Third Report of Session 2022–23

Department for Business, Energy & Industrial Strategy

The future of the Advanced Gas-cooled Reactors

Introduction from the Committee

The UK has eight second generation nuclear power stations accounting for around 16% of total UK electricity generation in 2020. These stations are owned by EDF Energy (EDFE) following its purchase of British Energy in 2009. The stations comprise seven Advanced Gas-cooled Reactor (AGR) stations, all of which are planned to stop generating electricity by 2028, plus the Pressurised Water Reactor (PWR) at Sizewell B. In 1996, government established the Nuclear Liabilities Fund (the Fund) to meet the cost of decommissioning these eight stations. The aim of the Fund is to generate returns from investments that will meet the costs of decommissioning. As at March 2021, the Fund's assets were valued at £14.8 billion and the estimated decommissioning costs of these eight stations was £23.5 billion. The government has provided a guarantee to underwrite the Fund in the event that its assets are insufficient to meet the total costs of decommissioning.

The arrangements for decommissioning the stations have been governed by a series of agreements between the Fund, the Department for Business, Energy & Industrial Strategy (the Department) and the station owners. In late 2017, the Department entered into negotiations with EDFE to revise the agreements for the seven AGR stations. The agreement was finalised in June 2021. Under the revised agreements EDFE will defuel each of the stations after they have closed, as previously planned. The Department has, however, agreed financial incentives to encourage EDFE to accelerate defueling and transfer of the stations. This includes EDFE earning up to £100 million for good performance but paying out up to £100 million for poor performance. Ownership of the stations will then be transferred to the Nuclear Decommissioning Authority (NDA) to complete the decommissioning process. The Department estimates the new agreements could save the taxpayer up to £1 billion compared with the previous agreements.

Following the evidence session, we engaged in a series of follow-up correspondence with the Department and HM Treasury. A chronological list of this can be found in Annex 1 at the back of the report.

Based on a report by the National Audit Office, the Committee took evidence on Monday 7 February 2022 from the Department for Business, Energy & Industrial Strategy. The Committee published its report on 20 May 2022.This is the government's response to the Committee's report.

Relevant reports

- NAO report: The decommissioning of the AGR nuclear power stations -Session 2021-22 (HC 1017)
- PAC report: The future of the Advanced Gas-cooled Reactors - Session 2022–23 (HC 118)

Government response to the Committee

1: PAC conclusion: Government's investment strategy for the Fund has delivered poor returns and has resulted in the taxpayer having to top-up the Fund with an additional £10.7 billion in just two years.

1: PAC recommendation: HM Treasury and the Department, working with the trustees of the Fund, should within twelve months review the investment approach and write to the Committee setting out the expected performance of the Fund based on the chosen investment strategy and the extent to which this will avoid further calls upon the taxpayer. The departments should set out the rationale underpinning the investment strategy, in particular the split between investment placed in the National Loans Fund earning a low return and the sum invested in higher performing private sector assets.

1.1 The government agrees with the Committee's recommendation.

Target implementation date: May 2023

1.2 The Department for Business, Energy & Industrial Strategy (the Department) and HM Treasury will work with the Nuclear Liabilities Fund (NLF) to review its investment strategy with particular regard to how this will best achieve value for money for the taxpayer.

1.3 Its assessment will note the return targets achieved to date by NLF's investments in private assets and consider the risk and financial efficiency of the split of the NLF assets between the National Loans Fund and the private sector, in addition to return on investment.

1.4 Working with HM Treasury and the NLF, the department will write to the Committee on this matter by May 2023.

2: PAC conclusion: The estimated cost of decommissioning has nearly doubled since 2004–05 and there remains a significant risk that the costs will rise further.

2: PAC recommendation: As part of the 2022 revaluation of the decommissioning liabilities, the Department, working with the trustees of the Fund, should ensure the estimates make explicit allowance for the risk of optimism bias. The Department should report back to the Committee on the new estimates when they are available.

2.1 The government agrees with the Committee's recommendation.

Target implementation date: July 2023

2.2 The department accepts the Committee's recommendation and will respond by July 2023. This will reflect the revised costs for defueling/deconstruction and uncontracted liabilities.

2.3 As noted to the Committee, Électricité de France's (EDF) strategies, plans and the estimated costs are scrutinised, challenged, and approved by the Non-NDA liabilities assurance team (NLA) under the terms of the revised funding agreement. EDF's estimated costs of decommissioning is now to be presented as a range of costed scenarios reflecting risk and uncertainty and this is contractually updated on an annual basis.

2.4 EDF's liabilities from 2020 onwards have utilised a new methodology based upon "top down" scenario evaluation specifically designed to improve understanding, make external scrutiny easier, and counter optimism bias. This has created a much wider range of costs (recognised in the liabilities numbers). HM Government's Government Actuary Department (GAD) was involved in assessing this methodology.

3: PAC conclusion: The terms of the 2009 sale of the nuclear stations agreed by the Department with EDFE placed a disproportionate amount of risk for meeting future decommissioning costs on the taxpayer.

3: PAC recommendation: As proposals for building new nuclear stations are firmed up, the Department needs to learn lessons from AGR decommissioning for how the decommissioning of new nuclear stations will be funded, for example linking contributions more closely to reliable estimates of liabilities, and building in mechanisms for adjusting contributions from operators should estimates of liabilities increase.

3.1 The department agrees with the Committee's recommendation and will respond by August 2022.

Target implementation date: August 2022

3.2 The funded decommissioning plan (FDP) policies in place to support the development of new nuclear stations already build upon what was learnt from the AGR stations.

3.3 The Energy Act 2008 requires prospective operators of new nuclear power stations to have a Funded Decommissioning Programme (FDP) approved by the Secretary of State before nuclear-related construction can begin. The FDP is submitted by prospective nuclear power station operators to the BEIS Secretary of State, who must approve it before nuclear-related construction can begin. The FDP is intended to ensure that operators regularly put funding aside throughout the operating life of the plant in order to meet the future cost of decommissioning.

3.4 The specific design of the FDP arrangement is flexible and up to the operator, but it must meet the requirements as set out in the Energy Act 2008 and is expected to follow BEIS guidance (published in 2011) and methodology for determining the cost of nuclear waste management. The HPC FDP also includes a rachet that allows contributions to be increased as the liability estimate changes.

3.5 The FDP arrangements provide for periodic reviews of sufficiency and for the possibility of operator contributions to increase as required.

4: PAC conclusion: EDFE's timetable for the closure of the stations will result in a significant reduction in the UK's generating capacity until new capacity comes online.

4a: PAC recommendation: The Department working with the Office for Nuclear Regulation, EDFE, and Ofgem should urgently review whether it would be technically feasible, safe, and cost-effective to extend the lives of any of the remaining operating stations if needed and report back to the committee within 4 months.

4.1 The government disagrees with the Committee's recommendation as currently drafted, as extensions of the station lifespans are a matter for EDF and the relevant regulator.

4.2 Whilst there has been parliamentary and public interest in the potential for life extensions, the department has no formal role in these decisions. The continued operation, or closure, of any UK nuclear power station is a decision for EDF (the stations' owner and operator) and the independent nuclear regulator, the Office for Nuclear Regulation (the ONR), based on safety and commercial considerations.

4.3 Nuclear power stations must comply with stringent nuclear safety and security regulations, overseen by the ONR as a robust and independent regulator. Nuclear operators are obliged by law to make a comprehensive safety case for every nuclear operation which justifies why the reactor is safe to operate and takes into account the ageing effects of the reactor.

4.4 Most of the UK's operating stations have already previously had life extensions. The UK has five generating AGR power stations expected to close between 2022 and 2028 (two AGR stations are already closed/defueling), that have provided reliable electricity generation for many years However, all the AGRs are known to be subject to cracking of structural graphite in the cores as they age, which limits their safe operational life.

4.5 The department is in regular communication with EDF and the ONR and will ask EDF to set out their plans for how they will work with the regulator to see if extensions are possible in a safe, secure and cost-effective way, and will aim to provide further detail to the Committee by the end of 2022.

4b: PAC recommendation: The Department and NDA should publish plans within 12 months setting out how they will make best use of NDA's nuclear sites in future, including whether they are suitable for new nuclear infrastructure, such as modular reactors. In particular they should clarify how the transfer to the NDA from EDFE will allow for these Modular reactors.

4.6 The government agrees with the Committee's recommendation.

Target implementation date: May 2023

4.7 With regard to the future use of nuclear land, the department agrees with the recommendation and will complete a feasibility study, reporting back to the Committee within 12 months.

5: PAC conclusion: We are not convinced the Department has struck the right balance in incentivising the NDA and EDFE to deliver safe and efficient defueling of the AGR stations on time while reducing costs.

5: PAC recommendation: The Department should write to the Committee within six months outlining how it will assure itself that the incentives are working and setting out the actions it will take if the incentives are not working.

5.1 The government agrees with the Committee's recommendation.

Target implementation date: November 2022

5.2 The department accepts the Committee's recommendation and will respond to the Committee by November 2022, outlining the governance and oversight for monitoring the impact of the incentive on delivery and how that indicates effectiveness of the mechanism.

6: PAC conclusion: Arrangements for transferring nuclear stations to NDA are worryingly under-developed, and there is a risk that transfer negotiations between EDFE and NDA could drag on and increase the costs to the taxpayer.

6: PAC recommendation: Within the next six months the Department, following discussions with NDA and EDFE, should write to the Committee with a detailed plan and timetable for how the transfers will take place. This plan should cover all the major aspects of the transfer including land and people, and it should identify where uncertainties remain, how those uncertainties might affect costs, and when they are likely to be resolved.

6.1 The government agrees with the Committee's recommendation.

Target implementation date: May 2023

6.2 EDF and NDA are currently working together to deliver detailed transfer plans for the AGR stations, starting with Hunterston B, with an anticipated delivery date of May 2023. Accordingly, the department would request a revised implementation date for this recommendation of May 2023.

6.3 A sufficiently detailed transfer plan for Hunterston B will be available in May 2023, but necessary work will need to take place to support detailed transfer plans for the subsequent stations, which will be completed in the years thereafter. The department proposes sharing the detailed Hunterston B plan with the Committee when completed, with a summary of progress of plans for the remaining stations at that time.

7: PAC conclusion: Given the scale and complexity of decommissioning the AGR stations, we are concerned that the Department's oversight of a complex set of governance arrangements is itself not subject to sufficient scrutiny and challenge.

7: PAC recommendation: The Department should write to the Committee within the next six months setting out how it is assuring itself that it is discharging its oversight role effectively and detailing the current and future plans for reviewing the Department's own performance.

In addition, despite the Department's assertions to the contrary, it should write to the Committee and explain why it shouldn't place the programme on GMPP at an earlier stage in the transfer phase from EDFE to NDA so it can benefit from advice on the adequacy of the proposed transfer terms between EDGE and the NDA.

7.1 The government agrees with the Committee's recommendation.

Target implementation date: November 2022

7.2 Monitoring, reporting, and assurance processes and structures were put into place following the agreement of the revised AGR defueling and decommissioning arrangements with Électricité de France Energy (EDF) and the Nuclear Decommissioning Authority (NDA). The department will revert with further detail on these processes and set out how they provide appropriate oversight and facilitate the necessary scrutiny and challenge.

7.3 With regard to the second part of this recommendation, the department will approach the Infrastructure and Projects Authority (IPA) for their support in developing a response for the Committee.