by way of placing the interim ONR on a statutory footing by means of primary legislation. The legislation will set out a clear governance model for the statutory ONR, provide for the appointment of a statutory Board and transfer the statutory regulatory functions for nuclear safety, security and safeguards, as well as those relating to the transport of radioactive material by road, rail or inland waterway to the ONR. The intended effects are an effective regulator with a clear mandate, as well as increased industry and public confidence in the quality and independence of nuclear regulatory decision making.

### **What policy options have been considered, including any alternatives to regulation?**

#### **Please justify preferred option (further details in Evidence Base)**

Two policy options have been considered. These are (i) to retain the interim ONR and not seek legislative amendments to the regime or (ii) to place the interim ONR on a statutory footing by means of primary legislation. This is the preferred option. The option to simply retain the interim ONR will not result in an ONR that is more transparent, accountable, properly resourced, independent or effective. This is because legislation is needed in order to remove the remaining barriers to achieving such a regulator. Legislative measures to achieve this outcome would include increasing the ONR's visibility to Parliament; moving nuclear regulatory functions so that they are held by the regulator and moving the statutory ONR outside of the Civil Service. Ministers have expressed a preference for primary legislation, over secondary legislation, mainly for reasons of transparency, as using a Bill will ensure the fullest debate within Parliament on the proposed measures and will also maximise Parliamentary scrutiny of the proposed legislation.

### **Will the policy be reviewed: Yes**

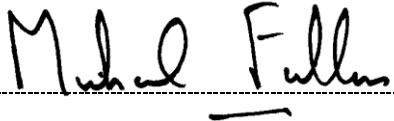
Does implementation go beyond minimum EU requirements?

N/A

Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	<b>Micro</b> No	<b>&lt; 20</b> Yes	<b>Small</b> Yes	<b>Medium</b> Yes	<b>Large</b> Yes
What is the CO2 equivalent change in greenhouse gas emissions? (Million tonnes CO2 equivalent)			<b>Traded:</b> 0.44	<b>Non-traded:</b> N/A	

***I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.***

Signed by the responsible:



Date: 30/04/2013

**Description: Creation of the Statutory Office for Nuclear Regulation (ONR)****FULL ECONOMIC ASSESSMENT**

Price Base Year 2010	PV Base Year 2011	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: -£21.3m	High: £100.1m	Best Estimate: £25.7m

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition)	Total Cost (Present Value)
Low	£0.91m	1	£8.3m
High	£1.01m		£9.1m
Best Estimate	£0.96m		£8.7m

**Description and scale of key monetised costs by 'main affected groups'**

Costs are comprised of (i) one-off, transition costs related to the creation of the statutory ONR: direct support, transition management and public engagement, and (ii) the Statutory ONR's estimated increased annual running costs relative to the interim ONR operating as an agency of the HSE: incremental salary costs, board & secretariat costs, direct support, and commercial insurance. Salary costs account for a significant proportion of estimated future costs and result from removing current constraints to enable subsequent recruitment to fill existing vacancies and to address forecast demand related to the nuclear new build programme. These costs are out of scope of One-In-One-Out (OIOO) calculations as they are recovered from industry. Significant additional costs are expected to arise from the likelihood that the statutory ONR will need to pay VAT and subsequently pass these costs on to industry. As a transfer, all taxes are however excluded from the assessment of societal impacts as set out above.

**Other key non-monetised costs by 'main affected groups'**

None.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition)	Total Benefit (Present Value)
Low	zero	1	£6.0m
High	zero		£24.2m
Best Estimate	zero		£12.9m

**Description and scale of key monetised benefits by 'main affected groups'**

Benefits to industry and society are estimated to result from (i) reduced delays in re-starting nuclear reactors after outages (central estimate of 2 days reduction per annum) and (ii) reduction / removal of delays in regulatory functions related to the nuclear new build programme (central estimate of the removal of a one-month delay to the operation of the first new nuclear reactor in 2018 and therefore the avoided resource cost of marginal electricity generation). Although real benefits to industry, as they do not result from deregulatory measures, they are deemed out of scope for OIOO purposes. It is also estimated that savings to the statutory ONR and therefore industry (reduction in cost recovery) will be realised through a reduction in charges for HSE overheads. However these savings are not included as a societal benefit as it is assumed that HSE will instead incur at least the majority of the charges in the future and consequently they are also deemed out of scope of OIOO.

### **Other key non-monetised benefits by ‘main affected groups’**

Industry will benefit from an independent and effective regulator covering nuclear safety, security, safeguards and transport functions. These benefits will include the predictability and clarity of regulatory functions and consequent time and resource savings that these will deliver. Benefits are also expected to result from the statutory ONR’s greater organisational and financial autonomy and flexibility. This is because such flexibility will improve the statutory ONR’s effectiveness, transparency, accountability and efficiency. A further benefit will be the increased industry and public confidence in the statutory ONR’s decision making.

<b>Key assumptions/sensitivities/risks</b>	<b>Discount rate</b>
An appraisal period of ten years (2011-2020) has been used to discount costs and benefits to present values at a rate of 3.5%. One-off transitional costs are assumed to be incurred in one year (2013) and ongoing additional annual costs and savings are also assumed to commence in 2013. The costs and savings related to the ONR are considered out of scope of OIOO calculations as they will form part of the industry cost recovery mechanism or are a result of taxation. As benefits to industry do not result from deregulatory measures they are also out of scope of OIOO. All taxes are out of scope of OIOO.	3.5%
Potential risks include: benefits/costs being lower/higher than estimated, inability to attract additional staff at estimated range of costs.	

### **BUSINESS ASSESSMENT (Option 1)**

<b>Direct impact on business (Equivalent Annual) £m:</b>	<b>In scope of OIOO?</b>	<b>Measure qualifies as</b>
<b>Costs: NA</b>	<b>Benefits: NA</b>	<b>Net: NA</b>

# Evidence Base

## A Summary of the Proposed Policy

1. It is proposed that the current nuclear regulator, the interim Office for Nuclear Regulation (**ONR**), will be placed on a statutory footing by means of primary legislation. This legislation will set out a clear governance model for the new statutory body (**statutory ONR**). The legislation will also transfer the relevant statutory regulatory functions for nuclear safety, security and safeguards, as well as those relating to the transport of radioactive material by road, rail or inland waterway to the statutory ONR.
2. This is necessary because the UK's nuclear regulator needs to be effective, independent, fully resourced, transparent and accountable. It must also be sufficiently flexible to meet future challenges in an industry that deals in long timescales. The interim ONR, an agency of the HSE, does not adequately meet these requirements due to certain inherent constraints. These are explored further below.
3. Two options were considered for this policy: (i) to keep the interim ONR as it is with no legislative intervention and (ii) to establish the statutory ONR using legislative means. The preferred option is the legislative approach. This reflects the responses to the 2009 consultation on restructuring the HSE's Nuclear Directorate<sup>1</sup> which were conclusive that non-legislative solutions would not remedy the difficulties faced by the then Nuclear Directorate which regulated most aspects of the nuclear industry (see paragraph 13 below).

## Problem Under Consideration

### Summary

4. The UK's nuclear regulator needs to be effective, independent, fully resourced, transparent and accountable. It must also be sufficiently flexible to meet future challenges in an industry that deals in long timescales. The interim ONR, an agency of the HSE, does not adequately meet these requirements due to certain inherent constraints (set out below).

### Relevant History of the Nuclear Industry

5. As the UK's nuclear industry began to develop in the 1950s and 1960s, it was an industry that was primarily state owned and operated. Currently, many nuclear facilities are owned and/or operated by private sector contractors and consortia.
6. Between the 1980s and the early 21st century there was an international decline in interest in nuclear power. This led to reductions in specialist nuclear training courses, fewer graduates with nuclear expertise and a gradual increase in the average age of the UK's nuclear engineers and scientists, and therefore nuclear inspectors.
7. Many of the nuclear facilities currently in operation will reach the end of their generating lifespan within the next 15 years. As such, the regulatory focus is moving towards the decommissioning and clean-up of such facilities.
8. At the same time, the government has made clear that "for the UK to meet its energy and climate change objectives, the Government believes that there is an urgent need for new electricity generation plant, including new nuclear power"<sup>2</sup>.
9. In January 2008 , following a public consultation, the previous Government published the Nuclear White Paper and set out its view that "*it is in the public interest that new nuclear power stations should have a role to play in this country's future energy mix alongside*

<sup>1</sup> See:

[http://www.decc.gov.uk/assets/decc/What%20we%20do/UK%20energy%20supply/Energy%20mix/Nuclear/newnuclear/1\\_20100325090724\\_e\\_@@\\_govtresponseLegislativereFormONR.pdf](http://www.decc.gov.uk/assets/decc/What%20we%20do/UK%20energy%20supply/Energy%20mix/Nuclear/newnuclear/1_20100325090724_e_@@_govtresponseLegislativereFormONR.pdf)

<sup>2</sup> P27: Overarching National Policy Statement for Energy (EN-1)

*other low-carbon sources ...*". As is made clear in the various Energy National Policy Statements (in particular EN-1 and EN-6) the Government believes that nuclear power can contribute to the UK's objectives on climate change and energy security, as well as provide potential benefits to the UK through the creation of a supply chain and the creation of demand for specialist skills (for example in manufacturing and construction).

10. Alongside the decommissioning of existing plant and potential construction of new nuclear plant, it is worth noting the increasingly stringent international expectations and standards relating to both the safe design and operation of the facilities themselves and to the organisations that regulate them. In addition, there have been societal changes with increased public interest in safety and the environment, and demands for greater accountability and transparency of public bodies. Recent events in Japan in particular have highlighted the need for an independent and robust nuclear safety regulator – there are currently plans to restructure the existing Japanese nuclear regulator.<sup>3</sup>
11. During 2008, a review of the current nuclear regulatory environment was undertaken in order to ensure that it was in line with the Government's ambition to make the UK a world leader in the safe, efficient use of nuclear energy, including a highly efficient and effective regulatory system, that makes the UK the best place in the world to invest in new nuclear power stations. In December 2008, *The Nuclear Regulatory Review Private Advice and Reasoning Observations by Tim Stone for the Secretary of State for Energy and Climate Change*<sup>4</sup> (**Stone Review**) was released. It should be noted that the Stone Review (and therefore its recommendations) focussed on nuclear safety and not security.
12. The Stone Review made three key recommendations. These are (in summary):
  - a. The creation of a governing body for the nuclear regulator;
  - b. Ensuring that the nuclear regulator is structured to give it the financial and organisational flexibility needed to meet its business needs on a sustainable basis; and
  - c. Considering whether the radioactive material transport functions in DfT should be integrated into the nuclear regulator.
13. The Government consulted publicly on proposals for a statutory ONR between June and September 2009. The consultation document *A Consultation on the Restructuring of the Health and Safety Executive's Nuclear Directorate* contained a Partial Impact Assessment and sought stakeholders' views on the accuracy of the assessment and on whether projected increases in fees payable by duty holders would be justified by the potential benefits of setting up the new regulatory body. This assessment has taken into account responses to the previous government consultation as well as changes to policy over and above the proposals that were consulted on.
14. In March 2010 the Department for Work and Pensions (**DWP**) and the Department of Energy and Climate Change (**DECC**) released a draft Legislative Reform Order (**LRO**) together with a document entitled '*The Legislative Reform (Office for Nuclear Regulation) Order 2010 Explanatory Document including Government Response to Consultation and Full Impact Assessment*<sup>5</sup> (**Explanatory Document**).
15. The purpose of the LRO was to implement the key recommendations from the Stone Review and to create a new regulatory body, the statutory ONR, which would function as a sector-specific regulator for the nuclear industry with additional responsibility for the safety and security of the transport of radioactive material by road, rail and inland waterways.

<sup>3</sup> See: [http://www.world-nuclear-news.org/RS\\_Regulatory\\_shake\\_up\\_in\\_Japan\\_1608111.html](http://www.world-nuclear-news.org/RS_Regulatory_shake_up_in_Japan_1608111.html)

<sup>4</sup> [http://www.decc.gov.uk/assets/decc/what%20we%20do/uk%20energy%20supply/energy%20mix/nuclear/whitepaper08/1\\_20091116131031\\_e @@ nuclearreviewstoneadvice.pdf](http://www.decc.gov.uk/assets/decc/what%20we%20do/uk%20energy%20supply/energy%20mix/nuclear/whitepaper08/1_20091116131031_e @@ nuclearreviewstoneadvice.pdf)

<sup>5</sup> [http://www.decc.gov.uk/en/content/cms/meeting\\_energy/nuclear/new/reg\\_reform/reg\\_reform.aspx](http://www.decc.gov.uk/en/content/cms/meeting_energy/nuclear/new/reg_reform/reg_reform.aspx)

16. Due to a lack of Parliamentary scrutiny time prior to the General Election, Ministers agreed that the LRO should not be laid before Parliament and as such it has not been introduced nor implemented. The draft LRO and Explanatory Document were, however, published for information on the DECC website<sup>6</sup>.
17. Following the General Election in May 2010 and in order to send a clear signal to industry that the statutory ONR project was still regarded as a key priority for Government, on 8 February 2011 Chris Grayling, Minister of State (DWP) made the following statement:

*"The Government intend to bring forward legislation to create a new independent statutory body outside of the HSE to regulate the nuclear power industry. The new statutory corporation would be known as the Office for Nuclear Regulation and would take on the relevant functions currently carried out by the Health and Safety Executive and the Department for Transport.*

*The ONR would be a new independent regulator, formally responsible in law for delivering its regulatory functions. The creation of the ONR would consolidate civil nuclear and radioactive transport safety and security regulation in one place. The proposal will not affect the current regulatory requirements or standards with which industry must comply, and the vast majority of the costs of the regulator would continue to be recovered in charges from operators in the nuclear industry rather than funded by the public purse. Additional organisational costs will be entirely met by the nuclear industry<sup>7</sup>.*

18. The Minister also made clear that, pending legislation being introduced, the ONR would be set up as a non-statutory body from 1 April 2011, as a signal of the Government's commitment to securing an appropriately resourced and responsive regulator for the future challenges of the nuclear sector. This resulted in the creation of the interim ONR as an agency of the HSE.

## ***Relevant History of the Interim ONR***

### **Regulatory consolidation**

19. In 2007, work began to consolidate the nuclear regulatory framework to improve the consistency of regulation and reduce interfaces for duty holders, as well as to improve the integration of these functions, reduce duplication and facilitate the sharing of best practice. To achieve this the operations of the Office for Civil Nuclear Security (**OCNS**) and the UK Safeguards Office (**UKSO**) were transferred from the then DTI to sit alongside the Nuclear Installations Inspectorate (**NII**) in the HSE's Nuclear Directorate (**ND**) (the transfer of DfT's Radioactive Materials Transport Team (**RMTT**) did not occur at this time and will take place in October 2011).
20. As a result of these changes, the HSE performed the relevant regulatory functions on behalf of the Secretary of State for Energy and Climate Change, who retained responsibility for the functions in law. In practical terms the transfer proved successful, but the effect was that one organisation performed the functions while legal responsibility remained with Ministers.
21. By creating the statutory ONR the Government seeks to consolidate and streamline the arrangements further. This includes reducing reliance on the current network of agreements that transfer from the Secretary of State to the HSE the on the ground responsibility for various nuclear functions. The transition would be to a more transparent statutory arrangement, under which a single body will have legal responsibility for the core functions that it performs.

<sup>6</sup> See [http://www.decc.gov.uk/en/content/cms/meeting\\_energy/nuclear/new/reg\\_reform/reg\\_reform.aspx](http://www.decc.gov.uk/en/content/cms/meeting_energy/nuclear/new/reg_reform/reg_reform.aspx)

<sup>7</sup> See Hansard: <http://www.publications.parliament.uk/pa/cm/cmtoday/cmwmss/archive/110208.htm>

## **Resourcing issues and interim arrangements**

22. The general decline in the number of nuclear inspectors alluded to at paragraph 6, along with the increasingly competitive global skills market, has hindered the implementation of the interim ONR's identified business improvement initiatives. These initiatives include: influencing improvements among operators, regulatory effectiveness, balance and consistency of decision making processes and open and transparent dialogue with stakeholders along with a move to programme managements working in line with current industry practices. To attempt to address this, in 2007 and again in 2008/9, the Government sanctioned a significant increase in salaries for the (then) ND's NII inspectors. The ND also established satellite offices in London and Cheltenham, which are both known to be strategic recruitment locations, to help attract new resource. These initiatives resulted in a substantial increase in the number of inspectors joining the ND. Recent recruitment is helping the interim ONR to manage its activities in the short term, although there is a current vacancy list for a substantial number of nuclear inspectors.
23. However, a more radical approach is needed over the longer term to maintain staffing levels with the right skills, given the international and domestic competition for scarce skills. The interim ONR is doing all that it can under the current regime to maintain appropriate staffing levels. However the constraints in the system preventing this can only be dealt with by way of legislation.

### **Resourcing issues now and in the future**

24. The current and anticipated changes to the nuclear sector going forward have had and will have significant implications for ONR's specialist staffing levels - arising from the need to undertake a variety of activities, which include:
- regulating the existing ageing nuclear reactor fleet, including life extensions for plant;
  - regulating any new nuclear construction (and completing any Generic Design Assessment processes);
  - regulating the nuclear decommissioning programme;
  - regulating major improvement programmes in reprocessing spent fuel and nuclear waste storage;
  - regulating defence nuclear weapons/nuclear defence propulsion systems; and
  - responding effectively to the implications of the Fukushima incident for the UK nuclear industry.
25. The interim ONR continuously updates its knowledge of current and future resource requirements against the background of the various challenges that the developing nuclear agenda poses. Based on those assessments, there are a number of vacancies for nuclear safety specialists.
26. The recruitment and retention of nuclear regulators will be crucial in meeting the forecast demand from the new nuclear build programme in the UK. Greater flexibility over financial and employment arrangements will not be possible without the autonomy offered by a statutory corporation sitting outside the Civil Service. This current lack of autonomy consequently increases the risk of delays to nuclear new build.
27. There are various factors that currently result in the interim ONR being unable to recruit as effectively as it would like. These include:
- a. an increasingly competitive market for nuclear specialists;
  - b. an aging demographic

- c. knowledge retention: the impact on retention of corporate knowledge should staff retire before their knowledge is successfully transferred is significant. To train and mentor new recruits to achieve a satisfactory level of regulatory competence currently takes four years;
  - d. new and increasing demands on the interim ONR's resources: the current increase in stress testing activities and increased interest from Europe and internationally has resulted in additional workload.
28. There are complex, internal government processes that are factors in the interim ONR's recruitment process but which are not present for other organisations seeking to recruit new staff with nuclear specific skill sets.
- Additional issues**
29. The current regime lacks transparency. Various nuclear regulatory functions are held by the Secretary of State who then delegates them to the HSE, which in turn delegates them to the interim ONR. It is therefore not a transparent system from the perspective of the public, nor is it immediately clear to industry where functions in practice lie. In addition, there are certain functions that can be exercised by both the Secretary of State, as well as the regulator.
30. A further issue is that the interim ONR is not an entity that is clearly visible to Parliament. There is accountability through the relevant Secretary of State, however, unlike other regulators such as the Civil Aviation Authority, the Office for Rail Regulation and Ofgem, the interim ONR is not a standalone independent regulator that can be seen by Parliament as clearly holding the relevant regulatory functions.

### **Rationale for intervention**

31. The challenges facing the interim ONR and the constraints inherent within the current model require a response that is stronger than can be achieved by non-statutory means.
32. The interim ONR is an agency of the HSE and as such it is not allowed to hold regulatory functions in its own right. Instead various functions are delegated from the Secretary of State to the HSE which in turn delegates them to the ONR to carry out. This is not a transparent approach. The statutory ONR would be able to hold all of its regulatory functions and therefore the regulatory arrangements would be clear, and responsibility for regulatory functions would be readily identifiable to all duty holders, prospective participants and wider stakeholders. Regulatory interfaces would be simplified and consistency of regulation ensured wherever appropriate.
33. The interim ONR does not have its own legal personality and so does not have the necessary operational and financial flexibility in order to recruit and retain staff. As was made clear in the Government's response to the 2009 consultation, as a non-statutory body the interim ONR is unable to resolve satisfactorily current and future resourcing issues, or realise the better regulation benefits of restructuring. For example, regulatory delays to nuclear industry operations have occurred (see paragraph 106 below) because the interim ONR lacks the organisational and financial control necessary to manage its operations with full efficiency (including ensuring that there are sufficient specialist staff to process the necessary permissions). The regulator must be satisfied, on the public's behalf, that an activity is safe to proceed. This is a necessarily intrusive requirement and if assessment resources are insufficient to turn round permissioning, then delays are inevitable and costly.

34. The constraints that are inherent in the interim ONR remaining within the HSE are fully explored in the Government Response to the 2009 consultation. For example, p14-15 of the Government Response sets out that:

“16. In developing the proposals which were the subject of the consultation, the Government considered a ‘half way’ measure which would have involved the creation of an agency of HSE with its own board – effectively an internal restructuring of the ND. In the consultation document, the Government indicated its view that this would be a less transparent arrangement and would result in a complex structure of accountability. Given that an agency would not have a legal status separate from HSE, that option would not afford the new body the desired operational and financial flexibility. It would also be difficult to provide for dedicated non-executive governance of an internal agency.

17. However, given that some respondents did not feel that this option was shown to be unsatisfactory, the Government has given it further consideration and its conclusions are set out in the following paragraphs.

18. The Government’s primary goal is to restructure the nuclear regulatory framework in a way which allows it to meet the current and future challenges faced by the sector. While it is true that some benefits would be realisable by an internal restructuring of the ND, the Government does not consider that the resulting arrangements would fully satisfy the objectives.

19. An internal agency of HSE could provide more focussed regulation than the ND currently does, if it were to have its own dedicated board concentrating on nuclear issues and matters concerning radioactive transport. However, HSE would still be legally bound to consider all its wider priorities. The Government considers that removal of nuclear regulation from HSE through the creation of a separate body will ensure that the sector receives an appropriate level of attention. The ONR will be focussed, strategically and financially, on a narrower range of issues. Its resources, both financial and human, will be fully ring-fenced and directed towards meeting the ONR’s regulatory responsibilities.

20. In addition, creating the ONR as a separate statutory body allows the Government to legislate for certain guaranteed governance arrangements and planning and reporting requirements. These provisions include certain rights for Ministers, HSE and external stakeholders to be consulted and certain requirements for publication of the documents produced by the ONR. Enshrining in legislation the creation of the ONR as body independent [(but within the auspices)]<sup>8</sup> of HSE and including statutory requirements as to its purposes and functions, governance arrangements and planning and reporting requirements guarantees that these elements will be adhered to, enhancing accountability and transparency”.

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<sup>8</sup> The policy on this issue has developed since the Government Response and the statutory ONR will no longer be “within the auspices of” the HSE, though strong links will be in place between both regulators to ensure consistency of health and safety regulation

35. In addition to the above constraints, there are constraints that are inherent as part of the interim ONR being a part of the Civil Service. These include detailed procedures for obtaining approval for recruiting nuclear specialists and having to liaise with various organisations within government in order to obtain such approval. This is currently in the context of an interim ONR that is seeking to recruit staff at a time when the Civil Service is not going through a period of growth. This lack of alignment can create tensions and can affect the interim ONR being able to respond rapidly to changes in demand for its regulatory services.
36. Further delays to both current and future nuclear industry operations are likely if this lack of control to ensure appropriate resourcing persists. The interim ONR is already implementing operational improvements to the extent that is possible without legislation. However, only legislative change to create an independent regulator with control over its resources can achieve the objectives in full.
37. A statutory regulator that brings about these changes will help to “future proof” the organisation, enabling it to deliver efficient, effective, transparent, accountable and consistent regulation in the decades ahead.
38. The Chief Nuclear Inspector’s report on the circumstances of the Fukushima accident: “Japanese earthquake and tsunami: Implications for the UK nuclear industry” (“the report”) published in October 2011, supports the rationale for creating a statutory nuclear regulator. The report recommends that the Government should consider ensuring that the legislation creating the statutory ONR is open and transparent about its decision making, so that it may clearly demonstrate to stakeholders its effective independence from bodies or organisations concerned with the promotion or utilisation of nuclear energy.

## **Policy objectives**

39. The key policy objective behind the creation of the statutory ONR is to establish a nuclear regulator that is effective, independent, fully resourced, transparent and accountable and that has the confidence of industry, the public and the government. It must also have the ability and flexibility to deliver its mandate both now and in the future.
40. The creation of the statutory ONR will involve institutional, operational and managerial changes to the interim ONR that are designed to improve the regulation of the nuclear industry. In particular, the changes are intended to help to boost recruitment and retention of inspectors in a globally competitive market where nuclear skills are scarce.
41. These changes will include the creation of a statutory Board with a clear mandate to manage and guide the statutory ONR going forwards, giving the organisation a sustainable and robust level of leadership. It will also facilitate the continued recruitment and retention of high calibre appointments to the ONR Board. The changes will also involve the creation of a statutory post for the Chief Nuclear Inspector – putting on a statutory basis this key regulatory role.
42. A further Policy goal is to retain the existing regulatory obligations on industry. As such, there will be no significant change to nuclear safety, safeguards, transport or security requirements. Instead, there will be an improvement in the operation and accountability of the regulator that is charged with ensuring that those requirements are met by industry.

## Description of Options Considered

43. Two broad options have been considered. These are:
- a. Retain the interim ONR with no legislative intervention; or
  - b. Establish the statutory ONR using legislative means.
44. It should be noted that the consultation on the restructuring of the HSE's ND in 2009 considered two non-legislative approaches (set out in paragraph 49) but it was concluded that only a legislative remedy could address the difficulties faced by the Nuclear Directorate.
45. The non-legislative 'half way' measure, involving the creation of an agency of HSE, was the model used for the interim ONR (following the decision not to implement the LRO). However, it means that this is no longer an option that we can consider. Further, work is already underway to rationalise the regulatory arrangements within this framework. The one key area that was outstanding was the transfer of functions for the transport of radioactive materials from DfT to DECC. However, the transfer will come into effect towards the end of October 2011 which will complete the work begun in 2007 to bring together the regulatory functions of the nuclear regime into one place (as detailed in paragraph 19).
- Option 1. Retaining the interim ONR**
46. The interim ONR is currently an agency of the HSE. Various nuclear regulatory functions are held by the Secretary of State then delegated to the HSE to perform. In turn, the HSE delegates these functions to the interim ONR to carry out. Such an agency does not have separate legal personality from the HSE and so does not have the necessary operational and financial flexibility in order to recruit and retain staff. In addition, the interim ONR's board does not have a statutory basis and as such, it would be difficult for it in the long term to strengthen non-executive governance in such a sensitive and high profile area. Another key point is that this model would not allow for the transfer of functions to the interim ONR in its own right. This would mean the continuation of the current, non-transparent, model of delegation of various functions from the Secretary of State, to the HSE and then to the interim ONR.
47. In addition, non-legislative means would not resolve the longer term challenges to the regulator or realise the better regulation benefits of restructuring. For example, regulatory delays to nuclear industry operations have occurred (see the examples given below) due to the interim ONR lacking the organisational and financial control necessary to manage its operations with full efficiency (including ensuring that there are sufficient specialist staff to process the necessary permissions). The regulator must be satisfied, on the public's behalf, that an activity is safe to proceed. This is a necessarily intrusive requirement and if assessment resources are insufficient to undertake permissioning then delays are inevitable and costly.
48. Further delays to both current and future nuclear industry operations are likely if this lack of control to ensure appropriate resourcing persists. The interim ONR is already implementing operational improvements to the extent that is possible without legislation. However, only legislative change to create an independent regulator with control over its resources can remove current constraints on the interim ONR, such as the interim ONR being within the Civil Service (see paragraph 3534 for further detail), will allow the objectives to be achieved in full.
49. It should be noted that as part of the LRO process, an assessment was made of two alternatives that were considered in place of the LRO model of statutory ONR. These were:

- The creation of a non-statutory company, limited by guarantee, to carry out the regulatory functions. This was not pursued as it was felt that it could be perceived as being a commercial enterprise taking responsibility for nuclear regulation in the UK. In addition, the transfer of functions to this body would require a legislative transfer mechanism and would not therefore provide a fully non-legislative alternative; and
  - A ‘half way’ measure involving the creation of an agency of HSE (it should be noted that this is the model that the interim ONR currently follows), with its own board, which would not require legislative arrangements. This was not pursued as it was felt by Government that this would be a less transparent arrangement and as an enduring solution would result in a very complex structure of accountability. In addition, HSE would still be legally bound to consider all its wider priorities. Finally, the use of legislation to establish the statutory ONR would help to guarantee that the purposes, powers and duties set out in legislation would be adhered to, thereby enhancing accountability and transparency.
50. While some benefits might be realisable by non-legislative means, it was (and is) not considered that the resulting arrangements would fully satisfy the key policy objectives. The interim ONR, as an agency of the HSE, does provide more focused regulation than the Nuclear Directorate (as was) within the HSE. This is due to it having a dedicated board to concentrate on nuclear and radioactive transport issues. However, the HSE is still legally bound to consider all its wider priorities and the inherent constraints that arise as being part of the Civil Service still remain.
51. It is worth noting that as part of the 2009 consultation referred to above, most respondents who answered the question “*Are there any alternative non-legislative means that would satisfactorily remedy the difficulties that the proposals in the consultation document intend to address, without the use [legislation]?*” agreed that there were no non-legislative solutions which would satisfactorily achieve the aims of the proposals.
52. In the light of this information we conclude that this option would not enable the nuclear regulator to meet the key policy objective set out at paragraph 39 above.

### **Option 2. Establishing the statutory ONR using legislative means (the preferred approach)**

53. Only a new statutory ONR that clearly has its own powers, focused responsibilities and control over its resources will be able to secure the full benefits sought from restructuring. A statutory ONR that holds all of the relevant regulatory functions and has the necessary operational control is only deliverable through using legislative means.
54. The intention is to establish the statutory ONR as a body with its own legal personality, outside of the Civil Service. The statutory ONR will carry out the present functions of the interim ONR but it will have direct ownership and statutory responsibility for the nuclear regulatory functions for safety, security, safeguards and transport and for regulating health and safety at nuclear sites. There will be appropriate Secretary of State controls over the statutory ONR, which the Secretary of State will be accountable to Parliament for. All of these outcomes require legislation in order to deliver them.
55. Making the statutory ONR a body that is at arm’s length from government enables it to provide the appropriate level of focus and attention to the nuclear sector. The statutory ONR will be focused, strategically and financially, on a narrow range of issues and its resources, both financial and staff, will be fully directed towards meeting its regulatory responsibilities.
56. The statutory ONR will be required to publish a five year strategy, annual plan, annual report and accounts. All of these documents will be required to be laid before Parliament. In addition, the Secretary of State will be required to account to Parliament for his or her

use of powers over the statutory ONR. Finally, the statutory ONR will report quinquennially to Parliament on the nuclear regulatory landscape.

57. The statutory ONR will have powers to carry out its responsibilities as well as the financial freedom to set budgets and spending plans in line with its approved strategy and business plans. The statutory ONR will also recover its costs from industry and maintain its own accounts. It will have the freedom to recruit, employ and determine terms and conditions for staff, including inspectors (within the context of wider Government guidelines but outside of the Civil Service constraints) These arrangements are subject to agreement with HMT.
58. The interim ONR currently has a Board (four executives and five non-executives) . The statutory ONR Board would remain a board with a majority of non-executives (up to seven) and a non-executive Chair. The Chair and other non-executive Board members will be appointed by the Secretary of State. Executives (of which there can be up to four) will include the Chief Nuclear Inspector (which will be a statutory post) and the Chief Executive Officer, both appointed with the approval of the Secretary of State and both receiving automatic positions on the statutory ONR Board.
59. It is important that the statutory ONR acts consistently with other key regulators, such as the HSE. Currently there are a number of HSE representatives on the interim ONR Board, and these links with the HSE Board will be maintained by giving a power to appoint an ONR member to the HSE Board in an ex-officio capacity and a power to appoint an HSE member to the statutory ONR Board, also in an ex-officio capacity. There will also be a member of the statutory ONR Board that has particular expertise in security matters.
60. The statutory ONR will become responsible for its own support functions and premises, although some services (including HQ premises) may continue to be bought from HSE in the interests of ensuring value for money.

## **Hampton principles**

61. During the development of these proposals, the Government has paid close attention to the Hampton Principles insofar as they apply to the structure of regulatory arrangements (see <http://www.berr.gov.uk/files/file2298>
62. 8.pdf for the Hampton Principles).
63. The statutory ONR has been designed in such a way as to ensure that it will be more accountable for the efficiency and effectiveness of its activities and that, where appropriate, it will have structures in place to enhance its independence in terms of regulatory decision making. Hampton emphasised that regulators should be of the right size and scope and that no new regulator should be created where an existing one can do the work. It is Government's view that the existing structures cannot deliver the benefits that we seek to achieve. Ministers have judged that the existing regulatory structures are not optimal and cannot be restructured appropriately to achieve the objectives of this reform (see the statement made by Chris Grayling at paragraph 17 for example).
64. Hampton also required that regulatory interfaces be minimised. Duty holders in the nuclear industry will benefit from the integration of these regulatory functions and will enjoy a reduction in their number of regulatory interfaces. It should be noted that there is an exception to this in that companies in the transport sector who transport both radioactive and other dangerous goods will become subject to an additional regulator (though not to any new regulatory requirements). Close liaison between the DfT and the statutory ONR will maintain consistency in the regulation of the transport of dangerous goods.

## **Key groups affected**

65. The key groups that will be affected by the establishment of the Statutory ONR are:

- businesses (and the MoD) operating in the nuclear industry; and
- the existing staff of the interim ONR and of the Radioactive Materials Transport Team who are due to transfer to the interim ONR in October 2011<sup>9</sup> who would be transferred to work for the Statutory Corporation.

66. There are currently 38 licensed nuclear sites in Great Britain that would be subject to regulation by the statutory ONR. These businesses include those involved in operating and decommissioning nuclear power reactors, nuclear fuel enrichment, manufacture and reprocessing plants, radioisotope manufacturing, defence nuclear facilities and a number of legacy nuclear facilities with major Government-funded decommissioning and clean-up programmes. The sites are operated by 17 separate operating companies. Some non-licensed defence nuclear sites operated by the MoD would also be regulated by the statutory ONR. In addition, 30 businesses currently transport significant quantities of radioactive material and some 2500 businesses are registered owners/users of radioactive material of which approximately 800 transport small packages of radioactive material on a routine basis, mainly in the medical and industrial radiography sectors.

## **Monetised and non-monetised costs and benefits (including administrative burden)**

67. The proposed statutory ONR will impose no significant new compliance costs on industry as it makes no significant changes to the current nuclear safety, safeguards, security or transport requirements and would not lead to new or different activities.

68. In terms of the costs to the regulator and the nuclear industry, it is estimated that additional costs will arise as a result of the start-up and increased running costs of the statutory ONR compared to the present costs of the interim ONR. However, it is expected that annual savings from reduced overhead costs will partly offset the additional costs to the regulator and industry, although at societal level no offsetting reduction is accounted for as it is assumed that the HSE will instead absorb the overhead charges currently incurred by the interim ONR. More significantly, an effectively resourced statutory ONR is expected to lead to benefits to the industry and society as a whole through the reduction in delays in carrying out regulatory functions in respect of both the existing fleet of nuclear power stations and the new nuclear build programme. The sections below set out in detail the estimated additional costs and benefits, including significant non-monetised benefits.

### **Costs to regulators and industry**

#### Transition Costs

69. The business plans of the interim ONR provide central estimates for establishing the statutory ONR, which include one-off transition costs of around £960,000 in total. It is assumed that the transition costs will be incurred during the first year of the statutory ONR, 2013/14. Given uncertainty around the future costs of transition, table 1 below provides sensitivity analysis on these costs in the range of +/- 5% to reflect the inherent uncertainty in the estimates.

70. The expected costs of transition are in respect of:

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<sup>9</sup> 421 headcount in ONR as at 1 August 2011 plus 16 headcount from RMTT

- *Direct support*: accounts, procurement, human resources and transition support staff required by ONR as it moves away from its reliance on HSE back-office functions;
- *Transition management*: specialist (external) advice on legal, human resources, employment and organisational issues.
- *Industry and Public Engagement*: design and implementation of a new brand identity and the communication of the roll out plan.

71. The assessment of the transition period excludes the costs of any improvement programmes that the interim ONR would continue to pursue in the absence of transition (these costs are small and are included in current budget allocations). In addition, the intention is that no costs will be incurred in establishing new pensions arrangements.

**Table 1. Transition Costs, 2013. 2011 Prices.**

	Low (central estimate -5%)	Central estimate	High (central estimate +5%)
Direct Support	£560,000	£590,000	£620,000
Transition Management	£190,000	£200,000	£210,000
Industry and Public Engagement	£160,000	£170,000	£180,000
<b>Total Transition Costs</b>	<b>£910,000</b>	<b>£960,000</b>	<b>£1,010,000</b>

#### Annual Running Costs

72. A number of annual running cost components are expected to increase on those incurred by the interim ONR operating as part of HSE. As with transition cost estimates, the estimates are based on business planning and budget forecasts by the interim ONR and reflect expected changes in organisational structure. The statutory ONR would have its own Board, would need its own premises and would have to provide for itself support functions (e.g. HR, finance, IT, legal) currently provided centrally within HSE. While some of these functions may be transferred from or continue to be provided by HSE, it is estimated that there will be an overall increase in costs associated with these functions.

73. As set out in table 2, additional salary costs account for a significant share of the estimated annual costs of the statutory ONR. The costs reflect the need to recruit additional staff to fill the existing vacancies and a number of nuclear inspectors to meet forecast demand from the new nuclear build programme by end 2020/21. Essentially, the additional salary costs will be a direct result of removing the constraints currently faced by the interim ONR and establishing an effective, fully resourced regulator. While the cost of increased staffing levels is led by industry demand and expected to be more than offset by the benefits of establishing an effective regulator (discussed below), it corresponds to an increased cost to society and is therefore included within the overall assessment of costs and benefits.

74. Table 2 provides a breakdown of the average additional annual cost estimates along with sensitivity analysis in the range +/- 5% to reflect the inherent uncertainty in the estimates.

**Table 2. Additional Average Annual Costs, 2013-2020, 2011 Prices**

	Low (central estimate -5%)	Central estimate	High (central estimate +5%)
Salary costs	£7,800,000	£8,200,000	£8,600,000
Direct support	£4685,000	£510,000	£535,000
ONR Board and Secretariat	£57,000	£60,000	£63,000
Cost of commercial insurance	£47,500	£50,000	£52,500
VAT on HSE Services and 3 <sup>rd</sup> Party Supplies	£4,000,000	£4,200,000	£4,400,000
<b>Total Annual Running Costs</b>	<b>£12,400,000</b>	<b>£13,000,000</b>	<b>£13,700,000</b>

\* VAT is excluded from the assessment of societal costs and benefits, but considered as part of the assessment of additional costs to the regulator and nuclear industry.

### **Value Added Tax – The statutory ONR as a Standalone VAT Entity**

75. Once established as a separate legal entity from HSE, the statutory ONR would be required to account for VAT and other taxes in its own right. Depending on the approach followed, the VAT status of the statutory ONR will impact on the statutory ONR's costs and thus costs to industry.
76. Currently, as HSE is a Crown Body, many of the supplies to the interim ONR are out of the scope of VAT. Under normal VAT rules, HSE/ the interim ONR suffers input VAT on the goods and services it buys. As its supplies to industry are statutory in nature (and therefore are out of scope of VAT) the HSE is not able to charge output tax on the services it supplies. The HSE is therefore not able to offset input tax against output tax to reduce the cost to industry. However, as a Crown Body, the HSE is able to take advantage of the Treasury's *Contracting Out of Services Directions*. These Directions allow a Government Department to recover the input tax that it has incurred in the course of taxable business relating to services listed on the Treasury Taxing Direction list 2 (COSVAT list of services eligible for VAT recovery).
77. Currently, the interim ONR is covered by the HSE VAT registration and is treated as part of the HSE for VAT purposes. Under the COSVAT system, the interim ONR recovers about £870k input VAT per quarter.
78. Once the interim ONR becomes the statutory ONR, it will be a separate legal entity from the HSE and would no longer be covered by the HSE's VAT registration. In addition the statutory ONR would suffer input VAT on services it procures from the HSE (such as HR and Financial Services) which are subject currently to internal charging only.
79. Recent advice from HMRC indicates that the key determinant under current VAT directives on the statutory ONR's VAT position will be its legal status and not its control structure whereby the statutory ONR reports through its annual report and accounts to the Secretary of State. As part of Department of Work and Pensions (DWP) Consolidation Group for VAT it would have been able to take advantage of the COSVAT directions.

80. As a separate statutory body the statutory ONR will not have Crown status and would be unable to take advantage of the COSVAT Directions. It would therefore not be able to recover the current £870k per quarter plus the VAT charged by HSE for its services. The estimated additional VAT costs are in the region of £4-5m per annum. The statutory ONR's services would be out of scope for VAT and so the additional input tax could not be offset against output tax making the cost to industry approximately £4-5m per annum higher – all to be recovered through charges to industry. This position has been confirmed by HMRC through negotiations thus far and would apply should the statutory ONR register for VAT separately in its own right.
81. Following a forum on VAT and PAYE with Her Majesty's Treasury, discussion has begun to explore the aspects of the VAT rules for Government Departments that are potentially significant in terms of costs and distorting decision-making. There is a possibility that the statutory ONR will be able to recover its VAT by incorporation, however, the timescales for agreeing this are uncertain.
82. Assuming an annual VAT charge of around £4.0 million over the appraisal period would increase recurring costs and therefore costs to industry by around £32 million (undiscounted, £27m discounted). For the purposes of the overall societal impact assessment however, as reported in the summary sheets, all taxes including VAT, are not included as a resource cost and are also out of scope of One-in-One-Out calculations.

#### Annual Savings in Operating Costs

83. It is expected that the statutory ONR will accrue benefits in the form of savings on elements of annual running costs currently incurred by the interim ONR operating as an agency of the HSE. The savings to the regulator and hence the nuclear industry, are forecast to be around **£1.3 million per annum** and are expected to be realised from reductions in costs relating to accommodation, secretariat functions, operational expenses (communications, planning, finance, procurement and human resources) and research related procurement functions. These savings will partly offset the forecast increases to running costs as set out in table 2, but are not considered to represent a benefit at the societal level as it is assumed that the HSE will instead incur these costs in the future.

#### Benefits to Industry from Reduced Regulatory Delays

84. An adequately resourced statutory ONR is expected to lead to direct benefits for nuclear operators. For example, certain efficiency savings are anticipated to arise in relation to non-routine interactions (for example unexpected events that result in a reactor shutdown, rather than routine regulatory interaction and permissions). The interim ONR currently has vacancies for specialists and the main present cause of regulatory delay is the inability to deploy sufficient specialist skills quickly to where they are needed. To do this requires a sector-specific regulator with much greater management control over its resources.
85. While the non-routine nature of delays and the complex causality between regulatory delays and the availability of specialist skills mean that it is difficult to forecast the frequency and length of delays from year to year, it is possible to make a conservative estimate of the benefits likely to arise in the future from a sufficiently resourced regulator. One nuclear power company has for example suggested that delays in granting timely permissions for starting a single reactor after shutdown could cost this licensee between £0.5 million and £1.25 million per day in lost revenue.
86. The UK nuclear reactor fleet is required to have planned statutory outages and an adequately resourced ONR is expected to provide the regulatory oversight to support these. However, unplanned outages are unpredictable and with some shutdowns being

very technically demanding, ONR resource support for these, together with the planned workload, can cause significant resource difficulties. The UK nuclear fleet is aging and therefore such challenges are unlikely to diminish with time. It is therefore important that there is an adequately skilled and flexibly resourced statutory ONR, to ensure the appropriate inspection, assessment and approvals are conducted in a timely manner.

87. For example, since 2006 one nuclear operator has reported that it incurred more than 43TWh of losses from unplanned shutdowns with very technically challenging issues to resolve. This is equivalent to an additional 17MtCO<sub>2</sub> released into the atmosphere and in excess of £1bn in lost revenue for the nuclear operator. With such large values, short delays caused by resource shortfalls will impact the nuclear operator and result in additional CO<sub>2</sub> emissions in the UK. This has been minimised to date within ONR, for example in relation to one licensee's significant nuclear issues ONR staff worked beyond their designated hours to deliver the required regulatory oversight. These short term compensatory measures are not sustainable in the medium to longer term.
88. In its response to the Consultation in 2009, the Nuclear Decommissioning Authority (NDA) noted that "*The NDA's estate has incurred substantial..... opportunity costs as a result of lack of regulatory resources available at the point of need. These..... opportunity costs greatly outweigh the proposed increased costs of running the regulator.*" The NDA subsequently provided the following examples of opportunity costs:
- *Half of [a site's] capacity was out of service for around 3 months earlier this year. This line processes and makes safe the highest hazard material on the site. The line was shut down after a defect was revealed in the control logic. **The Site Licence Company reported the plant ready to restart many weeks before regulatory permission for restart was achieved.** NDA takes no view on the source of the delay, and acknowledges that it could well lie with the necessary underpinning of the safety case for the work done. However a substantial opportunity for hazard reduction was lost in an area where we believe it may well have been avoided by closer scrutiny of progress by the regulator and that this itself may well have been constrained by local resource priorities.*
  - *One of the two [site] Reactors was out of service for over a year while the graphite safety case was revised and underpinned. During this period we are aware that **NII was severely resource constrained in its assessment of the graphite safety case**, in part because this resource also faced [other] operational requirements. We take no issue with the resource priority decisions made by NII at the time, but understand from contemporary records that of the order of two months of the overall plant down time was attributable to resource constraints within NII. **At £50<sup>10</sup> per MWh of output for a 250MW unit, lost generation is a lost opportunity to NDA, and thus the public purse of some £10 million per month<sup>11</sup>.***

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<sup>10</sup> Indicative wholesale electricity price for purposes of demonstrating the magnitude of revenues.

<sup>11</sup> These examples were published in the March 2010 Full Impact Assessment released by DECC. See: [http://www.decc.gov.uk/assets/decc/consultations/restructuring%20hses%20nuclear%20directorate/1\\_20100325090614\\_e @\\_hserestructuregovtresponseia.pdf](http://www.decc.gov.uk/assets/decc/consultations/restructuring%20hses%20nuclear%20directorate/1_20100325090614_e @_hserestructuregovtresponseia.pdf)

89. Benefits to the UK nuclear industry of reduced regulatory delays are both quantitative and qualitative reflecting the various facets of the ONR's roles; the former are measurable and hence possibly easier to understand but the latter are as significant.

90. A prime role of ONR is to enable the safe, secure, effective use and control of nuclear technology and material for the overall benefit of society. This is effected through prescriptive activities aligned to the nuclear operators' arrangements agreed within the legal Site Licence framework, and through regulator identified (non-prescriptive) activities to maintain confidence and drive continuous improvement in the UK nuclear industry. All such regulator activities have been reinforced following the events at Fukushima in early 2011 and are recognised in the Chief Inspector's report on this event.

91. Prescriptive activities include the assessment of safety cases supporting plant modification and the provision of statutory licence instruments. Delays in such prescriptive activities could manifest themselves in impact on nuclear electricity generation with the consequent loss of revenue and increase in CO<sub>2</sub> emissions (see further below). ONR works closely with the nuclear operators, whilst maintaining independence, to minimise such impact.

92. In attempting to quantify potential benefits from reduced regulatory delays in restarting reactors after outages, it should be noted that there are different types of outages. The following are examples for one nuclear operator's fleet:

- Planned statutory outages, typically five per year on average 55 days in length per reactor comprising a generation loss of approximately 4-5TWh. These outages are required to enable planned statutory maintenance, repairs and inspections to be undertaken. Due to their statutory nature, regulatory consent to restart is required. The regularity of such outages year on year and the establishment of effective processes mean that the likelihood of regulatory delay is small.
- Planned non-statutory outages, typically up to 15 per year of up to approximately 2 weeks duration, comprising a generation loss of up to 3TWh. The bulk of these outages are targeted at off load refuelling of some of the reactors. No regulatory interaction is required in such outages therefore there should be no regulatory delays.
- Unplanned but routine outages, typically up to 25 per year comprising a generation loss of up to 4TWh. These outages are unplanned and generally not technically complex, for example routine repair of failed plant. By definition, no regulatory interaction is required in such outages therefore there should be no regulatory delays.
- Unplanned technically complex outages, typically one or two per year of extended duration comprising significant generation loss of an average of 8TWh per year over the last 5 years. These outages are unplanned and technically challenging, normally resulting in complex safety case development. As a result, regulatory agreement to restart is required, however due to the uniqueness of each outage; some regulatory delays have been incurred in the past. It is expected that these types of unplanned events will occur in the future and provision is made for approx 4 TWh per year (4,000,000 MWh) due to the scope for operator led improvements in planning activities<sup>12</sup>.

93. Non-prescriptive activities include targeted interventions to establish the status of plant or procedural changes to monitor their health and / or progress of nuclear safety improvement activities. Delays in such non-prescriptive activities do not necessarily

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<sup>12</sup> As an indication of the lost nuclear capacity over the year, 4TWh of output would be equivalent to 1000MW of nuclear capacity that would otherwise be operating at 90% of rated capacity being subject to outage for around 185 days over the year (1000MW x 4440 hrs x 0.9).

manifest themselves in immediate impact on nuclear electricity generation but can slow any insight and learning from such activities and therefore potentially detrimentally impact nuclear safety. It is not possible to quantify such an impact but failure to progress such activities in a timely manner or without the requisite capability and flexibility could ultimately be significant.

94. To value the potential benefits from reduced regulatory delays in restarting reactors after outages, it is necessary to first make assumptions about the amount of lost nuclear capacity and the length and frequency of outages. The subsequent analysis is based on the assumptions of a total of 1000MW of existing nuclear capacity being subject to between 1 and 3 days of delay per annum in restarting electricity generation. It is further assumed that the nuclear plant would have been operating continuously over the period, but at 90% of rated capacity i.e. 900MW<sup>13</sup>.
95. The loss of this nuclear capacity would equate to 21,600MWh of output per day (1000MW x 24 hours x 0.9) that would need to be replaced by the marginal electricity generation plant, generally gas or coal. Given that nuclear generation can be assumed to have almost zero marginal costs, the 21,600MWh of nuclear output to be replaced can then be converted to the corresponding change in the cost of electricity supply, by multiplying by the long-run variable cost of supplying a marginal unit of electricity (i.e. the societal cost of generation from the marginal plant). To do so, the electricity output is applied to central projections of wholesale electricity prices<sup>14</sup> (a measure of long-run variable costs excluding transmission and distribution costs), but including the carbon price over the period 2013-20 to estimate the societal cost of replacing the lost nuclear output with generation from the marginal plant.

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<sup>13</sup> As a conservative assumption it has been assumed that the reactor may not be operating at full rated capacity over the period.

<sup>14</sup> DECC, Energy and Emissions Projections, October 2011. Annex F, Fossil Fuel, Wholesale and Retail Electricity Price Projections.

[http://www.decc.gov.uk/en/content/cms/about/ec\\_social\\_res/analytic\\_projs/en\\_emis\\_projs/en\\_emis\\_projs.aspx](http://www.decc.gov.uk/en/content/cms/about/ec_social_res/analytic_projs/en_emis_projs/en_emis_projs.aspx)

96. The estimated resource costs, including the cost of carbon and associated emissions are set out in table 3 below, based on an assumed reduction in outages of between 1 and 3 days per annum. In terms of the overall impacts on business, it should be noted that the gain to nuclear operators from reduced outages is not offset by a corresponding loss to gas powered generators as their lost revenues are almost completely offset by their avoided fuel and carbon costs.

**Table 3. Benefits from Reduced Nuclear Outages, Average Savings p.a. 2013-2020**

	Low (1 day outage p.a.)	Central (2 days outage p.a.)	High (3 days outage p.a.)
<b>Avoided resource cost (long-run variable supply costs and carbon costs)</b>	£1.6m	£3.2m	£4.8m
<b>Avoided Carbon Emissions (MtCO<sub>2</sub>)</b>	0.009	0.017	0.026

Benefits to Industry from Licensing Nuclear New Build

97. As detailed above, the recruitment and retention of nuclear regulators will be crucial to meeting the forecast demand from the new nuclear build programme in the UK.
98. With a fully resourced statutory ONR, there should also be scope to reduce the time spent considering applications for new licenses, with no impact on safety. This would result in reduced costs for applicants and either a reduction in delays or the bringing forward of the start of operations for new nuclear plants. As with reductions in delays in re-starting existing reactors after outages, efficiencies of this type would provide a very significant benefit to operators through the avoidance of lost revenues. Given that nuclear generation is characterised by very low marginal costs, reducing delays or accelerating timescales for new nuclear would also represent a benefit to society from the avoidance of electricity generation by higher cost marginal plant, predominantly gas or coal.
99. Timescales for the deployment of new nuclear capacity in the UK will be the result of commercial decisions made by private investors. To date, developers have announced intentions to build up to 16GW of new nuclear capacity in the UK, with the first reactor scheduled to become operational in 2018. To estimate the impact of regulatory delays on the construction of one new nuclear Pressurised Water Reactor (PWR) with generating capacity of 1600MW, a set of conservative assumptions were used with respect to the length of potential delays, ranging from 14 days to 2 months.
100. To estimate the amount of nuclear output that would be lost as a result of delays to the operational start date, an assumed reactor capacity of 1600MW operating at 90% load factor<sup>15</sup> was multiplied by the number of available running hours e.g. a delay of 1 month would result in around 1,071,360MWh of lost nuclear electricity generation (1600MW x 744 hours x 0.9). To value the potential benefits from reduced delays to the new build programme, the same approach is applied as to that for estimating the value of reduced outage. The estimated level of lost output during each period of delay is therefore converted to the change in the cost of electricity supply by multiplying by the central projected wholesale electricity price<sup>16</sup> in 2018. The results of this analysis are set out in table 4 below.

<sup>15</sup> As a conservative assumption it has been assumed that the reactor may not be operating at full rated capacity over the period.

<sup>16</sup> DECC, Energy and Emissions Projections, October 2011. Annex F, Fossil Fuel, Wholesale and Retail Electricity Price Projections.

[http://www.decc.gov.uk/en/content/cms/about/ec\\_social\\_res/analytic\\_projs/en\\_emis\\_projs/en\\_emis\\_projs.aspx](http://www.decc.gov.uk/en/content/cms/about/ec_social_res/analytic_projs/en_emis_projs/en_emis_projs.aspx)

101. Clearly it is possible that the length of regulatory delays to nuclear build projects could be significantly longer and affect more than one reactor given current resource constraints and forecast new nuclear related demand. The estimates are however intended to be conservative and indicative of the scale of potential benefits.

**Table 4. Benefits from Reduced Regulatory Delays to the New Nuclear Programme in 2018, undiscounted, 2010 prices £m.**

	Low (14 day delay)	Central (1 month delay)	High (2 months delay)
<b>Avoided resource cost (long-run variable supply costs and carbon costs)</b>	£34.9m	£77.7m	£154.9m
<b>Avoided Carbon Emissions (MtCO<sub>2</sub>)</b>	0.19	0.42	0.84

102. Tables 5 to 7 below summarise the monetised costs and benefits to the key affected groups, namely the regulator, the nuclear industry and the overall societal impact. Table 7, outlining the overall results from the cost-benefit analysis reflects the figures reported on the summary sheets on pages 1-4 and demonstrates that the Statutory ONR is expected to lead to a net benefit in NPV terms over the appraisal period 2011-2020.

**Table 5. Summary of Costs and Benefits to the Regulator, NPV 2011-2020.**

	Low	Central	High
<b>Costs</b>			
ONR Transition Costs	£0.8m	£0.9m	£0.9m
ONR Recurring Costs (inc. residual VAT)	£78.9m	£83.0m	£87.2m
<b>Benefits</b>			
Reduced HSE Overheads	£8.0m	£8.4m	£8.9m
<b>NPV Range*</b> <b>Net Cost / Benefit</b>	<b>-£80.1m</b>	<b>-£75.8m</b>	<b>-£70.8m</b>

\* Low NPV calculated as low benefits minus high costs; High NPV calculated as high benefits minus low costs.

**Table 6. Summary of Costs and Benefits to Industry, NPV 2011-2020.**

	Low	Central	High
<b>Costs</b>			
ONR Transition Costs	£0.8m	£0.9m	£0.9m
ONR Recurring Costs (inc. residual VAT)	£78.9m	£83.0m	£87.2m
<b>Benefits</b>			
Reduced HSE Overheads	£8.0m	£8.4m	£8.9m
Reduced outages to existing nuclear reactors	£10.7m	£21.5m	£32.2m
Reduced delays to new nuclear programme	£27.5m	£60.9m	£121.7m
<b>NPV Range*</b> <b>Net Cost / Benefit</b>	<b>-£41.9m</b>	<b>£6.9m</b>	<b>£83.1m</b>

\* Low NPV calculated as low benefits minus high costs; High NPV calculated as high benefits minus low costs.

**Table 7. Summary of Overall Societal Costs and Benefits, NPV 2011-2020.**

	Low	Central	High
<b>Costs</b>			
ONR Transition Costs	£0.8m	£0.9m	£0.9m
ONR Recurring Costs (excl. VAT)	£53.1m	£55.8m	£58.6m
<b>Benefits</b>			
Reduced outages to existing nuclear reactors	£10.7m	£21.5m	£32.2m
Reduced delays to new nuclear programme	£27.5m	£60.9m	£121.7m
<b>Net Cost / Benefit</b>	<b>-£21.3m</b>	<b>£25.7m</b>	<b>£100.1m</b>

\* Low NPV calculated as low benefits minus high costs; High NPV calculated as high benefits minus low costs.

## ***Additional Non-Monetised Benefits***

103. In addition to the benefits outlined above, there would also be further benefits, both for the regulator and for the nuclear industry (as well as for society more widely) resulting from a single sector specific regulator embracing safety, security, safeguards, and transport.
104. Examples of these include improved nuclear regulatory outcomes, better regulator responsiveness to industry needs and further sources of efficiency savings. Therefore, in addition to monetised savings, outcomes are expected to improve to a greater extent.
105. Routine efficiency improvements are expected due to more regulatory activities being undertaken by a single regulator. It is expected that greater organisational and financial freedom will lead to the increased effectiveness of the statutory ONR, through investment in the business management system and the move to programme working which is in line with current industry thinking. It is estimated that for each one percentage point improvement in front line utilisation, a saving to the statutory ONR in effective time in the order of £0.8m p.a. is likely. The aim is for the statutory ONR to achieve at least a three percentage point improvement in front line utilisation over time.
106. Improved outcomes are important as they can generate substantial efficiency savings. There is significant scope for efficiency savings where delays result from a lack of sufficient regulatory resources of the right calibre. It is estimated that a one percent reduction in inefficiency, when compared to baseline data, savings accruing to the statutory ONR would amount to an equivalent of 700 man days of effort or £0.8m p.a. It is expected that the increases in efficiency will derive from better working relationships across the sector streams and lower re-work activity as a result of standardised reporting processes.
107. Another example relates to the Radioactive Material and Transport Team (RMTT). Staffing gaps in the radioactive transport area currently require longer range development work to be given lower priority. This is in order to ensure that work with more immediate potential safety impacts can be properly resourced. Much of the longer range work concerns items that will have very large budgetary impacts for industry, such as development of new packages to serve the increased transport requirements arising from decommissioning of nuclear power stations. Small savings per package would translate into big savings overall. An item currently under discussion, at the UK's initiative, at the IAEA in Vienna has been identified as having the potential to save industry £2 billion at the rate of £100 million per annum for 20 years from 2013. Industry estimates of the potential savings from this "fissile exceptions" initiative run even higher. In order to be realised, this initiative needs to be driven forward by the UK. However, resources for doing this are scarce as long as the RMTT cannot be recruited up to full strength.
108. Whilst the full range of wider benefits deriving from improved regulatory outcomes are difficult to quantify, the qualitative outcomes that are expected of the statutory ONR are as follows:
- Greater flexibility in responding to evolving challenges through the statutory ONR having greater control over its financial and employment arrangements. By boosting recruitment and retention of staff this would enable the statutory ONR to deliver its statutory responsibilities efficiently and effectively. Greater control over budgets should lead to more efficient spending outcomes. In both areas this should lead to efficiency savings;
  - Improved regulatory outcomes from speedier, more consistent and more efficient regulatory decision-making by a fully-resourced regulator, leading to time and efficiency savings and improved standards of safety;

- Greater efficiencies due to establishing a discrete regulator for nuclear matters, with clear statutory responsibilities in its own name, while maintaining the benefits of links with the wider experience and resources of HSE;
  - Greater transparency in the decision-making process, for example through the statutory ONR being required to publish a five year strategy, annual plan, annual report and accounts. All of these documents will be required to be laid before Parliament. This would benefit both existing stakeholders and those new to the sector and lead to savings through more efficient dealings with stakeholders;
  - Greater public confidence in the regulator and the system of regulation, as a result of the improvements described above and greater confidence internationally in the UK's regime;
  - Potential wider benefits in facilitating safe and secure extensions to the operating life of existing generating plant and in facilitating potential future generating plant.
109. Without creating the statutory ONR some benefits can be expected from operational improvements through the maintaining the interim ONR. However, the scale of these benefits will be severely limited by current organisational and structural constraints. Creating the statutory ONR with the structural arrangements proposed is designed to achieve the full range of potential benefits.
110. Better regulation objectives would be met by:
- Establishing an effective, independent, transparent and accountable regulator for nuclear matters, with clear statutory responsibilities in its own right;
  - Greater flexibility in responding to evolving challenges through having full control over the statutory ONR's financial and employment arrangements. By boosting recruitment and retention of staff this would help to enable the statutory ONR to deliver its statutory responsibilities efficiently and effectively;
  - Greater operational transparency both to Parliament as well as industry and the public via the mechanisms explained at paragraph 56. This will benefit both existing stakeholders and those new to the sector;
  - The opportunity to take certain regulatory "outs" will arise if the statutory ONR is established using legislative means (see the section on Reducing Regulatory Burdens below);
  - Legislation also provides an opportunity for the appropriate role of government to be defined to give clarity to industry about the responsibility of the statutory ONR and that of government.
111. In the light of the information above we conclude that this option would enable the nuclear regulator to meet the key policy objective set out at paragraph 39 above.

## Costs of the Regulator to Industry

112. The interim ONR currently recovers around 95 per cent of its costs from businesses in the nuclear industry (i.e. nuclear licensees, other duty holders and applicants for Generic Design Assessment of new reactor designs). This proportion is expected to continue and the intention would be to increase it to as close as possible to 100%, though the scope to do this in practice may be constrained in terms of wider policy considerations.

113. Latest estimates of the budget allocation for the ONR in its first full year in operation (2013/14) are as follows:

• Indicative 2013/14 income	£62.5m (includes amounts to cover HSE overheads)
• Non-chargeable ONR effort	£1.1m (includes non-chargeable staff and associated costs, conventional safety and MOD sites)
• Non-chargeable RMTT effort	£2.3m (includes DfT overheads charges to RMTT)
• <b>Total</b>	<b>£65.9m</b>

114. The indicative income is that expected to be raised by the statutory ONR in fees and charges from duty holders and other fee payers i.e. around 95 per cent of the statutory ONR's operating costs. Any amounts not recovered in fees and charges will be supplemented by grant-in-aid from the Government to cover the remaining statutory ONR related costs and those of RMTT (i.e. described as non-chargeable effort).

115. Further additional costs could be incurred in future to cover changes to the terms and conditions of statutory ONR staff, but only where necessary to enable the statutory ONR to carry out its regulatory responsibilities. The statutory ONR would be expected to keep costs to a minimum and would be subject to increased scrutiny through the publication and laying before Parliament of various documents, including the externally audited accounts. The statutory ONR would have to set out its budget proposals in its annual plan, which will be subject to Ministerial approval. Charges to existing licensees must be reasonable and attributable to the work done. It is unlikely that there would be any additional costs to the industry as a result of increased inspections or other regulatory interventions.

## Risks and assumptions

116. An appraisal period of ten years (2011-2020) has been used to discount costs and savings to present values at a rate of 3.5%. One-off transitional costs are assumed to be incurred in one year (2013) and ongoing additional annual costs are also assumed to commence in 2013.
117. Potential risks include: costs savings being lower than estimated (estimates are based on current HSE charging practices), inability to attract additional staff at estimated costs and the cost of commercial insurance being higher.

## Impact on small firms

118. The nuclear industry is characterised by larger firms, particularly as nuclear site licensees, but does contain some small firms, particularly as specialist contractors. Some site operating organisations are relatively small and, if they were self-contained, might be regarded as small or medium-sized businesses. However, these businesses are generally part of much larger organisations or consortia.
119. A number of transporters of small packages of radioactive material are small firms. The RMTT will become part of the interim ONR in October 2011. At present, the RMTT is funded by the Department for Transport and therefore the majority of costs are not recovered from industry. Any future proposals to recover costs not currently recovered from industry would require secondary legislation and would be the subject of a separate Impact Assessment.
120. The legislation establishing the statutory ONR would not impose any significant additional regulatory requirements on small firms. Increased costs to the nuclear industry would largely be met by the larger firms as licensees and other duty holders. Any increased costs that are passed on to small businesses (should the statutory ONR charge for up to 100% of its costs) should not affect a small business's ability to enter or remain in the industry.

## Competition assessment

121. The proposed statutory ONR would not significantly change regulatory requirements and therefore should not affect competition in the nuclear and radioactive transport industries. The additional costs arising from restructuring would be offset by annual cost savings from a reduction in HSE overheads. These costs, therefore, should have no impact on the ability of businesses to enter or remain in the industry. Indeed, estimated reductions in annual costs and greater transparency within the regulatory system should assist prospective new entrants.

## Administrative burdens baseline

122. The legislation establishing the statutory ONR would place no significant new regulatory requirements on the nuclear industry. It is perhaps worth noting that an existing power under the Health and Safety at Work Act 1974 (**HSWA**) to serve an information notice will no longer require the consent of the Secretary of State. However, wider government guidance on public bodies obtaining information will help to ensure that this power is appropriately used.
123. The creation of the statutory ONR will lead to improved interactions between the regulators and duty holders. However, it is unlikely that it would remove any existing

information requirements. It would therefore have a neutral impact on the administrative burdens baseline.

124. There will be minor potential for discrete regulatory burden in certain areas due to the rationalisation of matters such as information notices. In respect of this example, there will no longer be a requirement for the Secretary of State to give his or her consent to the statutory ONR issuing an information notice.

125. An additional area where a potential regulatory burden could arise relates to inspectors' powers. Currently, s20-25 of HSWA allows for certain inspectors' powers. These can currently be exercised in relation to all of the interim ONR's safety functions; the vast majority of its safeguards functions and transport functions and the majority of the security functions. The intention is to rationalise the position (and so help to "future proof" the statutory ONR) so that these powers are available (in most cases) in relation to all of the statutory ONR's functions. This will mean that for a small minority of safeguards, transport and security functions these powers will be newly available to inspectors and there will be a consequent requirement for industry to comply with directions from inspectors using those powers. However, in practice, it is very unlikely that there will be a significant burden on industry, both due to the limited extent of the change and the regulatory culture already present within the interim ONR which favours light touch regulation where appropriate.

## **Monitoring and evaluation**

126. The policy intention is that the statutory ONR's operations will be reviewed on at least a five yearly basis. However, we are still liaising with the Better Regulation Executive in order to confirm the position regarding the need for a duty to review clause in the legislation establishing the statutory ONR. The final position on this issue will be reflected on the face of the legislation establishing the statutory ONR.

## **Reduction in regulatory burdens**

### **Radioactive Materials Road Transport Act**

127. As part of Government's work to establish the statutory ONR we have proposed that the legislation establishing the statutory ONR repeals the Radioactive Materials (Road) Transport Act (RMRT Act). We have contributed this proposal to the Red Tape Challenge.
128. This Act makes provision in relation to the transport of radioactive material by road. The structure of the Act largely consists of regulation-making powers for the Secretary of State with associated provisions on enforcement. There are also some free-standing provisions about prohibiting or controlling the use of vehicles carrying stolen or lost radioactive materials or which have been involved in accidents.
129. The purpose of the Act is to give the Secretary of State the levers necessary for ensuring the safe transportation of radioactive materials by road. However, we believe that HSWA provides sufficient powers to do this.
130. DECC's views are shared by the Department for Transport and the interim ONR and they confirm that this legislation is redundant. They are both of the view that HSWA provides all the necessary powers. Two sets of regulations have been made under the RMRT Act, which were revoked in 2002 and 2007 respectively, being replaced by new Regulations made under the HSWA in 2007 and 2009. Section 8 of the Act covers Northern Ireland. The Department of the Environment in Northern Ireland have confirmed that the Act is redundant and should be repealed.
131. DfT has current policy responsibility for the policy on transporting radioactive materials. As such it has recommended that the Act be repealed as part of DfT's contribution to the Red Tape Challenge. However, policy responsibility will transfer to DECC when the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011 come into effect on 24th October 2011.

## **The Atomic Energy Act 1946 (AEA)**

132. In respect of the statutory ONR's statutory safeguards functions, the Atomic Energy Act 1946 (AEA) may be used as a last resort if information and access necessary to meet safeguards obligations are not provided voluntarily.
133. The AEA puts various obligations on those who operate nuclear facilities and gives the SoS a variety of powers and sanctions. It allows the SoS to obtain information/returns from any person on a wide variety of matters (these include certain prescribed substances, minerals, plant, contracts and other information in connection with the production or use of atomic energy). In practice the powers under the AEA have not been used in a safeguards context.
134. On this basis and given the powers that inspectors will have under the Bill, we are proposing not to allow the statutory ONR access to the powers under the AEA. Instead the statutory ONR will rely on its wide powers of entry and information gathering to enforce the safeguards regime, should this be appropriate.
135. However, the SoS should still retain his powers in the AEA although these will be carved out where the statutory ONR has safeguards purposes in order to ensure that there is not dual regulation.
136. More broadly, as the legislative drafting is progressed it may be that there are additional opportunities to reduce the regulatory burden. Any such opportunities will be explored and pursued alongside lawyers.

## **Devolution**

137. In general terms, the legislation establishing the statutory ONR's provisions are not devolved in relation to Scotland or Wales. However, in relation to Northern Ireland, the devolution settlement is different. Transportation of radioactive material by road, rail and inland waterways is devolved to the Northern Ireland executive, as is health and safety and nuclear safety. The regulation of these matters will therefore remain the responsibility of the HSE NI. Safeguards and security policy are not transferred, and will therefore, become the responsibility of the ONR.

## **Ministry of Justice Criminal Offences Gateway**

138. The creation of the ONR will require the inclusion of some minor new criminal offences. These must be cleared by the Ministry of Justice as part of its Criminal Offences Gateway. We are preparing the necessary paperwork including the Justice Impact Test. We have been advised by the Ministry of Justice that clearance must be given prior to Cabinet Committee write-round.