

Appendix A - Nuclear Provision

THE NUCLEAR PROVISION - THE COST OF CLEANING UP THE UK'S HISTORIC NUCLEAR LEGACY

Estimating Uncertainty

Estimates are classified according to the level of certainty, with ranges applied to reflect this. The NDA estate uses 4 different classes of estimate (A to D) in line with the principles of the HMT Green Book with A being the most certain, and D the least - credible outcomes for the latter could range from -50% to +300%. Inevitably as much of the expenditure of the NDA is not scheduled to start until many years or even decades in to the future, using as yet unknown technologies, then the estimates will tend towards class D.

Notwithstanding this uncertainty, the NDA continues to work with the SLCs, scrutinising their long-term plans and benchmarking them against best practice for project and programme costs and schedules and to ensuring that these plans are coherent and consistent with agreed strategies.

Future Uncertainties

Whilst the legacy, and consequently the provision, is better characterised than previously it continues to be subject to ongoing risks that could impact on the costs of delivery, such as: a significant nuclear safety incident leading to delays in the management of current liabilities and/or increased costs; the discovery of currently unknown additional hazards or other challenges; future regulatory or Government policy changes; changes to the final agreed end state for sites and; changes to society's expectations and requirements.

Basis of Estimate - Sellafield

At Sellafield the nuclear provision estimate combines the cost projections from the new Performance Plan (known as PP14) with management estimates as to near term cost pressures and very long-term costs. The provision also includes, as in previous years, the estimated additional costs arising from the preferred strategy for the long term management of plutonium, which are not included in the Performance Plan.

The underlying undiscounted cost estimate for Sellafield (before adjustment for plutonium) has increased slightly during the year.

NDA Expenditure Profile

The graph shows the undiscounted annual expenditure profile for future years (excluding NDA administrative and other non-programme costs, and some commercial costs), from lifetime cost projections from each of the SLCs.

The expenditure profile illustrates a downward trend in expenditure over the next 50 years, following a short-term peak over the next 10 years, as sites enter into Care and Maintenance, with subsequent increases in expenditure in the period from 2070 when final site clearance work on Magnox sites is undertaken.

What is the Nuclear Provision?

The nuclear provision is a single point number in the Statement of Financial Position which represents the discounted estimated cost of the decommissioning mission, calculated in accordance with Accounting Standards. It is important to understand the basis of this estimate and the inherent uncertainty around it, and therefore that it is simply a single point in a credible range of potential outcomes.

The NDA management's best estimate of the future costs of the estate is based on an assumed inventory of materials, using strategies for retrieval and disposal over several decades. Each of these elements (quantity, method and time to treat) is uncertain in their own right, as is the cost of developing the necessary technology and plants to deal with these activities. The quality of the forecast becomes less certain as time goes out, and acceptable standards of clean up and end states may change.

Future Opportunities

The Sellafield Performance Plan will continue to evolve in future years as the programme develops and individual projects progress.

An example of this evolution is the change in strategy for the Magnox Swarf Storage Silo (MSSS) programme in which an alternative waste treatment solution has been proven to be feasible, enabling the removal of the planned Silos Direct encapsulation Plant (SDP) project and its replacement with a better technical solution which is also more efficient and lower cost alternative.

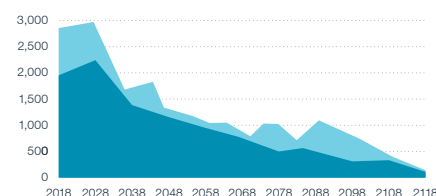
The NDA will continue to review and update the nuclear provision, and to incorporate the impact of new opportunities as they arise - for example acceleration of work on Legacy Ponds and Silos (LP&S), integrated waste management, optimised decommissioning and site restoration. Some of these opportunities may require us to reprioritise our allocation of funding in the short-term but with a reduction in the full lifetime costs.

Basis of Estimate - Other sites

The maturity of scope in the non-Sellafield SLC plans, and the successful introduction of private sector expertise has enabled

NDA to drive value for money for the taxpayer, through the transition from cost reimbursable to target cost incentive fee contract structures. Over time this has led to stabilisation and ultimately reduction in the projected cost of decommissioning.

Total Expenditure Profile £m



Appendix A - Nuclear Provision

Uncertainty Range - Sellafield

The single point undiscounted estimate is **£91.4 billion**.

Examples of uncertainty around this figure:

- A 100% increase in major project costs post 2038 +£25.4 billion
- A 300% increase in major project costs post 2038, +£76.1 billion
- A 50% reduction in major project costs post 2038, -£12.7 billion

Undiscounted Nuclear Provision - Sellafield

£91.4 billion
(2016/17, £89.6 billion)

Uncertainty Range - Other sites

The single point undiscounted estimate is **£29.6 billion**.

Examples of uncertainty around this figure:

- A 100% increase in Magnox final site clearance costs, +£10.2 billion
- A 3 year delay to DSRL Interim End State date, +£0.5 billion
- A 300% increase in GDF costs post 2037, +£22.8 billion
- A 50% reduction in GDF costs post 2037, -£3.8 billion

Undiscounted Nuclear Provision - Other sites

£29.6 billion
(2016/17, £29.4 billion)

Uncertainty Range - Total

The NDA estimates the total costs associated with the undiscounted nuclear provision to be within a potential range from **£99 billion to £225 billion**.

The nuclear provision represents a single point estimate within a range and is NDA management's judgement of future costs based on plans produced by the SLCs, accepted by the NDA and known changes in assumptions and facts.

The current undiscounted nuclear provision is **£121.0 billion**.

Undiscounted Nuclear Provision - Total

£121.0 billion
(2016/17, £119.0 billion)

Discount Rate Sensitivity

A 0.5% decrease in the discount rates over the life of the estimate would increase the provision by approximately **£69 billion** while a 0.5% increase would reduce the provision by approximately **£49 billion**.

Discounting

The nuclear provision estimate is discounted (adjusted to present values) to produce the figure published in the accounts.

Until 2011/2012, the discount rate for provisions was 2.2% per annum which meant that the overall discounted value was always lower than the undiscounted total. This effect was particularly noticeable in very long-term provisions such as those held by the NDA.

The discounting effect has now effectively been reversed, with the introduction of negative discount rates for short and medium-term expenditure in 2012/13 followed by the introduction of negative rates for long-term expenditure in 2015/16.

Short and medium-term rates are revised each year by HM Treasury to reflect the UK government's real terms borrowing rate.

The rates are currently:

Short-term (0-5 years) -2.42% ● Medium-term (6-10 years) -1.85%
Long-term (over 10 years) -1.56%.

The application of these rates produce the overall discounted total as shown in the Authority accounts of £234.1 billion.

Changes in Discounted Nuclear Provision

The discounted nuclear provision (Authority accounts) at the end of 2016/17 was **£164.0 billion** and movements since then have been:

The value provided for 2017/18 released from the provision, **-£3.0 billion** increases from inflation **+£5.3 billion** and the unwinding of the existing discount, **-£1.3 billion**, which are applied to the provision every year, the impact of the changes in discount rates, **+£66.0 billion** and cost estimate changes which increase the obligated liability estimate by a net **+£3.1 billion**.

Movements in Nuclear Provision 2017-18 £bn



Discounted Nuclear Provision - Total (Authority)

£234.1 billion
(2016/17, £164.0 billion)