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NNB GENERATION COMPANY (SZC) LTD

SIZEWELL C POWER STATION

DECOMMISSIONING WASTE MANAGEMENT PLAN

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EXECUTIVE SUMMARY

LEGAL BACKGROUND

Under Section 45 of the Energy Act 2008 (the Act) [1], a person who applies for a nuclear site licence to install or operate a nuclear power station must notify the Secretary of State of the application and prepare and submit a Funded Decommissioning Programme (FDP) for approval.

The Government has published guidance [2] on what an approvable FDP contains (hereafter referred to as "the FDP guidance"). The FDP guidance makes clear that the Funded Decommissioning Programme should consist of two parts. The first part, referred to as the Decommissioning and Waste Management Plan (DWMP), fulfils the operator's obligation under section 45(7) of the Energy Act 2008 to set out:

- details of the steps to be taken under the programme in relation to the Technical Matters; and
- estimates of costs likely to be incurred in connection with the Designated Technical Matters (DTM).

The second part, referred to as the Funding Arrangements Plan (FAP) assists operators in setting out acceptable financing proposals to meet the costs identified in the DWMP.

PURPOSE OF THE DWMP

This document is the DWMP for NNB Generation Company (SZC) Limited's (SZC Co.) proposed Sizewell C Nuclear Power Station (SZC). It is a summary level document, which sets out the steps that will be taken to decommission SZC at the end of its operational life, and provides an estimate of the costs of decommissioning and waste management which constitute the DTMs. Section 4 of this DWMP provides the definition of the DTMs.

The DWMP has been prepared to meet the Guiding Factors set out in the FDP guidance and is supported by Hinkley Point C's (HPC) DWMP [3]. A key element of the DWMP is to show that plans for decommissioning the SZC site and the management and disposal of waste arisings are realistic, clearly defined, achievable; and can be undertaken in a way which is consistent with the requirements and expectations of the relevant safety, security and environmental regulators. Major project risks are based on those identified at HPC and are deemed to be appropriate for SZC noting the commonality in the design. Section 8 of this DWMP provides an overview of how risk and contingency has been applied to the costs.

The SZC FAP will set out effective mechanisms for ensuring that the cost estimates for the DTMs are robust; are kept up to date; and are consistent with the state of knowledge and technology at the time of calculation.

SCOPE OF THE DWMP

The scope of this DWMP and the associated costs cover all work relating to the decommissioning of the site and the management and disposal of all hazardous wastes (including conventional waste, radioactive waste and spent fuel). It commences with pre-closure preparatory work five years prior to End of Generation (EoG) of Unit 1, and continues until all plant, facilities and buildings have been decommissioned and all wastes, including spent fuel, transferred from the site. Transfer of spent fuel and Intermediate Level Waste is managed under the Waste Transfer Contracts described below.

The end point for the decommissioning of SZC is when all buildings and facilities have been removed and the site has been returned to an end state assumed to be similar to a green field site. The final end state will be as agreed with the regulators through the relevant regulatory consents including the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations, 1999, as amended (EIADR) to be undertaken during pre-closure preparations.

The Base and P80 cost estimates for the full scope of work classified as DTMs are presented in section 6. It should be noted SZC has adopted a dry storage approach for managing its spent fuel. This is different to that adopted in HPC's DWMP, therefore, new estimates have been created but no additional contingency modelling has been undertaken. However, to ensure compliance with guiding factors, risk and uncertainty has been covered through the application of the same P80 uplifts as used for equivalent spent fuel management activities in the approved HPC DWMP. To demonstrate that the costs remain prudent additional risk mitigation activities have been included to account for potential risks associated with the modified spent fuel management activities.

The FDP guidance states that operators should assume that Intermediate Level Waste (ILW) created during operation and decommissioning is stored in safe and secure interim storage facilities on the site of the nuclear power station pending disposal; and that spent fuel is stored in cooling ponds for a period of time, followed by storage in safe and secure interim stores on the site of the nuclear power station until decommissioning has been completed and disposal facilities are available to accommodate it. Title to the waste will transfer to Government along with the payment of a Waste Transfer Fee to meet the costs of waste management and disposal. The DWMP provides an estimate of these post decommissioning waste management costs with the waste transfer price provided by Government under the Waste Transfer Contract (WTC).

The expected timing of transfer of title for the waste will be set out in the WTC, but it is currently expected that title to ILW will transfer on disposal to the Geological Disposal Facility (GDF) during the decommissioning period, whilst spent fuel will transfer at the on completion of the Power Plant Area Decommissioning and Site Clearance activity, defined as the Decommissioning End Date in the WTC. At this date the SZC site will consist of only the Interim Spent Fuel Store containing the full inventory of SZC spent fuel. The site previously occupied by the SZC reactors and their ancillary buildings, including the ILW Interim Storage Facility, will have been decommissioned and delicensed and the store will have been relicensed and will be operating autonomously. The input data required by the WTC and FAP is presented in section 6 and a summary cash flow is provided.

SIZEWELL C REPLICATION OF THE HINKLEY POINT C DESIGN

As far as is practical the design of SZC replicates that of HPC. The nuclear island design and layout is replicated in its entirety and there are some minor differences with some of the foundations, conventional island and auxiliary system, structures and components to take account of site specific consideration. As a result, all system, structure and component codes for SZC mirror HPC. The replication of the design and decommissioning strategy from HPC to SZC allows this DWMP to be substantially underpinned by the already approved DWMP produced for HPC [3]. In order to ensure that the SZC DWMP is consistent with the current SZC design (RC1.0) this document captures changes to the design that have been made between the DWMP Approved for HPC and the latest approved HPC RC2 design freeze, along with any of site specific SZC modifications. These changes are summarised in section 2.3.

When the HPC DWMP is updated in the future it will serve as underpinning for SZC with future iterations of this document capturing any deviations from the reference design. Any change to the SZC design is subject to a formal design change process and is suitably screened and assessed for any impact on the FDP.

STRUCTURE OF THE DWMP

The replication of the HPC design at SZC has allowed the SZC DWMP to be significantly simplified and does so by directly referencing the HPC DWMP [3] where systems, structures and components are identical. This document is supported by the HPC DWMP [3] and the HPC Detailed Decommissioning and Waste Management Plan (D)DWMP [4]. The HPC (D)DWMP provides greater detail on the scope of the decommissioning steps, and includes a detailed schedule setting out the timing and interdependencies of the proposed works at HPC. The HPC (D)DWMP also provides further detail on the costs of decommissioning and the methods by which they have been estimated. The HPC DWMP and HPC (D)DWMP will be updated to reflect HPC at as-built and first criticality stages of the HPC project. Any changes identified will be incorporated into future revisions to the SZC DWMP at the first scheduled update following HPC amendments.

The HPC and SZC documents have a common European Pressurised Reactor (EPR) Work Breakdown Structure (EPRWBS) which provides direct linkage between the scope statements (the work that will be done), the schedule (when the work will be done) and the associated cost. Having a common EPRWBS also ensures that the linkage between the SZC DWMP and the supporting HPC DWMP and HPC (D)DWMP is transparent. This approach provides a "golden thread" between the summary level costs in the SZC DWMP and the detailed costs and underpinning technical basis for the estimation contained within the HPC (D)DWMP. Cross referencing to more detailed material in the HPC (D)DWMP and reference documents is included where appropriate. Where scope is unique to SZC or deviates from the current HPC DWMP, it is fully described and costed in this document.

TECHNICAL MATTERS, OPERATIONAL DESIGNATED TECHNICAL MATTERS AND DESIGNATED TECHNICAL MATTERS

The Energy Act 2008 [1] distinguishes between Technical Matters and the DTMs. The HPC FAP additionally introduces the category of Operational Designated Technical Matters specifically relating to the construction and maintenance of waste and spent fuel storage facilities during the operational phase.

The Technical Matters are the steps to be set out in the DWMP relating to the decommissioning of the nuclear power station, cleaning up of the site, and waste management and disposal activities. The key difference between the Non-Designated Technical Matters, Operational Designated Technical Matters, and the DTMs is that the costs of Non-Designated Technical Matters and Operational Designated Technical Matters will be met by SZC Co. from operational revenue, while the costs of DTMs must be met by the independent fund provided for by the FAP.

The costs of Non-Designated Technical Matters are not subject to the terms of the FAP. However, the DWMP describes the steps to be taken in relation to the Non-Designated Technical Matters as well as the DTMs to demonstrate that it presents realistic, clearly defined and achievable plans. Where Technical Matters are unique to SZC or their management differs from the current HPC DWMP, they are fully described in this document. Section 4 of this DWMP provides further details with regard linkage of activities to the appropriate cost category.

FUTURE DEVELOPMENT OF THE SZC DWMP

This plan has been prepared at an early stage in the development of SZC. The scope of works has been prepared against the then currently available knowledge of the plant design. The DWMP will last for the lifetime of the site and will develop and change over time to reflect modifications to the plant and to accommodate decommissioning best practice from projects that enter decommissioning ahead of SZC. The supporting references, including HPC DWMP, will also develop over time as they are updated to reflect the advancing nature of the HPC build. These changes will influence the SZC cost and schedule and they will be updated at the next planned refresh date after the HPC updates (as set out in section 1.2.1, Figure 3 of this DWMP). The arrangements and legal obligations for the periodic review and updating of this DWMP and its associated costs are set out in the FAP. The DWMP does not in itself confer any legal rights or impose any legal obligations on either SZC Co. or any Nuclear Decommissioning Fund Company set up to manage funds beyond those set out in the FAP.

SUMMARY

The DWMP has been presented at a level which gives sufficient detail to provide an understanding of the scope of work included in the cost estimate. The decommissioning and waste management processes employ currently available technology throughout. This approach aligns with the "Base Case" assumptions set out in The FDP guidance [2] and with regulatory expectation. This DWMP focuses on the description of the work to be undertaken as the basis for the cost estimates. It includes:

- A description of the SZC site (section 2).
- A summary of the process of decommissioning the site, and the management of the hazardous wastes (including conventional waste, radioactive waste and spent fuel) produced during operation and decommissioning (section 3).
- A description of the scope of the Non-Designated Technical Matters, Operational Designated Technical Matters and the DTMs against a work breakdown structure (section 4).
- A summary schedule of works against the EPR work breakdown structure (section 5).
- A summary of the costs against the EPR work breakdown structure (section 6).

In line with the FDP guidance [2] the DWMP also includes:

- A summary of the key assumptions and exclusions underpinning the DWMP (section 7).
- A summary of the cost estimates in an alternative cost structure in line with that provided in the FDP guidance (section 6).
- An explanation of the derivation of the cost estimates (section 8).

An explanation as to how the assumptions and parameters underpinning the DWMP are expected to evolve over time as the new nuclear power station operates and draws near to closure are set out in the FAP, and are further detailed in HPC (D)DWMP Chapter 3.

1 INTRODUCTION, PURPOSE AND ARRANGEMENTS OF THE SZC DWMP DOCUMENTATION

1.1 Background to the DWMP

Under section 45 of the Energy Act 2008 (the Act) [1], a person who applies for a nuclear site licence to install or operate a nuclear power station must notify the Secretary of State of the application and prepare and submit a Funded Decommissioning Programme (FDP) for approval. It is an offence under section 47 of the Act to use the site, by virtue of the licence without an approved FDP in place.

The Government has published guidance on what an approvable FDP should contain. The FDP guidance [2] makes clear the expectation that the FDP should consist of two parts.

The first part, referred to as the Decommissioning and Waste Management Plan (DWMP) fulfils the operator's obligation under section 45(7) of the Energy Act 2008 to set out:

- Details of the steps to be taken in relation to the Technical Matters*; and
- Estimates of costs likely to be incurred in connection with the Designated Technical Matters (DTM)*.

* DTMs and Technical Matters are defined in section 4

The second part, referred to as the Funding Arrangements Plan (FAP) assists operators in setting out acceptable financing proposals to meet the costs identified in the DWMP.

This document is the DWMP for NNB Generation Company (SZC) Limited (SZC Co.) for Sizewell C Nuclear Power Station (SZC). It is a summary level document, which sets out the steps that will be taken to decommission SZC at the end of its operational life, and provides an estimate of the costs of decommissioning and waste management which constitute the DTMs the Energy Act 2008 [1] and associated regulations.

The FDP guidance sets a series of Guiding Factors that it is expected that a prospective operator should be cognisant of in developing a compliant FDP, namely that it:

1. Provides a clear structure;
2. Contains realistic, clearly defined and achievable plans for decommissioning, waste management and waste disposal;
3. Contains robust cost estimates which take due account of risk and uncertainty;
4. Is transparent;
5. Contains clear terms and clear divisions of roles and responsibilities;
6. Is a durable arrangement; and
7. Sets out a Fund structure that demonstrates:
   a) independence of the Fund;
   b) measures to ensure sufficiency of the Fund;
   c) restrictions on the use of Fund Assets; and
   d) insolvency remoteness.

The guidance states that "It will be for the operator to demonstrate how the FDP meets the Objective and how it complies with each of the Guiding Factors". A number of the guiding factors are relevant to either the FDP structure itself or the FAP only and are therefore not considered further in this DWMP. Table 1 gives a brief description of how the Guiding Factors relevant to the contents of the DWMP are met within this document and where required provides a signpost to the relevant section of the DWMP or other underpinning documents to support the claims.

Table 1 Compliance with the "Guiding Factors"

FDP Guidance Paragraph [2]	Guiding Factors	Demonstration of compliance in this DWMP
1. Clear structure of the FDP		
1.9	…. Setting out details of the steps to be taken in relation to what are called "Technical Matters"	A description of the steps taken to undertake the DTM is contained within section 4, a summary of the costs associated with the DTMs are provided in this DWMP. The appendices of the HPC (D)DWMP provide detailed breakdown of the costs which are further underpinned through other references.
1.9	… and the estimates of costs likely to be incurred in connection with the "Designated Technical Matters"	Estimates of the costs likely to be incurred with the DTMs are presented in section 6 of this DWMP.
2. Realistic, clearly defined and achievable plans		
1.13	"The Operator must set out plans….that are realistic, clearly defined and achievable, and are capable of being undertaken in a way which is consistent with the requirements and expectations of the relevant safety, security and environmental regulators. "	Section 3 of this DWMP sets out a high level plan for decommissioning and waste management. All selected technologies are realistic, based on relevant good practice and operational experience in UK or International decommissioning projects
1.13	"Any technology or other gaps in the plans should be identified and additional plans to remedy any such gaps in a timely fashion should also be set out in the FDP."	As part of the technique selection process an assessment of the readiness was undertaken. All technologies selected for use in the DWMP are considered to have been demonstrated in an equivalent environment.

3. Robust cost estimates		
1.14	…the cost estimates for the Designated Technical Matters are robust; kept up to date; and are consistent with the state of knowledge and technology at the time of calculation.	Robustness of the cost estimates is demonstrated through linking the underpinning provided from source data, documents, the central resource pool database and the use of standard cost estimating tools and techniques. All cost estimates have been reported at a consistent money value (August 2022) to ensure future updates have a robust baseline to work from.
1.14	Major project risks must be identified and due account taken of risk and uncertainty.	HPC risks have been considered against the SZC RC1.0 design and remain unchanged. However, the change in spent fuel management strategy has led to additional risk mitigation activities being included. This approach is set out in section 8.1.
4. Transparency		
1.15	The FDP must ensure that the arrangements set out under the FAP to accumulate, maintain and manage funds to meet the estimated costs for the Designated Technical Matters are transparent and visible to the Secretary of State and to other persons with obligations under the FDP.	This is a FAP issue and will be developed alongside the DWMP
1.16	An Operator may also provide to the Secretary of State supporting explanatory documents where appropriate, separate to the FDP, to provide clarity on how the provisions of the FDP satisfy the Objective and Guiding Factors.	The FDP will demonstrate compliance with the objective and guiding factors without need for supporting documents.
5. Clarity of terms and responsibilities		
1.17	The FDP must have clear terms. The FDP must also set out clearly the roles and responsibilities of the Fund, the Operator and any other relevant entities ((including the Verifier (as defined in paragraph 2a.22) and any person with obligations under the FDP)) for the Secretary of State to form a clear view of their responsibilities and, where relevant, obligations under the FDP	Roles, responsibilities, and obligations under the FDP will be defined within the FAP.

6. Durability of arrangements		
1.18	The FDP must be durable so that the arrangements set out in the FDP are likely to remain applicable for the generating lifetime of the station, throughout decommissioning and until the Operator has satisfied all of its obligations under the FDP.	The durability of the FDP will be set out in the FAP and will be developed alongside this DWMP.
7. Fund Structure		
1.22	7 (a) Independence of the Fund	The Fund Structure will be set out and agreed in the FAP and will be developed alongside the DWMP
1.23-1.24	7(b) Sufficiency of Fund Assets	
1.25-1.26	7(c) Restrictions on the use of Fund Assets	
1.27	7(d) Insolvency remoteness	
Fleet Approach (additional consideration)		
1.28-1.29	It is possible that an Operator may wish to develop a number of sites and that key elements of the FAP and security provided for in the FAP (as part of the FDP) for each site will be closely related……. The Operator would be expected to set out the self sufficiency of the first FDP should other sites and related FDPs not subsequently arise	This DWMP assumes that the SZC Site is entirely stand-alone with no shared services, facilities, or corporate structures.
Modification of an FDP (additional consideration)		
1.30-1.33	This section discusses the potential modification of an FDP by either the Secretary of State or by an operator.	Modification will be considered in detail in the FAP and the section 46 Agreement to be developed alongside this DWMP.

The DWMP demonstrates that SZC Co.'s plans for the decommissioning of the site and for the management and disposal of waste arisings are realistic, clearly defined and achievable. The plan is capable of being undertaken in a way which is consistent with the requirements and expectations of the relevant safety, security and environmental regulators.

Site specific changes at SZC have been considered and have not led to the identification of any additional project specific risks. Major project risks are based on those identified at HPC and no additional risk or contingency modelling has been undertaken and outputs from HPC's modelling have been applied to equivalent SZC activities. Additional risk mitigation activities have been included to account for the change in spent fuel storage strategy, this is set out in more detail in section 8.1.

The scope of this decommissioning plan and the associated costs covers all work relating to the decommissioning of the SZC site and the management and disposal of all hazardous wastes. It commences with pre-closure preparatory work five years prior to End of Generation (EoG) of Unit 1, and continues until all plant, facilities and buildings have been decommissioned and all wastes, including spent fuel, removed and disposed of. The end point for the decommissioning of SZC is when all buildings and facilities have been removed and the site has been returned to an end state similar to a green field site, as agreed with the regulators and the planning authority.

The overall programme of work includes the following activities:

- Pre-closure planning;
- Management and operation of the shut-down site during decommissioning;
- Spent fuel management after EoG, including interim storage, processing, transport and disposal;
- Management of operational wastes after EoG, including interim storage, processing, transport and disposal;
- Decommissioning of all plant, equipment, buildings and facilities and the management, processing, transport and disposal of the radioactive and other hazardous wastes arising,
- Remediation and delicensing, and return of the site to an agreed end state, similar to green field.

The full scope also includes overarching costs during the decommissioning period, such as SZC Co. corporate support (back office support e.g. legal, finance), the operating costs of the designated fund management company and costs incurred by the department for Business, Energy & Industrial Strategy (BEIS) in relation to the FDP and as set out in the Nuclear Decommissioning and Waste handling (Finance and Fees) regulations 2013.

This SZC DWMP programme of work covers both the Technical Matters and the DTMs. Some DTMs, including construction and maintenance of waste and spent fuel interim storage facilities, are further categorised as Operational Designated Technical Matters whose costs will be met from operational revenue rather than from the decommissioning fund, this is further described in section 4 of this report.

1.2 Content and Structure of the DWMP

1.2.1 SZC Replication Strategy

Hinkley Point C Nuclear Power Station (HPC) currently is the only New Nuclear Build programme to have produced an approved FDP. The HPC FDP was submitted to the UK Government in 2014 and approved by the Secretary of State on 29th September 2016. Additionally, HPC's design, the UK European Pressurised Reactor (EPR), has also been through the Generic Design Assessment (GDA) process and successfully endorsed by UK regulators. To expedite construction and minimise initial capital investment costs, the proposed design for SZC replicates HPC where possible with changes relating only to site specific variations e.g. cooling water structures. Core structures, systems and components within the Nuclear Island remain the same with changes largely being confined to the Balance of Plant. Therefore, quantities of radioactive waste and spent fuel between SZC and HPC are the same based on the assumption of identical design and operating regimes.

A large programme of work was undertaken during 2019 to assess the feasibility of the replication strategy of the HPC detailed design for SZC. The replication strategy has been defined based on a set of key assumptions and principles. As a result of the reuse of the reference HPC design, the site principal buildings and systems are replicated at SZC and consequently the description in the reference HPC DWMP [3] remains largely accurate for SZC.

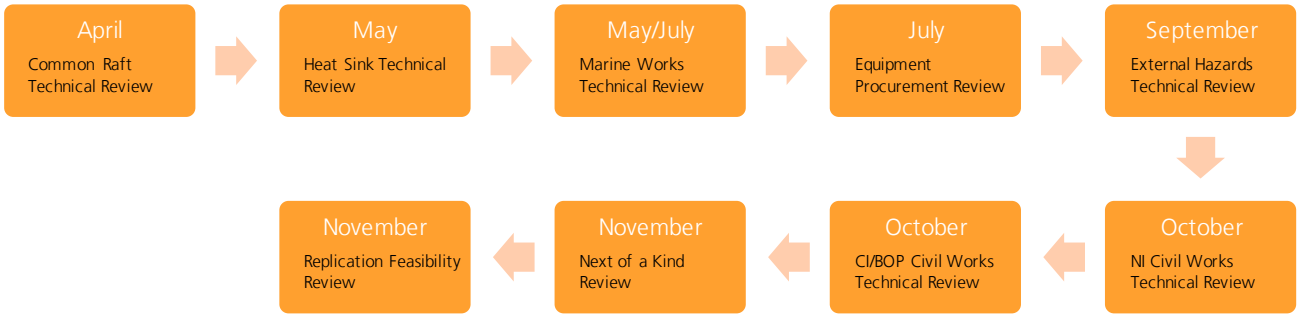

Figure 1 Replication Strategy Reviews

A 'No Change Committee' has been established to manage all SZC changes (from HPC), with SZC responsible for validating the step evolution of each change. The process for developing a change is detailed in [5], which is based on the HPC design change process. It is this process which challenges and confirms the robustness of the replication strategy and hence enables all design changes to be controlled and managed so that there is clear visibility of all changes made and the impact they have on the FDP.

The replication approach adopted for SZC enables its DWMP to be succinct, yet sufficiently detailed to meet the guidance stated in the Energy Act 2008 [1]. Capturing and referencing out to the technical complexity of decommissioning within the HPC DWMP [3] as the reference site, allows a model for SZC as a sister site to be created with a high degree of accuracy. This not only allows for decommissioning costs to be similar across both sites but it will also ensure that the two sites have a common and consistent approach to decommissioning.

Given that the approach for SZC is to replicate the HPC design, it is logical to adopt the same document structure to that of HPC's DWMP, which will facilitate easier navigation across the suite of documents. Where sections of SZC's DWMP submission are identical, the HPC DWMP [3] is referenced accordingly with detail summarised within this document.

SZC understands HPC will be reviewing and updating its decommissioning cost estimate information prior to its Commercial Operations commencing. SZC will engage with HPC at the appropriate time to review the updated decommissioning cost estimate to understand which elements can be used to inform future DWMP submissions.

1.2.2 Future Structure of the DWMP

The arrangements and legal obligations for the periodic review and updating of the DWMP and its associated costs are set out in the FAP. The DWMP will inevitably change over time to reflect changes to the plant and decommissioning best practice and by adopting a replication strategy any update can be captured and relatively simply applied to both SZC and HPC DWMPs at the next scheduled update of each document. The replication strategy provides an opportunity to simplify and align the SZC and HPC DWMPs and any subsequent updates ultimately merging what would be two separate quinquennial reviews (QQR) (one for HPC and one for SZC) into one common UK EPR submission. This approach has several advantages and includes:

- Developing a standard approach for the decommissioning of the UK EPRs (HPC and SZC) removes the risk of the two sites developing separate decommissioning approaches in parallel both now and in the future. Furthermore, the tools, experience and skills developed for HPC can be reused at the sister site, SZC.
- The risk and contingency models will be similar for both the UK EPR sites ensuring a consistent approach is adopted.
- The administrative burden in maintaining the DWMP's for both sites is reduced leading to better stakeholder and regulator clarity.
- Having site specific local addenda allows local issues and differences to be easily identified, prioritised and dealt with.

The intent at this present time is to have two standalone DWMP submissions for both SZC and HPC, with SZC referencing the HPC DWMP where appropriate, to ensure a consistent approach to decommissioning. However, the future ambition is to create a central UK EPR DWMP at the earliest opportunity, as presented in Figure 2 below.

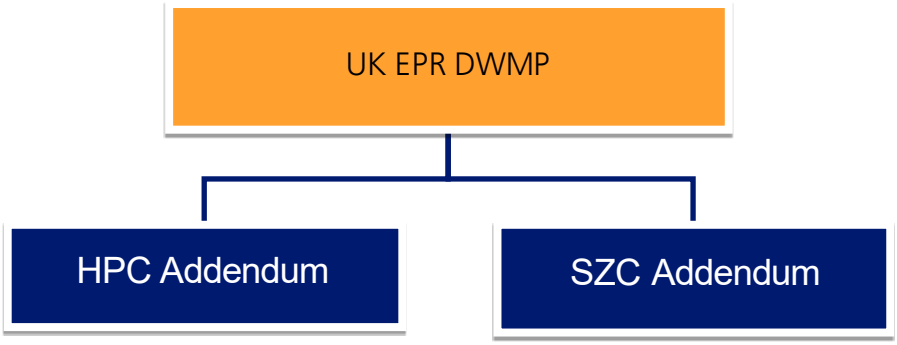

Figure 2 Proposed structure of central UK EPR DWMP

Based on current timescales of when HPC and SZC are both scheduled to be operational it is believed that an appropriate point to create a central UK EPR DWMP would be in 2037 when SZC will be required to submit its first QQR and HPC will be due to submit its second (Figure 3).

In the period before the DMWP's are merged, SZC will seek to engage with and benefit from lessons learnt from HPC, and as the leading plant, HPC will be able to provide updated cost information to SZC on all areas which are common between both sites. SZC will review all cost data within HPC's first criticality DWMP to ensure it remains applicable and valid for future DWMP submissions e.g. SZC's first criticality submission.

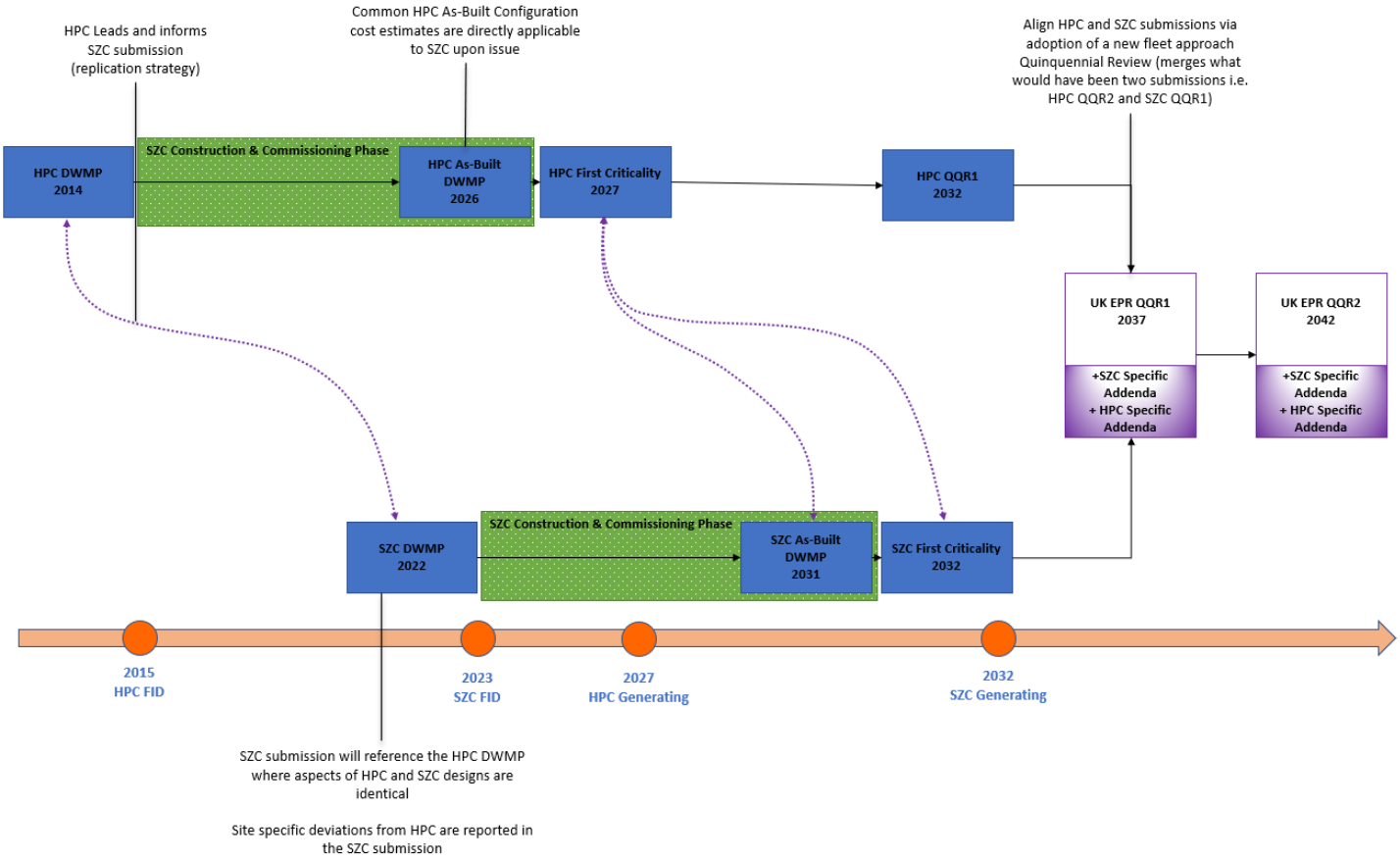

Figure 3 Route map aligning HPC and SZC DWMPs

The UK EPR DWMP will describe how the common elements of HPC and SZC will be decommissioned and the cost estimate for both decommissioning and waste management. Two separate (and significantly smaller) addenda will cover those elements specific to each site and this approach will minimise the effort required in maintaining two separate DWMPs allowing both HPC and SZC DWMPs to follow a consistent approach. The adoption of this strategy does not foreclose the option for the two sites to separate back to standalone DWMP submissions in the future, should this be required.

1.2.3 Contents of the DWMP

The SZC DWMP is presented in sufficient detail to provide an understanding of the scope of work included in the cost estimate. The decommissioning and waste management processes employ currently available technology throughout (see HPC DWMP [3]). This approach aligns with the "Base Case" assumptions set out in the FDP guidance [2] and with regulatory expectation. The scope of works has been prepared against the currently available knowledge of the design of plant at the time of preparing the SZC DWMP.

This SZC DWMP delivers the following:

- A SZC specific submission (supported by HPC's DWMP and references)
- Contains SZC Total Costs (made up from and including HPC Costs updated to in year values and SZC Specific Estimates [6])
- Includes a SZC Specific Schedule

Where work is described in the HPC DWMP [3] and the planned approach is the same for SZC, a summary is provided in this document with greater detail found in HPC's DWMP [3]. This DWMP forms part of the FDP for SZC and is a summary level plan supported by and closely linked to the HPC DWMP and includes:

- A description of the SZC site (section 2)
- The process of decommissioning the site, and the management of wastes produced during operation and decommissioning (section 3)
- A description of the scope of the Non-Designated Technical Matters, Operational Designated Technical Matters and DTMs (section 4)
- A summary schedule of works and costs against the work breakdown structure (section 5)
- Reference to the relevant section of the HPC DWMP is made where work is not SZC Specific and common to the HPC design

In line with the FDP guidance [2] the DWMP also includes:

- A summary of the cost estimates in a cost structure which is in line with that provided in the FDP guidance [2] (section 6)
- A summary of the key assumptions and exclusions underpinning the DWMP (section 7)
- An explanation of the derivation of the cost estimates including an analysis of the level and sources of risk and uncertainty in those estimates (section 8)

An explanation as to how the assumptions and parameters underpinning the DWMP are expected to evolve over time as the new nuclear power station operates and draws near to closure are set out in the FAP, and are further detailed in HPC's (D)DWMP Chapter 3.

The existing approved DWMP for HPC [3] is considered as the reference case for SZC (and any future UK EPR projects). As a result of the replication strategy and reuse of the reference HPC design, this document has been developed to capture only SZC site specific differences from the reference case. In order to achieve a full understanding of the SZC DWMP position this document should be read alongside the reference DWMP for HPC [3]. The HPC DWMP describes the use of currently available technologies to efficiently discharge the liability associated with an EPR Nuclear Power Station at the end of its generation phase. The HPC DWMP [3] also provides details surrounding the construction, operation and decommissioning of facilities required specifically for decommissioning. At SZC, and each subsequent EPR, it is recognised that there are / will be slight deviations from the HPC reference design, which typically will be associated with local geographic requirements e.g. length of intake and outfall structures. Deviations for SZC are listed in section 2 and the impact of decommissioning on schedule and cost is captured in sections 5 and 6.

The HPC DWMP document [3] remains a relevant and robust summary of the approach to decommissioning an EPR Nuclear Power Station. The SZC DWMP captures the changes in strategy for decommissioning implemented since the 2014 DWMP submission. The most significant change was the move away from wet fuel storage to a dry

spent fuel storage strategy. This document also brings the DWMP in alignment with HPC's Reference Configuration 2.0 (contemporary with the status of the HPC design at the end of 2018) and also considers the SZC site specific changes up to SZC's Reference Configuration 1.0.

The SZC DWMP is largely underpinned by the HPC DWMP [3] and it is worth noting that HPC's approved DWMP submission was supported by a detailed version of the DWMP, called the Detailed Decommissioning and Waste Management Plan ((D)DWMP) [4]. The HPC (D)DWMP [4] includes detailed schedule and cost estimates; and contains a large number of reference reports and cost estimates. The structure and relationship between the component parts of HPC's DWMP are set out in Figure 4.

The HPC (D)DWMP [4] sets out a detailed plan for the decommissioning of HPC, including descriptions of the processes employed and the basis of the cost estimates. It is the main supporting reference for the HPC DWMP [3]. It describes how decommissioning will be undertaken showing the relationship between scope, schedule and costs in detail, for the establishment of a robust estimate of the cost of decommissioning and waste management (the DTMs). The HPC (D)DWMP also sets out how estimating uncertainty and risk have been addressed. As the main supporting reference to the HPC DWMP [3] it provides the basis for a detailed, independent review and audit of the associated cost estimates. Since the HPC DWMP was issued in 2014, a HPC (D)DWMP Technical Addendum [7] has been produced and captures the changes in strategy for decommissioning implemented since the 2014. The technical addendum includes the move away from wet fuel storage to a dry spent fuel strategy and also brings the HPC (D)DWMP [4] to HPC Reference Configuration 2.0 (i.e. contemporary with the status of the HPC design at the end of 2018).

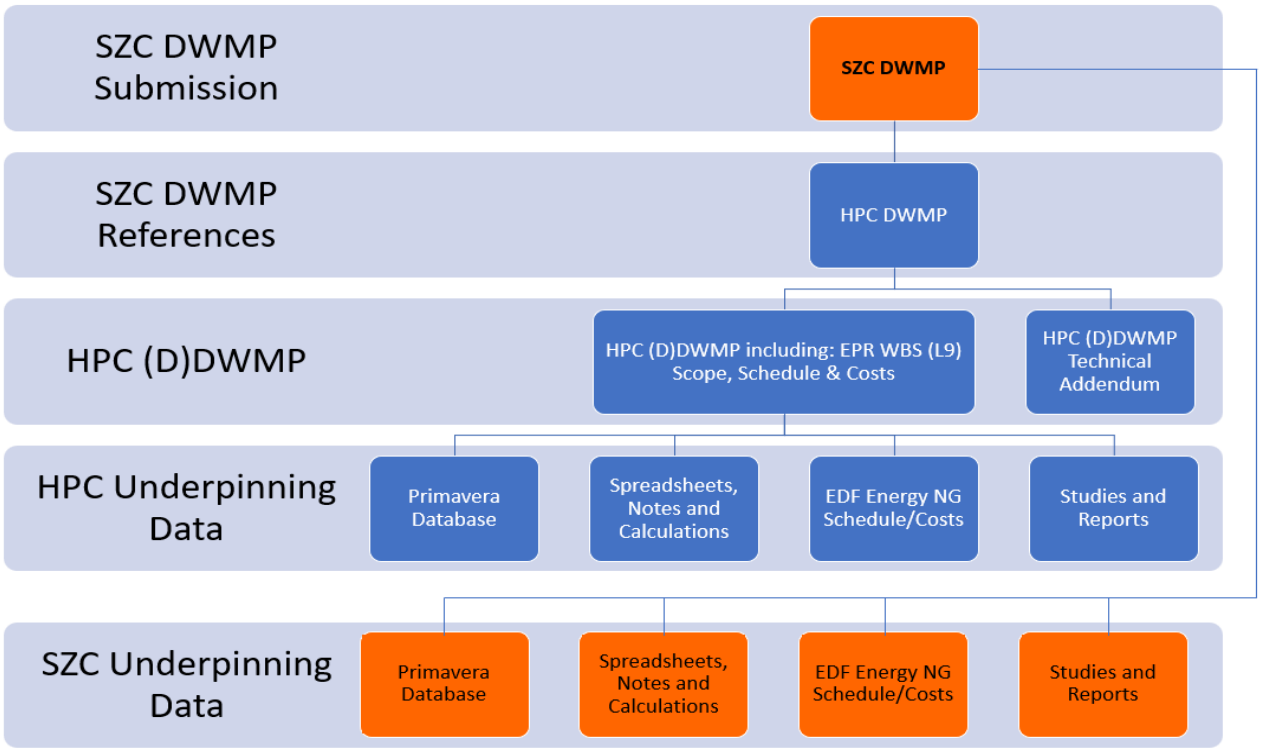

Figure 4 Arrangements of the DWMP Documentation

This DWMP presents the strategy and plan for the SZC site at a high level, setting out appropriate details of the steps planned to be taken to decommission the site and carry out spent fuel management, with an accompanying summary level schedule and tables of the cost estimates. In all cases where SZC and HPC are identical in nature, this SZC submission adopts the approaches and plans as described in the HPC DWMP and corresponding HPC (D)DWMP. Where the SZC design deviates away from HPC, information to support these deviations is captured in its entirety within this document, removing the need for a SZC (D)DWMP to be produced.

The EPR Work Breakdown Structure (EPRWBS), a coding system for breaking down and presenting the work to be undertaken against a clear and logical structure, provides the skeleton structure that directly links scope, schedule and cost for the work. This facilitates the direct linkage of the work described at a higher level in the DWMP with more detailed scope, schedule and cost for the work presented in HPC's (D)DWMP [4]. The EPRWBS facilitates audit of the scope, schedule and cost for any part of the DWMP.

The EPRWBS provides a logical structure for the planning and execution of the decommissioning and waste management activities. However, the FDP guidance [2] also states that there be clarity on which costs are paid for from the Fund (the DTMs), and which would be regarded as operational costs (the Non-Designated Technical Matters and Operational Designated Technical Matters). To provide this transparency, each element of the EPRWBS is cross referenced to an EPR Cost Reporting Structure (EPRCRS), which also makes the distinction between Non-Designated Technical Matters, Operational Designated Technical Matters, and DTMs as defined in section 45 of the Energy Act and associated Regulations. The EPRWBS and EPRCRS are summarised in sections 3.4 and 3.5 respectively.

A proprietary scheduling application, Primavera, with an associated database are used and have a central role in collecting, compiling, calculating and presenting the decommissioning and waste management cost estimates. All data in Primavera is structured against the EPRWBS, and is also coded against the EPRCRS. In addition to outputs of base cost estimates, outputs including contingency (estimating uncertainty and risk) and cash flow over the entire duration of the programme are made.

The cost estimates are calculated by a range of well understood and standard estimating practices as described in section 8 of the HPC DWMP [3]. The technical basis and detailed assumptions for the individual cost calculations are set out within the Primavera database which provides the linkage to the source data or technical report underpinning the estimate. The relationships are set out in Figure 4.

For HPC a hybrid approach was employed to determine the overall contingency (comprising estimating uncertainty and risk) for each decommissioning and waste management task. Where any given cost element has been based upon and extrapolated from an existing estimate for a nuclear power station, the contingency level applied previously to the source cost estimate has been adjusted to reflect the specific circumstances at HPC. This remains the approach at SZC where HPC estimates are used. The hybrid approach adopted for HPC, has been approved and remains a prudent and robust approach for estimating contingency and risk for SZC. No additional risk or contingency modelling has been undertaken, however additional risk mitigation activities have been included to account for the change in spent fuel storage strategy, this is set out in more detail in section 8.1. Any future changes in the approach taken for HPC will be reflected in future scheduled revisions of the SZC DWMP.

1.3 Decommissioning and Waste Management Cost Estimates & Waste Transfer Costs

The FDP guidance states that operators should assume that Intermediate Level Waste (ILW) from operations and decommissioning will be stored in safe and secure interim storage facilities on the site of the nuclear power station pending disposal; and that spent fuel will be stored in cooling ponds for a period of time, followed by storage in safe and secure interim stores on the site of the nuclear power station until decommissioning has been completed and disposal facilities are available to accommodate.

Title to the waste will transfer to Government along with the payment of the Waste Transfer Price to meet the costs of waste management and disposal. This SZC DWMP provides an estimate of the post-decommissioning waste management costs and also provides an estimate of the costs of waste disposal, based on the Waste Transfer Price provided by Government under the Waste Transfer Contract (WTC) between Government and SZC Co.. At this present time WTC costs have not been renegotiated for SZC and this DWMP is based upon the same detail as agreed for HPC with costs uplifted as required. The expected timing for transfer is set out in the WTC. This DWMP assumes that title to ILW will transfer on delivery to the GDF during the decommissioning period, subject to the availability of the GDF at that time, and that title to and liability for spent fuel will transfer to Government at the completion of the Power Plant Area Decommissioning and Site Clearance activity, defined as the Decommissioning End Date in the WTC. At this date the SZC site will consist of the Interim Spent Fuel Store containing the full inventory of SZC spent fuel and supporting facilities to allow inspection and repackaging.

The site previously occupied by the SZC reactors and their ancillary buildings, including the ILW Interim Storage Facility, will have been decommissioned and delicensed and the store will have been relicensed and will be operating autonomously, pending disposal in the GDF at a later, specified Assumed Disposal Date. The input data required by the WTC and FAP is presented in section 6 and a summary cash flow is provided.

The Base and P80 cost estimates for the full scope of work, classified as DTMs, are presented in section 6.

2 SITE DESCRIPTION

2.1 Site Location and Environment

The proposed SZC site is situated in Suffolk, on the coast of the North Sea, to the east of Leiston and to the north of Thorpeness. The SZC development has been created to facilitate the proposed construction of a twin EPR development. The proposed development at SZC includes the plan to build, operate and decommission:

- Two UK EPR units (Pressurised Water Reactor (PWR)) and associated facilities,
- Interim Spent Fuel Store (ISFS), and
- Intermediate Level Waste Interim Storage Facility (ILWISF).

The SZC installation is close to two other nuclear power station sites:

- Sizewell A (SZA) - a twin gas-cooled reactor of the Magnox design and managed by Magnox Ltd on behalf of the NDA. Electricity generation at SZA ceased in 2006 and the station is now being decommissioned; and

- Sizewell B (SZB) – a PWR operated by Nuclear Generation Limited (formerly British Energy, a separate operating unit of EDF Energy). This station still generates electricity and is expected to continue operating beyond 2030.

This DWMP does not rely on sharing of any facilities relevant to waste or fuel management with these sites, with the exception of local transportation routes.

The nearest main road is the A12, which lies approximately 8 miles to the west of the site, and connects Lowestoft to the north and Ipswich to the south.

Geology and geological characteristics within the site and site vicinity include: a) made ground: potentially present, related to construction of existing railway and roads and farmer's tips; b) superficial deposits: predominantly Lowestoft Formation with Head deposits present in the centre and east of site; and c) bedrock: the Crag Group.

2.2 Designated Sites

The majority of the onshore portion of the main development site is located within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB). The remainder of the onshore portion of the main development site is considered as being located within the setting of the AONB.

The central portion of the main development site (both on and offshore) also falls within the Suffolk Heritage Coast which is an area of undeveloped coastline managed to conserve natural beauty and, where appropriate, improve accessibility for visitors.

A small area of the main development site, north of Upper Abbey Farm, is located within an area designated locally as a Special Landscape Area (SLA), which extends along the valley of the Minsmere River and is noted for its traditionally grazed river valley meadows and marshes with intact hedgerows and dykes and associated flora and fauna.

There are no ancient woodlands, Tree Preservation Order trees, tree groups, areas or woodlands within the main development site.

There are 18 nationally designated sites within a 20km radius of the main development site, all of which are Site of Special Scientific Interests (SSSIs). SSSI areas that are closest in proximity to the site include, Minsmere to Walberswick Heaths and Marshes SSSI; and Sizewell Marshes SSSI.

2.3 Site Principal Buildings and Systems

The plot plan of the proposed SZC layout is shown in Figure 5. To enable the EPR design to be sited at Sizewell amendments to the HPC reference design have been needed and are predominantly driven by, the different geological characteristics of the SZC site, the site layout (to accommodate the size of the site) and local environmental factors (such as those associated with the cooling water system). After the end of generation, much of the additional sub surface civil infrastructure will remain in place below a certain depth. Confirmatory sampling will be undertaken to validate the assumption that these structures are free from any contamination resulting from operation of the power station. As a result, apart from the change in spent fuel management strategy from wet to

dry storage, all other site specific deviations do not have a significant impact on the cost of decommissioning and waste management versus those costs that have been estimated for HPC.

The main deviations that are attributed to SZC include:

- **Differences in layout of conventional island buildings versus HPC (imposed by different site geography and smaller site footprint) –** Whilst the site at SZC may be more constrained than HPC these differences do not change the volume of the buildings, rather the dimensions have been modified to suite the site. Consequently there is no affect on the estimated cost of decommissioning at SZC. When SZC reaches decommissioning the neighbouring SZB power station will have been decommissioned and may potentially afford additional flexibility to SZC's decommissioning plan through the provision of additional space and shared facilities. This has not been factored into the decommissioning plan for SZC and is deemed to be an opportunity that could be realised once detailed planning of the site commences towards the end of generation. The layout has no impact on the decommissioning of the nuclear island which is where the largest risks lie (post fuel removal). Deconstruction of the primary circuit will follow the same approach as HPC and a dedicated waste management facility will be in place through conversion of the turbine building (identical to HPC).
- **Differences in depth of foundation for buildings due to different geologies i.e. due to the different geology at SZC, the building foundations will be deeper than at HPC** – A mixture of marine beach deposits (sands and gravels) and tidal flat deposits (clay and silt) are present underlying the eastern area of the site. Alluvium, peat and Head Deposits are present underlying the southern part of the main platform and eastern part of the temporary construction area. A detailed description of the geology of the site is provided in the Sizewell Design and Consent Order submission [8]. The final site end state will be such that all station buildings and facilities have been removed and the site returned to a state agreed with the regulators and the planning authority, which is considered to be consistent with the Base Case assumption of "Similar to Greenfield". For cost estimation purposes the assumption is that the site is restored to a condition similar to its state prior to construction. This translates to building structures above the 1m below ground level being confirmed radiologically clean and demolished using conventional demolition techniques. Below ground structures including building floors greater than 1m below ground will be left in-situ and shown to meet the ONRs 'no danger' criteria (dose to future site users has to be <10 μSv/y) [9]. This difference has no effect on the cost of decommissioning at SZC compared to HPC.
- **Differences in the Cooling Water System** – A number of design changes have been required to ensure sufficient cooling water provision can be provided within the site specific environment. The cooling water intake and outfall tunnels are longer and stretch further out into the North Sea compared to the arrangement at HPC. The presence of off-shore banks necessitates that the cooling intake and outfall arrangements are extended further to ensure sufficient cooling water capacity can be provided to the site. As with the building foundations, the water intake will be left in situ and not removed at the end of generation and therefore have no effect on the overall cost of decommissioning. The intake structures at SZC have been simplified and have led to a reduction in the volume of concrete that would require demolition at the end of generation but is off set by the inclusion of chlorination provision at SZC which is needed to optimise cooling water in support of plant operations.
- **Differences between coastal defence installations –** It is assumed that the coastal defence installation at SZC will be removed once decommissioning at the site is completed. However, given the uncertainty surrounding future sea levels, the potential impact of climate change around the east coast and the impact upon established habitats on the structure, a decision will be made 10 years before the end of

decommissioning as to whether the sea defence will be removed or retained (based on the available evidence and assessment at that time). The SZC DWMP assumes removal of the coastal defences but should the position change during the operating lifetime of the facility the DWMP can reflect the change as part of the quinquennial review process.

- **Beach Landing Facility** – SZC has learnt lessons from the construction of HPC and the benefits afforded by the provision and use of a marine jetty. To assist with construction, SZC intends to construct a 'beach landing facility' (BLF) which will enable building material and plant components to be delivered to site from the North Sea. This will divert construction traffic away from the local road network reducing congestion and minimising the number of anticipated road closures needed to transport large plant items. SZC intends to retain the BLF post construction to support plant maintenance and 'outage periods'. The BLF will be of modular construction which will allow much of the structure to be deconstructed and removed when it is not needed. Two large concrete anchors are the only permanent features of the BLF and provide a secure fixing point for the modular structure. The concrete anchors will therefore be in place throughout the generating life of the plant and require decommissioning at the end of generation. The design of the BLF is yet to be finalised and given the relatively small amount of concrete associated with the anchors, this element will be captured as part of the next revision of the DWMP.

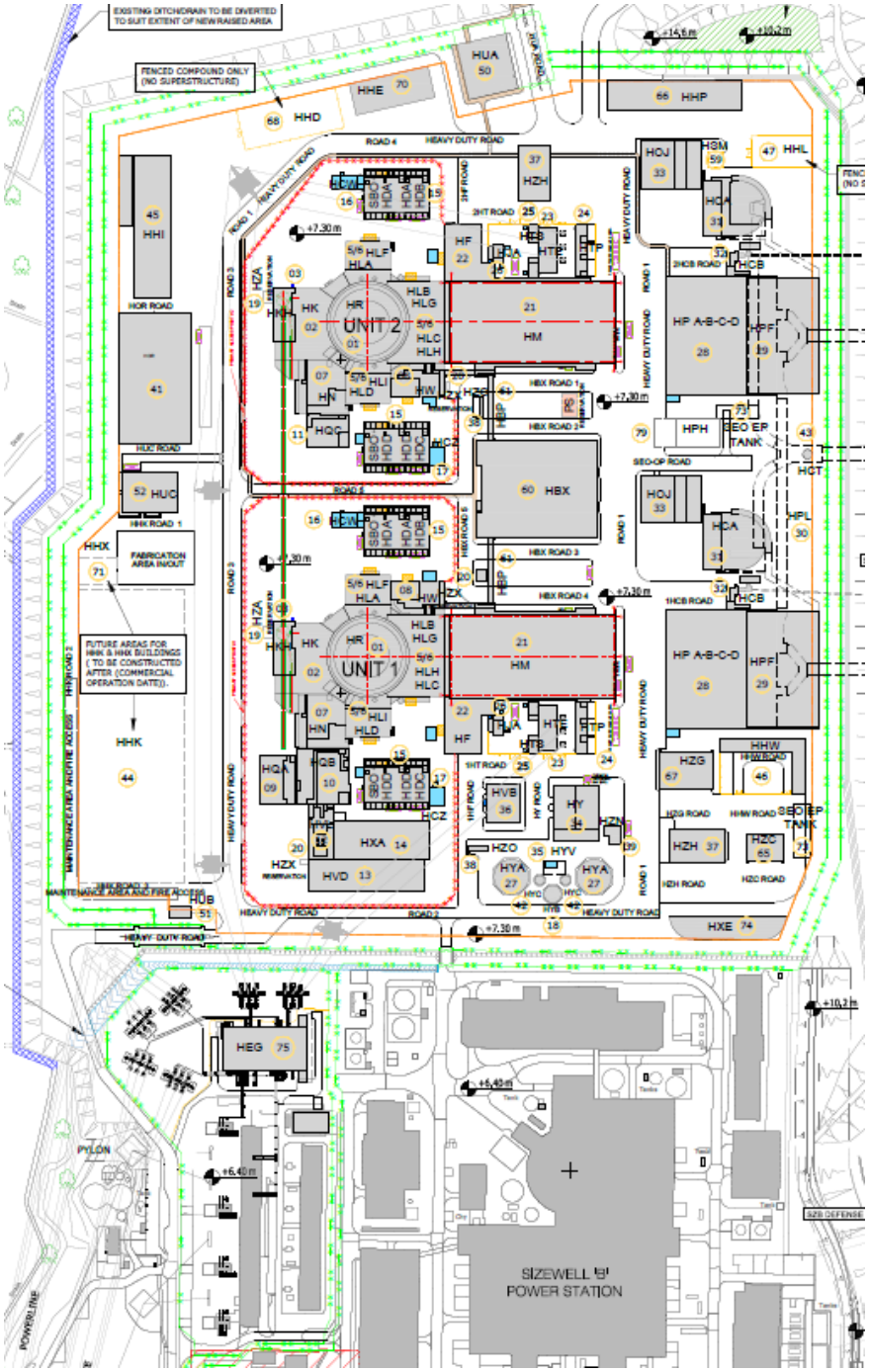

Figure 5 Sizewell C Power Station Site Plan

3 DECOMMISSIONING AND WASTE MANAGEMENT STRATEGY AND PLAN

The HPC DWMP [3] was reviewed during 2019 as part of efforts to develop a HPC (D)DWMP Technical Addendum [7] to reflect HPC's latest Reference Configuration 2 status which captures all design changes since HPC DWMP was submitted (a design freeze milestone). This milestone sets the baseline design for SZC, and as a result, the decommissioning and waste management strategy and plan for HPC was challenged to ascertain whether the approach proposed for HPC remained valid and applicable to SZC. Despite the changes noted above in section 2.3 and the change in spent fuel management strategy, these changes do not preclude SZC adopting the same strategy and plan as captured in HPC's DWMP.

The replication strategy for SZC allows for a common and consistent decommissioning and waste management strategy for the UK EPR design based on HPC's DWMP [3]. An outline of the key stages is described in the following sections:

3.1 Corporate Strategy and Plan

At the end of its operational life, SZC Co. will undertake the decommissioning of SZC in accordance with this DWMP, which takes full account of the requirements of the UK EPR Decommissioning Strategy & Plan [10], Government Policy and regulatory requirements.

3.2 Sizewell C Decommissioning Strategy

The decommissioning strategy selected for SZC is consistent with HPC i.e. Prompt Decommissioning/Early Site Clearance (ESC). Decommissioning will commence as soon as possible after EoG at the site. Decommissioning will continue without cessation until all parts of the power generation plant are removed and the site cleared so that it can be released from nuclear site licence requirements, noting that a reduced nuclear licenced site will be retained containing the Interim Spent Fuel Store (ISFS) and associated inspection and packing facilities. These facilities will remain in place until the Geological Disposal Facility becomes available and the spent fuel inventory is transferred – see the UK EPR Decommissioning Strategy and Plan document [10]. For further details see HPC's DWMP [3].

3.3 Implementation of the Decommissioning Strategy and Plan at SZC

The prompt decommissioning strategy is made up of a number of key phases and activities. The activities are not necessarily sequential and there will be a significant time overlap between each activity. The major part of the decommissioning programme, which includes removal of all infrastructure apart from facilities required to safely store Spent Fuel is expected to take ~20 years post EoG. The timings and approach will be reviewed frequently throughout the life of the plant ensuring that the most optimised and cost efficient approach is adopted.

The decommissioning period can be split in to four high level time periods which consist of :

- Main deconstruction and demolition
- SF interim storage period

- SF retrieval, repackaging and consignment to the GDF
- Decommissioning and deconstruction of SF infrastructure and site restoration

An outline of the key decommissioning activities and phases that form the decommissioning plan is captured in Figure 6.

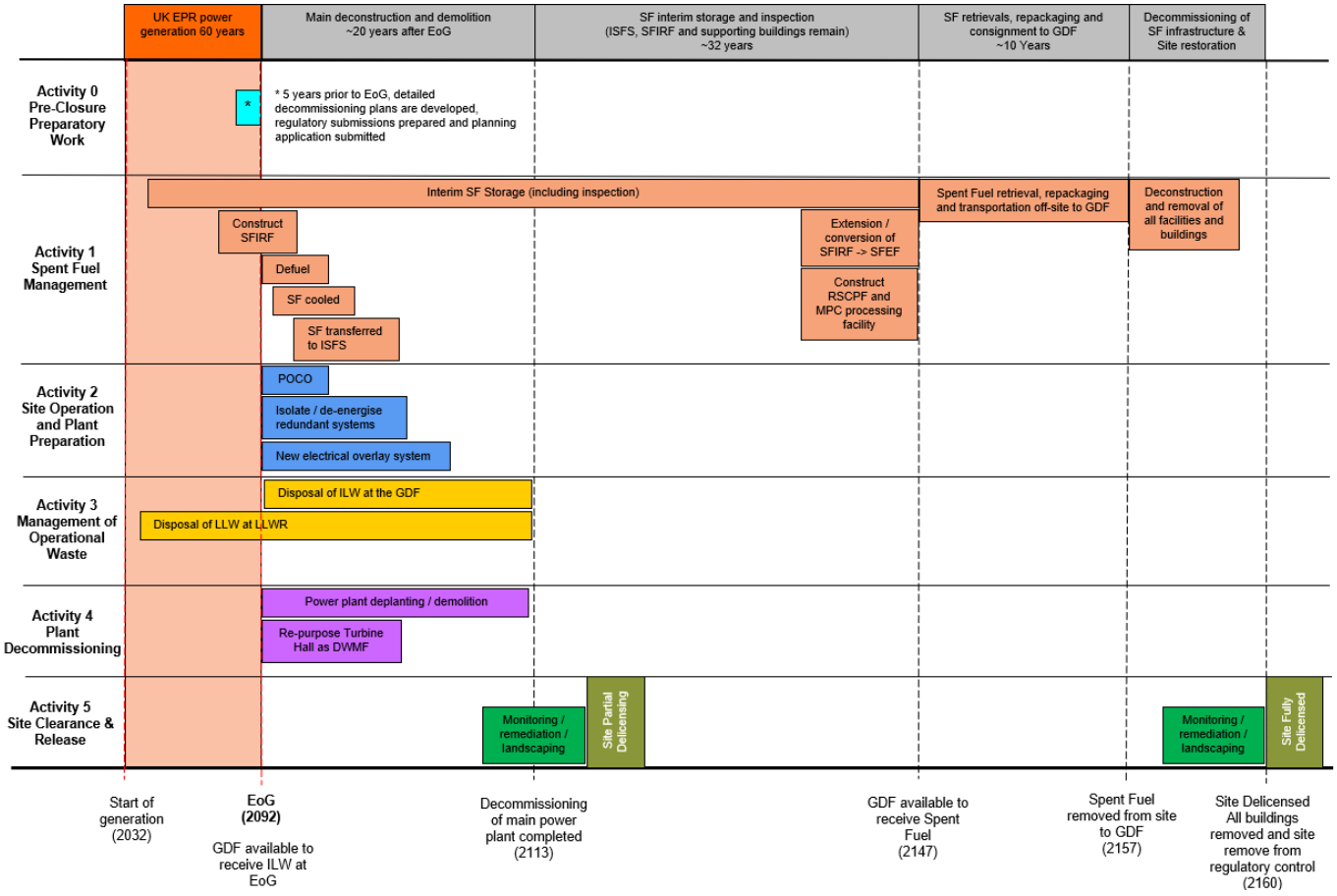

Figure 6 Decommissioning activities and phases of the decommissioning plan

A summary of each of the key activities that make up the plan is provided below with greater detail found in HPC's DWMP [3] and (D)DWMP [4].

3.3.1 Pre-Closure Preparatory Work (Activity 0)

Five years prior to the planned closure of SZC a programme of preparatory work will commence which will enable the site to safely and efficiently transition from a site which generates electricity to one that is focussed on decommissioning. Activities will include the preparation of regulatory documentation and planning application to enable the change in use of the site and will also include preparation of detailed decommissioning arrangements which explain how the site will safely and practically transition into the decommissioning phase.

This will include for example:

- Initiation of final fuel cycle,
- Preparation of final core safety case,
- Preparation of Detailed Decommissioning Plan and Near Term Work Plan,
- Preparation of any Transboundary Impact Assessments (replacing the former Article 37 Euratom Submission),
- Preparation of EIADR,
- Planning Application,
- Preparation of decommissioning arrangements,
- Preparation of decommissioning programme,
- Revisions to outage management,
- Revisions to maintenance schedule,
- Revisions to discharge and disposal authorisations,
- Revisions to licence compliance arrangements where appropriate, more specifically site safety management arrangements and plant modification proposals.
- In many cases regulatory approval of the submissions will be required, which may have long lead times. It is therefore anticipated that this activity will need to be commenced at least five years before the planned EoG.

3.3.2 Spent Fuel Management (Activity 1)

One of the key activities at the end of SZC's generating life is the removal and management of spent fuel. The scope of spent fuel management in decommissioning includes defueling the reactor, safe on-site interim storage and final disposal. Defueling of the reactor will be completed as soon as practicable following reactor shutdown.

The first major activity following cessation of generation at each reactor will be the defueling of the reactors and the transfer, following a period of cooling, of the spent fuel assemblies to the ISFS. This is a routine operation on an PWR reactor, which will have been carried out at regular intervals during the plant's operational life.

Defueling of the reactor will proceed as soon as practicable following reactor shutdown and will be completed as safely and efficiently as possible. The process will be undertaken using the existing fuel handling equipment, safety case and operational procedures. It is assumed that Unit 2 will cease generation about 18 months after Unit 1, and its reactor will then be defueled.

Complete core fuel removal from a PWR is a straightforward activity and it is expected that the fuel will be removed from the core within a few weeks of EoG. The fuel is still required to remain in storage in the Fuel Building Spent Fuel Pool for a period of approximately 3-4 years until the fuel has cooled sufficiently to enable its loading into Multi Purpose Canisters (MPCs) and its transfer to the on-site ISFS. It is assumed that procurement of MPCs will be an operational cost and that sufficient MPCs will be available at the end of generation to empty the full inventory of the pools.

Spent Fuel will remain on site until such time that the Geological Disposal Facility becomes available and is able to receive the spent fuel inventory which is expected to be approximately 55 years after final defueling activities have ceased. Prior to the spent fuel being transferred to the Geological Disposal Facility, the fuel is required to be repackaged and encapsulated into compliant containers suitable for disposal.

Towards the EoG and during decommissioning a number of additional buildings will be constructed to support the dry storage spent fuel strategy.

These include the:

- Spent Fuel Inspection and Repackaging Facility (SFIRF);
- Spent Fuel Encapsulation Facility (SFEF) (itself a conversion and extension of the SFIRF);
- Redundant Storage Canister Processing Facility (RSCPF).

A new inspection and repackaging facility will be constructed to enable this activity to be achieved. Presently it is assumed that this new facility is to be constructed on-site. However, given the proximity of SZB, there is an opportunity to have a shared facility between SZB and SZC sites which repackages spent fuel from both sites.

There will also be a decommissioning activity associated with the Spent Fuel Encapsulation Facility (SFEF) and the onsite ISFS. The site clearance and delicensing of the area of the site occupied by the ISFS will be carried out once the spent fuel has been removed from the store and transferred offsite.

3.3.3 Site Operation and Plant Preparation (Activity 2)

Whilst the reactor is being defueled other decommissioning work will proceed in parallel to de-energise and isolate systems that are no longer required to maintain the safe operation of the plant. Electrical systems will be isolated and made safe with all hazardous material removed as soon as is reasonably practicable. Some key activities that the plant will undergo include:

- the installation of a dedicated Active Effluent Discharge Line – to support authorised discharges to North Sea during the decommissioning period due to the change in discharge profile post EoG and the cessation of cooling water discharges;
- installation of an alternative electrical supply and electrical decommissioning distribution system – enables the isolation and decommissioning of redundant systems while allowing continued safe operation of the site;
- primary circuit decontamination – following defuelling the chemical treatment of the primary circuit (including all systems in contact with primary coolant e.g. reactor pumps, steam generator, vessel and internals) will facilitate onward decommissioning, minimise the generation of elevated levels of waste and reduce radiation dose to operators during decommissioning activities on or near the primary circuit. This activity utilises existing operating plant but will be complemented with a mobile chemical treatment facility which will be provided by external contractors and performed under contract. This activity will generate quantities of Ion Exchange Resin and secondary wastes which will require management.

Station resource levels required to safely operate and maintain the residual operational plant have been estimated and are captured in detail with the HPC (D)DWMP [4].

3.3.4 Management of Operational Wastes (Activity 3)

The plant is equipped with the necessary facilities for the retrieval and processing of its operational wastes. During operation of the site, packaged LLW will be disposed at a LLWR as soon as practicable, while the packaged ILW will be placed in the ILW Interim Storage Facility (ILWISF), awaiting EoG and the availability of the GDF to take the wastes. At the time of arising a proportion of ILW from the operation of SZC will be dominated by relatively short lived radionuclides. After a period of safe interim storage in the ILWISF the radioactivity of this portion of ILW will have decayed to such levels that will permit disposal of the waste as LLW. This will reduce the overall volume of ILW needing to be disposed of at the GDF.

For planning purposes, it is assumed that operational waste accumulations (except those arising during the last 2 years of operation) are processed prior to EoG. Consequently, the remaining operational waste will be retrieved and processed after EoG (i.e. the waste arising from the last 2 years of operation plus an amount of waste assumed equivalent to that from 5 years of operation). These operational wastes such as filters, sludge and ion-exchange materials will be retrieved at the earliest practicable opportunity after EoG. They will be processed using the existing operational waste processing facilities in preparation for their off-site disposal. In line with the FDP guidance Base Case assumptions, it is assumed that LLW will be dispatched to the LLWR. To ensure a robust and prudent cost for waste management and disposal all waste is assumed to be disposed of to the LLWR. However, SZC Co. will adopt the principles of optimisation, identification of BAT and application of the waste management hierarchy, such that disposal to the LLWR is just one of the potential management options.

The HPC DWMP assumed that all operational ILW would be packaged into French design C1 or C4 concrete casks. This assumption has been modified for the SZC waste strategy which now assumes that, with the exception of ILW Ion Exchange Resin which will continue to use the French design package, all other operational ILW will be packaged into standard UK 500L drums. The impact of this is set out in the table below.

Table 2 Operational ILW packaging assumptions

				Raw Waste Volumes (m3) per unit		Number of Packages Required per unit		Packaged Volume per unit (m3)	
Waste Stream	Container Type	Annual Raw Waste Volume per unit (m3)	Waste Loading per Drum (m3)	2 years before EoG	5 years after EoG	2 years before EoG	5 years after EoG	2 years before EoG	5 years after EoG
Ion exchange resin	C1 concrete cask	3	0.408	6	15	15	37	30	74
Spent cartridge filters – High activity	500 L drum	3.75	0.227	7.5	18.75	33	83	19.8	49.8
Spent cartridge filters – Low activity	500 L drum	1.25	0.227	2.5	6.25	11	28	6.6	16.8
Dry Active Waste >2mSv/hr	500 L drum	1	0.182	2	5	11	28	6.6	16.8
Wet sludges	500 L drum	1	0.133	2	5	15	38	9	22.8
Single Unit Total				20	50	85	214	72	180.2
Two Unit Total				40	100	170	428	144	360.4

It is assumed that all operational waste generated during the operating lifetime of the plant will have been removed from the site prior to the EoG. It is assumed that all LLW will be dispatched promptly to the LLWR or a successor facility. For ILW it is assumed that the Geological Disposal Facility is available to receive these wastes at the end of generation. All ILW arising from decommissioning activities will be packaged into compliant containers which will allow waste to be consigned directly to the Geological Disposal Facility. Furthermore, it is assumed that packaged ILW that is stored in the ILWISF can be retrieved and transferred directly to the Geological Disposal Facility.

Non Fuel Core Components

Some in core instrumentation, such as Self Powered Neutron Detectors (SPNDs) had previously been identified as ILW and it is now anticipated that these components are to be, in part, HLW at the point of generation. The volume of HLW is estimated to be a small proportion of the overall total of waste generated and the intent is for all HLW to be decay stored until such time that the inventory becomes ILW. HPC is currently undertaking a feasibility study to identify the BAT/ALARP approach in managing SPNDs during operations. Current thinking is to procure additional MPCs which will enable SPNDs to be removed and placed into interim storage within the ISFS. MPCs will be procured during the operational phase and are classified as a technical matter. Disposal of this waste remains a DTM. SZC will replicate the finalised approach once HPC has concluded its studies.

The strategy for management of Rod Cluster Control Assemblies (RCCAs) is unchanged from the HPC management assumption, namely that the RCCAs will be co-disposed with spent fuel assemblies in KBS-3 type copper canisters.

From a disposability and liabilities perspective, there is no change in cost from that captured within the HPC DWMP as it remains the case that these components will be managed and disposed of as ILW as captured in HPC's DWMP.

3.3.5 Plant Decommissioning (Activity 4)

This activity covers the complete decommissioning of all plant, equipment, buildings and facilities at the site as shown in Figure 5 and also covers the management of wastes arising from the process. Key aspects in this activity include:

- Decommissioning of the reactor, primary circuit and all other systems, structures and components in the Nuclear Island and processing of the waste that arises and their subsequent packaging for disposal and or recycling where appropriate.
- Decommissioning of non-radioactive plant and infrastructure which collectively represent the conventional island which includes all power generating plant, offices and welfare facilities. Off shore structures e.g. cooling water intake heads will be demolished to the sea bed with onshore sections of the cooling water tunnels backfilled.
- All structures, roads/hard standing areas, cable and pipe drains etc. will be removed to 1m below ground level. Basement areas will be punctured to permit free flow of groundwater and back filled with inert non-radioactive material generated from the demolition of civil infrastructure. This is consistent with accepted end states for a number of NDA sites including the Magnox reactor decommissioning estate.

Prompt decommissioning is a progressive approach that gradually reduces the demands and requirements on site services. Following final shutdown of the reactors the plant, systems and electrical equipment that are not required for safety reasons, or to support decommissioning activities, will become progressively redundant. These will be shut down and made safe by isolation and removal of any hazardous materials and/or stored energy as soon as reasonably practicable following EoG. Measures will be taken to dismantle and remove redundant plant with the objective of achieving a progressive reduction in hazard in a carefully controlled and systematic way. Once all systems and components have been removed radiological surveys of all the buildings will be undertaken and where necessary decontamination performed prior to conventional demolition.

A single facility, the Decommissioning Waste Management Facility (DWMF), will be constructed in the Turbine Hall of Unit 1 to serve the management of the decommissioning wastes from both Units. This facility will be decommissioned once the processing of wastes from the Nuclear Island is complete, thereby enabling the final demolition of the Turbine Hall of Unit 1. It is assumed that the DWMF will not be required for the processing of wastes arising from the decommissioning of the ISFS and the ILWISF. The scope of Activity 4 is captured in greater detail in HPC's (D)DWMP [4].

Similar to HPC's DWMP, the costs for disposal of ILW generated in decommissioning have been reported separately for fund assessment purposes. Costs associated with the decommissioning of the ISFS and spent fuel encapsulation facility are captured as part of Activity 1 to enable easy segregation of fuel management costs.

3.3.6 Site Clearance & Release for Re-use (Activity 5)

The end point and completion of the decommissioning process will be once all UK regulatory requirements have been met which will enable Nuclear Site license and the Environmental Permits to be surrendered. This will release the site from regulatory control and will be achieved through demonstration that :

1. Licence release criteria have been met to delicense the site,
2. The site has been returned to the agreed end state,
3. Demonstration that requirements under the Guidance on Requirements for Release from Radioactive Substances Regulation (GRR) have been met.

To achieve this a programme of site clearance monitoring, remediation and landscaping will be undertaken in two phases:

- RSR permit surrender and delicensing of the first and largest phase will be undertaken following completion of the decommissioning of the main power generating area and ILWISF.
- The second phase of delicensing and permit surrender will commence once all spent fuel has been removed from site and the facilities that were needed to house and inspect spent fuel are no longer needed and have been decommissioned.

It is assumed for liabilities planning purposes that the power generating site area's site licence will be terminated on completion of decommissioning of the plant and any activities necessary to enable SZC Co. to surrender the licence and permit will be carried out. The ISFS area of the site will be relicensed and re-permitted so that the facility can be transferred to another appropriate licensee/permit holder at the Transfer Date, to enable the continued storage of spent fuel pending dispatch to the Geological Disposal Facility under the Waste Transfer Contract. Upon completion of fuel despatch and decommissioning of the ISFS, a radiological and chemical survey will be undertaken and any necessary remediation carried out. At this stage it is assumed for liabilities estimation purposes that this area of the site will be delicensed and released from regulatory control.

For each phase, an environmental monitoring programme will be undertaken to check for the presence of any residual radiological or chemical hazards on the area of site concerned. On completion of any necessary ground remediation work, the site will be clearance monitored to check that all radioactive materials of regulatory concern have been removed from the site, and it can then be delicensed and environmental permits surrendered. On completion of the final phase, the site will be made available for re-use, thus completing the decommissioning process.

Since HPC's DWMP was issued in 2014, new guidance surrounding how nuclear sites can be released from GRR have been published. GRR requires some site specific deliverables such as a Site Wide Environmental Safety Case (SWESC) and a Waste Management Plan (WMP). In each case, the SZC Environment Case and Integrated Waste Strategy will inform and meet the requirements of the SWESC and WMP, respectively. The SZC RSR permit application makes a forward commitment to developing and maintaining a SWESC and WMP.

The scope of Activity 5 is captured in greater detail in HPC's (D)DWMP [4].

3.4 EPR Work Breakdown Structure (EPRWBS)

The purpose of the DWMP is to define the scope of work of the decommissioning project and to ensure that accurate and up to date estimates of the costs of decommissioning and waste management and disposal are provided, to demonstrate that prudent provision will be made to meet these costs. To deliver this an EPRWBS for SZC that aligns with the structure of the EPRWBS for HPC has been created. The EPRWBS for SZC defines all the engineering activities that need to be performed for SZC with both timing and duration of these activities. Aspects that contribute to the engineering activities, such as labour, materials and capital purchases (e.g. waste processing equipment) are also included to construct an overall programme cost estimate.

Many of the key buildings and facilities on the site are dedicated specifically to either Unit 1 or Unit 2, with a number of services, other facilities and buildings providing support to both units. The latter, along with site-based activities, services and facilities are designated as "common". This segregation between Unit 1, Unit 2 and Common facilities is reflected in the Work Breakdown Structure, Summary Decommissioning Schedule and the decommissioning and waste management cost estimates. The summary level schedule presented in section 5.1, shows the segregation of the work into these three designations, with the Unit 1 section of the schedule followed by that for Unit 2, concluding with the Common section of the schedule. This approach aligns with that of HPC and greater detail can be found in the HPC DWMP.

The EPRWBS for SZC is structured to set out the process of decommissioning each unit on the site and also the common facilities or site wide activities. Consequently, the EPRWBS is coded as 1.SZC.U1, 1.SZC.U2, 1.SZC.Com as appropriate with a further breakdown at the next level against each of the main decommissioning activities as shown in the table below.

Table 3 SZC's EPRWBS

EPRWBS Code	Description
1	EPR Fleet
1.SZC	SZC
1.SZC.XX	Unit (U1-Unit 1, U2-Unit 2 or Com -Common to both Units)
1.SZC.XX.00	Pre -Closure Preparatory Work (Activity 0)
1.SZC.XX.01	Fuel Management (Activity 01)
1.SZC.XX.02	Site Operation and Plant preparation (Activity 02)
1.SZC.XX.03	Management of Operational Wastes (Activity 03)
1.SZC.XX.04	Plant and Reactor Decommissioning (Activity 04)
1.SZC.XX.05	Site Clearance and Release for Reuse (activity 05)

The full work breakdown structure for SZC is set out in section 11.

3.5 EPR Cost Reporting Structure (EPRCRS)

The EPRCRS for SZC allows costs that have been developed for practical implementation under the work breakdown structure to be easily summarised in the form required by the FDP guidance [2].

Cost estimates for the DTMs are reported against the EPRCRS shown in section 11.4. This is closely based upon the structure given in the FDP guidance and includes some additional codes for internal reporting purposes. The SZC EPRCRS is very closely related to the EPRCRS used for HPC.

4 TECHNICAL MATTERS, OPERATIONAL DESIGNATED TECHNICAL MATTERS AND DESIGNATED TECHNICAL MATTERS

Any operator of a nuclear power station is required to meet its obligations in dealing with all waste that it produces and ensuring that the site can be decommissioned and remediated in line within UK regulations and licensing requirements. The FDP guidance states that operators must have in place plans for decommissioning and have prudent financial provision to meet the full costs. The DWMP (which is a part of the FDP) must set out:

- details of the steps to be taken in relation to the Technical Matters; and,
- estimates of the costs likely to be incurred in connection with the DTMs.

The scope of the SZC DWMP includes areas of the work which are Technical Matters, but which are not classified as DTMs. Non-Designated Technical Matters are captured in section 9 because they impact upon the DTMs and complete the picture of activities that are required to deliver the decommissioning plan.

Some DTMs, including construction and maintenance of waste and spent fuel interim storage facilities, are further categorised as Operational Designated Technical Matters. Further clarification surrounding the introduction of this category is provided within the HPC FAP [11] and additional clarity about each of the categories is provided below.

Figure 7 provides definitions and Table 4 shows the separation of each of the categories and how they are captured within this DWMP.

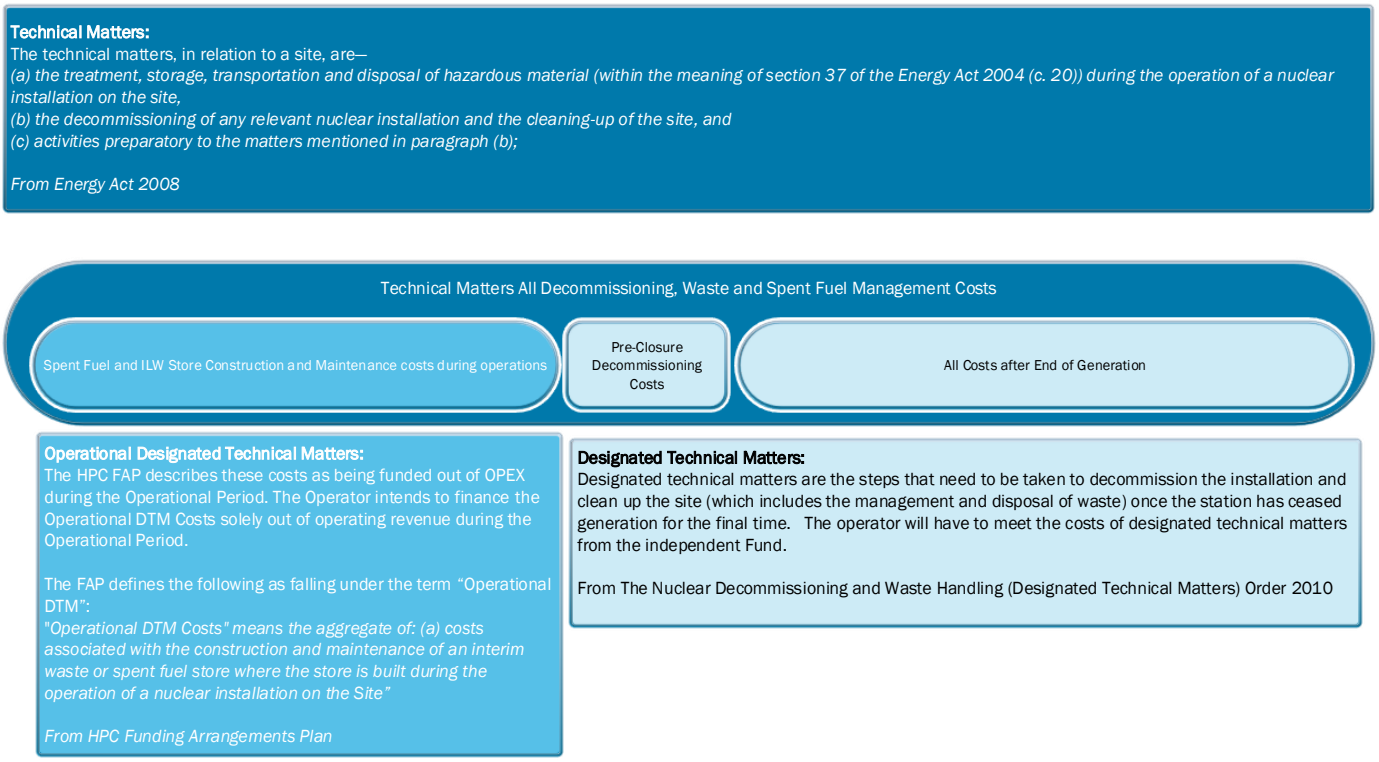

Figure 7 Categories of Technical Matters from HPC's FAP

Technical Matters

The technical matters are the steps set out in the DWMP relating to the decommissioning of the power station, cleaning up of the site, and waste management and disposal activities. The requirement that these be set out is intended to meet the overall objective of the FDP that operators make prudent provision for the full costs of decommissioning their installations; and their full share of safely and securely managing and disposing their waste, and that in doing so the risk of recourse to public funds is remote at all times.

Designated Technical Matters

DTMs are defined as the steps that need to be taken to decommission the installation and clean up the site (which includes the management and disposal of waste) after EoG. The Nuclear Decommissioning and Waste Handling Order 2010 (the Order) [12] clarified that certain steps undertaken before EoG were also defined as DTMs including the construction and maintenance of an interim store (unless initially constructed as part of the station [2]) and any activity preparatory to the decommissioning of a relevant nuclear installation and the cleaning up of the site. However, since the 2010 Order [12] the HPC FAP [11] clarified that DTMs could be further split to incorporate a category of "Operational Designated Technical Matters", described below. SZC's FAP will follow the same approach and terminology.

Operational Designated Technical Matters

The costs associated with the construction and maintenance of the interim waste and spent fuel stores, where the store is built during the operation phase, are defined as Operational Designated Technical Matters, this allows for the funding of these costs from operational revenue rather than from the decommissioning fund. It is anticipated that the SZC FAP will largely replicate the HPC FAP, which describes these costs as being funded out of OPEX during the Operational Period. The Operator intends to finance the Operational DTM Costs solely out of operating revenue during the Operational Period.

The Technical Matters are the steps to be set out in the DWMP relating to the decommissioning of the nuclear power station, cleaning up of the site, and waste management and disposal activities. The key difference between the Non-Designated Technical Matters, Operational Designated Technical Matters, and DTMs is that the costs of Non-Designated Technical Matters and Operational Designated Technical Matters will be met by SZC Co. from operational revenue, while the costs of DTMs must be met by the independent fund provided for by the FAP.

The costs of Non-Designated Technical Matters and Operational Designated Technical Matters are not met from the SZC FDP Fund and are therefore not subject to the terms of the FAP. However, the DWMP describes the steps to be taken in relation to the Non-Designated Technical Matters as well as the DTMs to demonstrate that it presents realistic, clearly defined and achievable plans. Where Technical Matters are unique to SZC or their management differs from the current HPC DWMP, they are fully described in this document.

The split of Technical Matters, Operational Designated Technical Matters, and DTMs is presented in Table 4.

Table 4 The split of Technical Matters, Operational Designated Technical Matters, and DTMs

Activity	Technical Matters funded through Operational Revenue	Operational Designated Technical Matters funded through Operational Revenue	DTMs funded through the Decommissioning Fund
Pre-closure Planning			X
Plant Decommissioning			
- Construction of Decommissioning Waste Management Facility			X
- Conventional Island Decommissioning – all plant, equipment and facilities			X
- Nuclear Island Decommissioning – all plant, equipment and facilities			X
Site Clearance and Release for Re-use			X
Operational and Decommissioning Waste Management			
Operational LLW produced, retrieved, processed and disposed during operations			
- Retrieval, Processing, Transport and Disposal costs covered by operational revenue	X		
Operational LLW produced during operation, retrieved and processed after EoG			
- Operational LLW Retrieval and processing	X		
- Operational LLW Transport	X		
- Operational LLW disposal	X		
Operational ILW			
- Op ILW Store Construction		X	
- Op ILW Store Maintenance during operation		X	
- Op ILW Retrieval and processing during operation	X		
- Op ILW Store Operation during operation	X		
- Op ILW Store Operation after EoG			X
- Op ILW Retrieval and processing after EoG			X
- Op ILW Store Emptying and Waste Transport after EoG			X
- Op ILW disposal			X
Packaging of Non Fuel Core Components	X		

Activity	Technical Matters funded through Operational Revenue	Operational Designated Technical Matters funded through Operational Revenue	DTMs funded through the Decommissioning Fund
Decommissioning LLW produced after EoG retrieved and processed during decommissioning			
- Decommissioning LLW Retrieval and processing			X
- Decommissioning LLW Transport			X
- Decommissioning LLW Waste disposal			X
Decommissioning ILW produced after EoG retrieved and processed during decommissioning			
- Decommissioning ILW Retrieval and processing			X
- Decommissioning ILW Transport			X
- Decommissioning ILW Waste disposal			X
Spent Fuel Management			
Spent Fuel			
- All fuel handling activities prior to EoG of R1	X		
- After EoG R1, all R1 fuel handling activities			X
- All fuel handling activities prior to EoG R2	X		
- After EoG R2, all R2 fuel handling activities			X
- Design and construct Interim Spent Fuel Store (ISFS)		X	
- Maintenance of Spent Fuel Store during Operation		X	
- ISFS operation Pre-EoG	X		
- Conversion of ISFS to independent operation			X
- ISFS operation post EoG			X
- ISFS operation post EoG – ILW & LLW Management & Disposal.			X
- ISFS emptying, and decommissioning			X
- Spent Fuel Inspection and Repackaging Facility design, construction, operation, decommissioning			X
- Spent Fuel Disposal			X

Following the review of the HPC DWMP [3] during 2019, it was concluded that the DTMs for SZC were broadly similar to those for HPC, owing to the replication strategy and reuse of the HPC design.

The HPC DWMP [3] (2014) does not capture the change to a dry store strategy. Construction of a Spent Fuel Inspection and Repackaging Facility (SFIRF) is the main addition to the DTMs from those recorded within the current HPC submission. Under the wet storage strategy, fuel inspection would have been performed within large storage pools and as a result there was no need for an inspection facility. The addition of a SFIRF adds an

additional DTM and ensures that the capacity to inspect and repackage spent fuel on-site remains available up until spent fuel is removed from site and disposed at the Geological Disposal Facility (GDF). The costs and schedule for the SFIRF operations and decommissioning have been developed as part of the SZC DWMP process and will be updated for HPC at the as-built submission. This will bring the underpinning of the SZC DWMP back in line with the reference HPC submission.

5 SITE SUMMARY LEVEL SCHEDULE

Many of the key buildings and facilities on the site are dedicated specifically to either Unit 1 or Unit 2, with a number of services, other facilities and buildings providing support to both units. The latter, along with site-based activities, services and facilities are designated as "common". This segregation between Unit 1, Unit 2 and Common facilities is reflected in the Work Breakdown Structure, summary decommissioning schedule and the decommissioning and waste management cost estimates. The summary level schedule presented, shows the segregation of the work into these three designations, with the Unit 1 section of the schedule followed by that for Unit 2, concluding with the Common section of the schedule. The more extensive Common section of the schedule includes work that is not specific to a single unit, such as the Pre-Closure Planning, most of the fuel management work, the site operational and overhead costs, and corporate support. Reference to the Gantt chart (overleaf – section 5.1), shows that the decommissioning plan is fully integrated across the site as shown by the overlap of work classified within these three designations. Use of a consistent EPRWBS code facilitates clear linkage between scope, schedule and cost between both SZC and HPC DWMPs (and HPC's (D)DWMP).

For planning purposes, and subject to the terms of the WTC and the actual construction and operational timescales for SZC, the following key dates and periods are assumed as the basis of the schedule and cost assessment included within this DWMP:

- Unit 1 EoG - 1st December 2092
- Unit 2 EoG – 1st June 2094
- Disposal date for ILW – from 2092
- Fuel Cooling period of final core after EoG - 55 Years
- Transfer Date for Spent Fuel – September 2113 (Note: this is the expected date of transfer of title, under the WTC, to HMG of the Spent Fuel in the ISFS)
- Disposal date for Spent Fuel commences – December 2147

Units 1 and 2 EoG dates are based on the 60 year design life of the EPR. Unit 1 will commence generation 18 months earlier than Unit 2 and this is reflected in the earlier end of generation date. It is assumed for liability planning purposes that the power generating site area's site licence will be terminated on completion of decommissioning of the plant and any activities necessary to enable SZC Co. to terminate the licence will be carried out. The ISFS area of the site will be relicensed so that the facility can be transferred to another appropriate licensee at the Transfer Date, to enable the continued safe storage of spent fuel pending dispatch to the GDF under the WTC.

These milestones are important inputs for the generation of the data required by the FAP and WTC to perform the contribution calculations for the production of the contributions notice at each Annual Review and Quinquennial Review. The Unit 1 and 2 EoG dates are used to allow for the categorisation as either Pre-closure Decommissioning Planning or the cost of Decommissioning.

The Transfer Date for Spent Fuel is used to categorise costs to the Spent Fuel Management category. At this date the SZC site will consist of only the Interim Spent Fuel Store containing the full inventory of SZC spent fuel. The site previously occupied by the SZC reactors and their ancillary buildings, including the ILW Interim Storage Facility, will have been decommissioned and delicensed and the ISFS will have been relicensed and will be operating autonomously. It is assumed that on this date Title transfer is implemented under the Spent Fuel WTC.

5.1 DWMP Decommissioning Schedule for SZC

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SIZEWELL C NUCLEAR POWER STATION
DECOMMISSIONING AND WASTE MANAGEMENT PLAN
SITE SUMMARY - DECOMMISSIONING AND SPENT FUEL MANAGEMENT
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Activity ID	Activity Name	Start	Finish
EPRWBS: 1	EDF ENERGY NNB GenCo NUCLEAR FLEET	02-Dec-2032	22-Jan-2160
EPRWBS: 1.SZC	Sizewell C	02-Dec-2032	22-Jan-2160
SZC-KM001	Commence Pre-Closure Preparatory Work	01-Dec-2087	
SZC-KM005	Unit 1 End of Generation	01-Dec-2092	
SZC-KM010	Unit 2 End of Generation	01-Jun-2094	
SZC-KM015	End of SZC Power Plant Area Decommissioning		28-Sep-2113
SZC-KM020	SZC Transfer Date		28-Sep-2113*
SZC-KM025	Commence Fuel Disposal	04-Dec-2147	
SZC-KM030	Complete Fuel Disposal		20-Jan-2157
SZC-KM035	Completion of Decommissioning & Delicencing of SZC Site		15-Jan-2160
EPRWBS: 1.SZC.U1	UNIT 1	27-Mar-2092	28-Sep-2113
EPRWBS: 1.SZC.U1.00	PRE CLOSURE PREPARATORY WORK (Activity 0)	01-Dec-2092	01-Dec-2092
EPRWBS: 1.SZC.U1.00.000	Activity 0 Key Date Milestones	01-Dec-2092	01-Dec-2092
EPRWBS: 1.SZC.U1.00.000.005	Key Date Milestones	01-Dec-2092	01-Dec-2092
EPRWBS: 1.SZC.U1.01	FUEL MANAGEMENT (Activity 01)	02-Dec-2092	29-Nov-2096
EPRWBS: 1.SZC.U1.01.000	Activity 1 Milestones	29-Nov-2096	29-Nov-2096
EPRWBS: 1.SZC.U1.01.000.005	Key Date Milestones	29-Nov-2096	29-Nov-2096
EPRWBS: 1.SZC.U1.01.015	Reactor Defuelling and Fuel Despatch	02-Dec-2092	29-Nov-2096
EPRWBS: 1.SZC.U1.01.015.005	Fuel Removal Operations from Reactor	02-Dec-2092	10-Dec-2092
EPRWBS: 1.SZC.U1.01.015.010	Fuel Storage in Cooling Pond	02-Dec-2092	30-Nov-2095
EPRWBS: 1.SZC.U1.01.015.015	Multi Purpose Canister (MPC) loaded and despatch (from Fuel Buildings Spent Fuel Pool to the ISFS)	01-Dec-2095	29-Nov-2096
EPRWBS: 1.SZC.U1.02	SITE OPERATION & PLANT PREPARATION (Activity 02)	27-Mar-2092	28-Sep-2113
EPRWBS: 1.SZC.U1.02.000	Activity 2 Milestones	02-Dec-2092	29-Nov-2096
EPRWBS: 1.SZC.U1.02.000.010	Activity Milestones	02-Dec-2092	29-Nov-2096
EPRWBS: 1.SZC.U1.02.001	Making Safe Redundant Systems & Plant	02-Dec-2092	28-Sep-2113
EPRWBS: 1.SZC.U1.02.001.000	Non Maintenance Group Specific	02-Dec-2092	28-Sep-2113
EPRWBS: 1.SZC.U1.02.003	Primary Circuit Decontamination (PCD)	27-Mar-2092	26-Jul-2094
EPRWBS: 1.SZC.U1.02.003.005	PCD Engineering Design	27-Mar-2092	10-Sep-2092
EPRWBS: 1.SZC.U1.02.003.010	PCD Installation and Commissioning	02-Dec-2092	02-Nov-2093
EPRWBS: 1.SZC.U1.02.003.015	PCD Operations	03-Nov-2093	26-Jul-2094
EPRWBS: 1.SZC.U1.02.003.025	PCD Waste Management	03-Nov-2093	15-Mar-2094
EPRWBS: 1.SZC.U1.02.045	Site Plant Maintenance during Decommissioning	02-Dec-2092	28-Sep-2113
EPRWBS: 1.SZC.U1.02.045.020	During Plant Decommissioning	02-Dec-2092	28-Sep-2113
EPRWBS: 1.SZC.U1.02.050	Plant Operations During Decommissioning	02-Dec-2092	28-Sep-2113
EPRWBS: 1.SZC.U1.02.050.020	During Plant Decommissioning	02-Dec-2092	28-Sep-2113
EPRWBS: 1.SZC.U1.03	MANAGEMENT OPERATIONAL WASTES (Activity 03)	02-Dec-2092	26-Nov-2097
EPRWBS: 1.SZC.U1.03.005	Retrieval, Processing, Transport and Disposal	02-Dec-2092	26-Nov-2097
EPRWBS: 1.SZC.U1.03.005.005	ILW Operational Waste	02-Dec-2092	26-Nov-2097
EPRWBS: 1.SZC.U1.03.005.010	LLW Operational Waste	02-Dec-2092	26-Nov-2097
EPRWBS: 1.SZC.U1.04	PLANT & REACTOR DECOMMISSIONING (Activity 04)	02-Dec-2092	29-Jul-2112
EPRWBS: 1.SZC.U1.04.000	Activity 4 Milestones	02-Dec-2092	12-May-2111
EPRWBS: 1.SZC.U1.04.000.005	Key Date Milestones	02-Dec-2092	12-May-2111
EPRWBS: 1.SZC.U1.04.005	Nuclear Island (NI)	02-Dec-2092	22-Aug-2110
EPRWBS: 1.SZC.U1.04.005.005	Reactor Building	01-Nov-2095	22-Jul-2109
EPRWBS: 1.SZC.U1.04.005.010	Fuel Building	30-Nov-2096	18-Oct-2106
EPRWBS: 1.SZC.U1.04.005.015	Safeguard Buildings	30-Nov-2096	02-Oct-2098
EPRWBS: 1.SZC.U1.04.005.020	Safeguard Mechanical Buildings	16-Dec-2104	03-May-2106
EPRWBS: 1.SZC.U1.04.005.025	Nuclear Auxiliary Building	20-Dec-2101	18-Oct-2106
EPRWBS: 1.SZC.U1.04.005.035	Other Nuclear Island Buildings	02-Dec-2092	20-Nov-2103
EPRWBS: 1.SZC.U1.04.005.040	Access Building	14-Mar-2102	07-Apr-2104
EPRWBS: 1.SZC.U1.04.005.045	Waste / Effluent Building (HOA / HOB)	16-Feb-2105	15-Jan-2106
EPRWBS: 1.SZC.U1.04.005.050	Backup Diesels	16-Apr-2103	15-Aug-2104
EPRWBS: 1.SZC.U1.04.005.055	Functional Simplification	02-Dec-2092	04-Oct-2094
EPRWBS: 1.SZC.U1.04.005.060	New Works	02-Dec-2092	02-Nov-2093
EPRWBS: 1.SZC.U1.04.005.065	Dismantling Preparation	02-Dec-2092	06-Aug-2096
EPRWBS: 1.SZC.U1.04.005.070	Nuclear Island Demolition Support	10-Apr-2103	22-Jul-2109
EPRWBS: 1.SZC.U1.04.005.075	Nuclear Island Dismantling Secondary Wastes	02-Dec-2092	22-Aug-2110
EPRWBS: 1.SZC.U1.04.010	Conventional Island (CI)	02-Dec-2092	12-May-2111
EPRWBS: 1.SZC.U1.04.010.005	Turbine Hall	02-Dec-2092	03-May-2106
EPRWBS: 1.SZC.U1.04.010.010	Other Conventional Island Buildings	25-Aug-2110	12-May-2111
EPRWBS: 1.SZC.U1.04.015	Balance Of Plant (BOP)	30-Nov-2096	29-Jul-2112
EPRWBS: 1.SZC.U1.04.015.005	CW System	30-Nov-2096	25-Mar-2101
EPRWBS: 1.SZC.U1.04.015.010	Other Balance of Plant	26-Nov-2110	29-Jul-2112
EPRWBS: 1.SZC.U2	UNIT 2	01-Jun-2094	28-Sep-2113
EPRWBS: 1.SZC.U2.00	PRE CLOSURE PREPARATORY WORK (Activity 0)	01-Jun-2094	01-Jun-2094
EPRWBS: 1.SZC.U2.00.000	Activity 0 Key Date Milestones	01-Jun-2094	01-Jun-2094
EPRWBS: 1.SZC.U2.00.000.005	Key Date Milestones	01-Jun-2094	01-Jun-2094
EPRWBS: 1.SZC.U2.01	FUEL MANAGEMENT (Activity 01)	01-Jun-2094	30-May-2098
EPRWBS: 1.SZC.U2.01.000	Activity 1 Milestones	30-May-2098	30-May-2098
EPRWBS: 1.SZC.U2.01.000.005	Key Date Milestones	30-May-2098	30-May-2098
EPRWBS: 1.SZC.U2.01.015	Reactor Defuelling and Fuel Despatch	01-Jun-2094	30-May-2098
EPRWBS: 1.SZC.U2.01.015.005	Fuel Removal Operations from Reactor	01-Jun-2094	09-Jun-2094

◆ Milestone
Summary

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SIZEWELL C NUCLEAR POWER STATION
DECOMMISSIONING AND WASTE MANAGEMENT PLAN
SITE SUMMARY - DECOMMISSIONING AND SPENT FUEL MANAGEMENT
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Activity ID	Activity Name	Start	Finish
	EPRWBS: 1.SZC.U2.01.015.010 Fuel Storage in Cooling Pond	01-Jun-2094	30-May-2097
	EPRWBS: 1.SZC.U2.01.015.015 Multi Purpose Canister (MPC) loaded and despatch (from Fuel Buildings Spent Fuel Pool to the ISFS)	31-May-2097	30-May-2098
	EPRWBS: 1.SZC.U2.02 SITE OPERATION & PLANT PREPARATION (Activity 02)	01-Jun-2094	28-Sep-2113
	EPRWBS: 1.SZC.U2.02.000 Activity 2 Milestones	01-Jun-2094	30-May-2098
	EPRWBS: 1.SZC.U2.02.000.010 Activity Milestones	01-Jun-2094	30-May-2098
	EPRWBS: 1.SZC.U2.02.001 Making Safe Redundant Systems & Plant	01-Jun-2094	28-Sep-2113
	EPRWBS: 1.SZC.U2.02.001.000 Non Maintenance Group Specific	01-Jun-2094	28-Sep-2113
	EPRWBS: 1.SZC.U2.02.003 Primary Circuit Decontamination (PCD)	01-Jun-2094	27-Jun-2095
	EPRWBS: 1.SZC.U2.02.003.010 PCD Installation and Commissioning	01-Jun-2094	02-May-2095
	EPRWBS: 1.SZC.U2.02.003.015 PCD Operations	03-May-2095	27-Jun-2095
	EPRWBS: 1.SZC.U2.02.003.025 PCD Waste Management	03-May-2095	30-May-2095
	EPRWBS: 1.SZC.U2.02.045 Site Plant Maintenance during Decommissioning	01-Jun-2094	28-Sep-2113
	EPRWBS: 1.SZC.U2.02.045.020 During Plant Decommissioning	01-Jun-2094	28-Sep-2113
	EPRWBS: 1.SZC.U2.02.050 Plant Operations During Decommissioning	01-Jun-2094	28-Sep-2113
	EPRWBS: 1.SZC.U2.02.050.020 During Plant Decommissioning	01-Jun-2094	28-Sep-2113
	EPRWBS: 1.SZC.U2.03 MANAGEMENT OPERATIONAL WASTES (Activity 03)	01-Jun-2094	26-May-2099
	EPRWBS: 1.SZC.U2.03.005 Retrieval, Processing, Transport and Disposal	01-Jun-2094	26-May-2099
	EPRWBS: 1.SZC.U2.03.005.005 ILW Operational Waste	01-Jun-2094	26-May-2099
	EPRWBS: 1.SZC.U2.03.005.010 LLW Operational Waste	01-Jun-2094	26-May-2099
	EPRWBS: 1.SZC.U2.04 PLANT & REACTOR DECOMMISSIONING (Activity 04)	01-Jun-2094	12-Aug-2112
	EPRWBS: 1.SZC.U2.04.000 Activity 4 Milestones	01-Jun-2094	12-Aug-2112
	EPRWBS: 1.SZC.U2.04.000.005 Key Date Milestones	01-Jun-2094	12-Aug-2112
	EPRWBS: 1.SZC.U2.04.005 Nuclear Island (NI)	01-Jun-2094	22-Aug-2110
	EPRWBS: 1.SZC.U2.04.005.005 Reactor Building	02-Jan-2096	22-Aug-2110
	EPRWBS: 1.SZC.U2.04.005.010 Fuel Building	02-Jun-2098	17-Dec-2106
	EPRWBS: 1.SZC.U2.04.005.015 Safeguard Buildings	02-Jun-2098	02-Jul-2106
	EPRWBS: 1.SZC.U2.04.005.025 Nuclear Auxiliary Building	20-Feb-2102	18-Nov-2107
	EPRWBS: 1.SZC.U2.04.005.035 Other Nuclear Island Buildings	01-Jun-2094	21-Jan-2104
	EPRWBS: 1.SZC.U2.04.005.040 Access Building	15-May-2102	06-Jun-2104
	EPRWBS: 1.SZC.U2.04.005.045 Waste / Effluent Building (HQC)	20-Feb-2102	15-Jan-2106
	EPRWBS: 1.SZC.U2.04.005.050 Backup Diesels	11-Jun-2103	07-Nov-2104
	EPRWBS: 1.SZC.U2.04.005.055 Functional Simplification	01-Jun-2094	30-Dec-2095
	EPRWBS: 1.SZC.U2.04.005.060 New Works	01-Jun-2094	02-May-2095
	EPRWBS: 1.SZC.U2.04.005.065 Dismantling Preparation	01-Jun-2094	03-Feb-2098
	EPRWBS: 1.SZC.U2.04.005.070 Nuclear Island Demolition Support	11-Jun-2103	22-Aug-2110
	EPRWBS: 1.SZC.U2.04.005.075 Nuclear Island Dismantling Secondary Wastes	01-Jun-2094	22-Aug-2110
	EPRWBS: 1.SZC.U2.04.010 Conventional Island (CI)	01-Jun-2094	12-May-2111
	EPRWBS: 1.SZC.U2.04.010.005 Turbine Hall	01-Jun-2094	31-Jan-2096
	EPRWBS: 1.SZC.U2.04.010.010 Other Conventional Island Buildings	25-Aug-2110	12-May-2111
	EPRWBS: 1.SZC.U2.04.015 Balance Of Plant (BOP)	02-Jun-2098	12-Aug-2112
	EPRWBS: 1.SZC.U2.04.015.005 CW System	02-Jun-2098	25-Mar-2101
	EPRWBS: 1.SZC.U2.04.015.010 Other Balance of Plant	26-Nov-2110	12-Aug-2112
	EPRWBS: 1.SZC.COM COMMON PLANT	02-Dec-2032	22-Jan-2160
	EPRWBS: 1.SZC.COM.00 PRE CLOSURE PREPARATORY WORK (Activity 0)	01-Dec-2087	01-Jun-2094
	EPRWBS: 1.SZC.COM.00.000 Activity 0 Key Date Milestones	01-Dec-2087	01-Jun-2094
	EPRWBS: 1.SZC.COM.00.001 Strategic Review and Decommissioning Plan Development	01-Dec-2087	01-Dec-2092
	EPRWBS: 1.SZC.COM.00.015 Environmental Impact Statement	31-Oct-2089	26-Jul-2091
	EPRWBS: 1.SZC.COM.00.020 National & Local Planning Permission	23-Jul-2091	08-Sep-2092
	EPRWBS: 1.SZC.COM.00.025 Article 37 Submission	28-Nov-2089	28-Sep-2091
	EPRWBS: 1.SZC.COM.00.045 Revise Station Maintenance Schedule	28-Nov-2089	31-May-2094
	EPRWBS: 1.SZC.COM.00.050 Revise Discharge Authorisations	29-Nov-2090	03-Feb-2093
	EPRWBS: 1.SZC.COM.00.060 Programme Management Development	01-Dec-2087	22-Jul-2089
	EPRWBS: 1.SZC.COM.00.070 Pre-Closure Planning Staffing Requirements	01-Dec-2087	27-Nov-2092
	EPRWBS: 1.SZC.COM.00.200 Environmental Monitoring programme	27-Nov-2090	02-Feb-2091
	EPRWBS: 1.SZC.COM.00.200.010 Environmental Monitoring	27-Nov-2090	02-Feb-2091
	EPRWBS: 1.SZC.COM.01 FUEL MANAGEMENT (Activity 01)	02-Jan-2040	22-Jan-2160
	EPRWBS: 1.SZC.COM.01.000 Activity 1 Milestones	02-Jun-2098	21-Jan-2157
	EPRWBS: 1.SZC.COM.01.015 Reactor Defuelling and Fuel Despatch	02-Jan-2040	22-Jan-2160
	EPRWBS: 1.SZC.COM.01.015.002 Design and Construction of the ISFS	02-Jan-2040	20-Dec-2047
	EPRWBS: 1.SZC.COM.01.015.003 Interim Spent Fuel Store Operations during power generation (incl early MPC Purchase)	23-Dec-2047	28-Nov-2092
	EPRWBS: 1.SZC.COM.01.015.016 Design and Construction of the SFIRF	10-Jun-2087	27-May-2097
	EPRWBS: 1.SZC.COM.01.015.018 Operation of SFIRF	03-Jun-2098	12-Apr-2137
	EPRWBS: 1.SZC.COM.01.015.020 Replacement of essential services to enable operation of fuel facilities, conversion of IFSD/SFIRF to autonomo	28-Nov-2095	23-Nov-2096
	EPRWBS: 1.SZC.COM.01.015.022 Relicense Autonomous ISFS/ISFIRF	30-Nov-2093	04-Apr-2095
	EPRWBS: 1.SZC.COM.01.015.025 Operation of the ISFS/SFIRF	01-Dec-2092	20-Jan-2157
	EPRWBS: 1.SZC.COM.01.015.030 Spent Fuel Transport and Disposal	04-Dec-2147	20-Jan-2157
	EPRWBS: 1.SZC.COM.01.015.035 Interim Spent Fuel Store Decommissioning	21-Jan-2157	18-Jan-2159
	EPRWBS: 1.SZC.COM.01.015.037 SFEF/RSCPF Planning	08-Dec-2140	05-Dec-2142
	EPRWBS: 1.SZC.COM.01.015.040 Conversion and extension of the SFIRF into the SFEF and design and construction of RSCPF	16-Apr-2136	29-Nov-2147
	EPRWBS: 1.SZC.COM.01.015.045 Operation of the SFEF and RSCPF	04-Dec-2147	21-Jan-2157
	EPRWBS: 1.SZC.COM.01.015.050 SFEF and RSCPF Decommissioning	21-Jan-2157	22-Jan-2160
	EPRWBS: 1.SZC.COM.02 SITE OPERATION & PLANT PREPARATION (Activity 02)	01-Dec-2087	17-Jan-2160
	EPRWBS: 1.SZC.COM.02.000 Activity 2 Milestones	01-Dec-2087	26-Feb-2159

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SIZEWELL C NUCLEAR POWER STATION
DECOMMISSIONING AND WASTE MANAGEMENT PLAN
SITE SUMMARY - DECOMMISSIONING AND SPENT FUEL MANAGEMENT
UP TO 2113 - Rev 2.0

Activity ID	Activity Name	Start	Finish
EPRWBS: 1.SZC.COM.02.010	Activity 2 Staffing Levels	02-Dec-2092	16-Aug-2113
EPRWBS: 1.SZC.COM.02.030	New Decommissioning Electrical Supply & Electrical Distribution System (DSEDS)	02-Dec-2092	26-Aug-2098
EPRWBS: 1.SZC.COM.02.030.010	New Decommissioning Site Incoming Electrical Supply (DSIES)	02-Dec-2092	08-Sep-2094
EPRWBS: 1.SZC.COM.02.030.020	New Decommissioning Site Electrical Distribution System (DSEDS)	09-Sep-2094	26-Aug-2098
EPRWBS: 1.SZC.COM.02.035	Active Waste Treatment System	02-Dec-2092	03-Oct-2110
EPRWBS: 1.SZC.COM.02.035.040	New Effluent Discharge Arrangements	02-Dec-2092	03-Oct-2110
EPRWBS: 1.SZC.COM.02.050	Plant Operations During Decommissioning	24-Nov-2092	23-Sep-2112
EPRWBS: 1.SZC.COM.02.050.020	During Plant Decommissioning	24-Nov-2092	23-Sep-2112
EPRWBS: 1.SZC.COM.02.100	Site Overheads	01-Dec-2087	17-Jan-2160
EPRWBS: 1.SZC.COM.02.100.020	Site Management & Arrangements, Facilities, Services and Admin	02-Dec-2092	28-Sep-2113
EPRWBS: 1.SZC.COM.02.100.030	Operations and Project Support to Decommissioning	01-Dec-2087	28-Sep-2113
EPRWBS: 1.SZC.COM.02.100.050	Records & Knowledge Management for Decommissioning	26-Nov-2091	19-Aug-2145
EPRWBS: 1.SZC.COM.02.100.060	Project Management (Operations and Project Support)	02-Dec-2092	28-Sep-2113
EPRWBS: 1.SZC.COM.02.100.070	Programme Management and Controls	01-Dec-2087	28-Sep-2113
EPRWBS: 1.SZC.COM.02.100.080	Site Staff Redundancy costs	01-Dec-2092	17-Jan-2160
EPRWBS: 1.SZC.COM.02.100.200	Environmental Management	02-Dec-2092	28-Sep-2113
EPRWBS: 1.SZC.COM.02.200	Corporate Support Costs	01-Dec-2087	15-Jan-2160
EPRWBS: 1.SZC.COM.02.200.010	Corporate Staff Support	01-Dec-2092	15-Jan-2160
EPRWBS: 1.SZC.COM.02.200.020	Regulatory Costs	01-Dec-2087	15-Jan-2160
EPRWBS: 1.SZC.COM.02.200.030	Civil Nuclear Constabulary Costs	02-Dec-2092	20-Jan-2157
EPRWBS: 1.SZC.COM.02.200.040	Fundco Operating Costs	01-Dec-2092	27-Sep-2114
EPRWBS: 1.SZC.COM.02.200.050	DECC Charges	01-Dec-2092	27-Sep-2114
EPRWBS: 1.SZC.COM.02.200.070	Insurance Costs During Decommissioning & Spent Fuel Management	01-Dec-2092	28-Sep-2113
EPRWBS: 1.SZC.COM.03	MANAGEMENT OPERATIONAL WASTES (Activity 03)	02-Dec-2092	30-Apr-2105
EPRWBS: 1.SZC.COM.03.000	Activity 3 Milestones	02-Dec-2092	30-Apr-2105
EPRWBS: 1.SZC.COM.03.000.005	Key Date Milestones	02-Dec-2092	30-Apr-2105
EPRWBS: 1.SZC.COM.03.020	ILW Interim Storage Facility (ILW ISF)	02-Dec-2092	19-Sep-2095
EPRWBS: 1.SZC.COM.03.020.005	ILWISF - Design & Build (Technical Matter)	02-Dec-2092	02-Dec-2092
EPRWBS: 1.SZC.COM.03.020.015	ILWISF - Store Emptying	04-Dec-2091	30-May-2095
EPRWBS: 1.SZC.COM.03.020.020	Interim Waste Storage - Decommission & Demolition	31-May-2095	19-Sep-2095
EPRWBS: 1.SZC.COM.03.025	Active Waste Treatment Systems	02-Mar-2093	30-Apr-2105
EPRWBS: 1.SZC.COM.03.025.060	Mobile AETP	02-Mar-2093	30-Apr-2105
EPRWBS: 1.SZC.COM.04	PLANT & REACTOR DECOMMISSIONING (Activity 04)	02-Dec-2092	23-Sep-2112
SZC.04.A12	Demolition of Balance of Conventional Plant	19-Sep-2112	23-Sep-2112
EPRWBS: 1.SZC.COM.04.000	Activity 4 Milestones	02-Dec-2092	23-Sep-2112
EPRWBS: 1.SZC.COM.04.000.005	Key Date Milestones	02-Dec-2092	23-Sep-2112
EPRWBS: 1.SZC.COM.04.005	Nuclear Island (NI)	20-Feb-2102	13-Apr-2103
EPRWBS: 1.SZC.COM.04.005.045	Waste / Effluent Building (HOA / HOB)	20-Feb-2102	13-Apr-2103
EPRWBS: 1.SZC.COM.04.010	Conventional Island (CI)	02-Dec-2092	12-May-2111
EPRWBS: 1.SZC.COM.04.010.005	Turbine Hall	02-Dec-2092	28-Aug-2105
EPRWBS: 1.SZC.COM.04.010.010	Other Conventional Island Buildings	25-Aug-2110	12-May-2111
EPRWBS: 1.SZC.COM.04.015	Balance Of Plant (BOP)	24-Nov-2099	23-Sep-2112
EPRWBS: 1.SZC.COM.04.015.005	CW System	24-Nov-2099	25-Mar-2101
EPRWBS: 1.SZC.COM.04.015.010	Other Balance of Plant	25-Aug-2110	23-Sep-2112
EPRWBS: 1.SZC.COM.05	SITE CLEARANCE & RELEASE for REUSE (Activity 05)	26-Sep-2112	15-Jan-2160
EPRWBS: 1.SZC.COM.05.000	Activity 05 Key Date Milestones	26-Sep-2112	15-Jan-2160
EPRWBS: 1.SZC.COM.05.000.005	Key Date Milestones	26-Sep-2112	15-Jan-2160
EPRWBS: 1.SZC.COM.05.010	Site Delicencing	04-Oct-2112	15-Jan-2160
EPRWBS: 1.SZC.COM.05.010.005	Power Generation Site Area - Delicensing	04-Oct-2112	28-Sep-2113
EPRWBS: 1.SZC.COM.05.010.010	Transferred ISFS Area of Site - Delicensing	19-Jan-2159	15-Jan-2160
EPRWBS: 1.SZC.COM.05.200	Environmental Management	26-Sep-2112	26-Feb-2159
EPRWBS: 1.SZC.COM.05.200.005	Landscaping of Generating Plant Area of Site	26-Sep-2112	28-Sep-2113
EPRWBS: 1.SZC.COM.05.200.010	Landscaping of Interim Spent Fuel Store Area of Site	19-Jan-2159	26-Feb-2159

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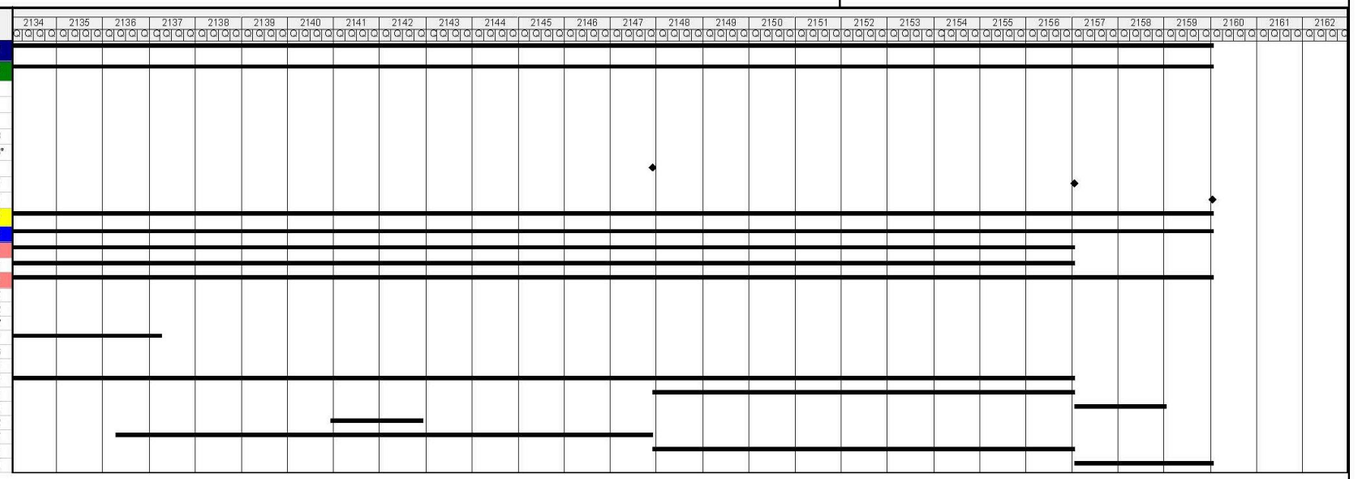
SIZEWELL C NUCLEAR POWER STATION
DECOMMISSIONING AND WASTE MANAGEMENT PLAN
SITE SUMMARY - SPENT FUEL MANAGEMENT POST 2112 - Rev 2.0

Activity ID	Activity Name	Start	Finish
EPRWBS: 1	EDF ENERGY NNB GenCo NUCLEAR FLEET	02-Jan-2040	22-Jan-2160
EPRWBS: 1.SZC	Sizewell C	02-Jan-2040	22-Jan-2160
SZC-KM001	Commence Pre-Closure Preparatory Work	01-Dec-2087	
SZC-KM005	Unit 1 End of Generation	01-Dec-2092	
SZC-KM010	Unit 2 End of Generation	01-Jun-2094	
SZC-KM015	End of SZC Power Plant Area Decommissioning		28-Sep-2113
SZC-KM020	SZC Transfer Date		28-Sep-2113*
SZC-KM025	Commence Fuel Disposal	04-Dec-2147	
SZC-KM030	Complete Fuel Disposal		20-Jan-2157
SZC-KM035	Completion of Decommissioning & Delicencing of SZC Site		15-Jan-2160
EPRWBS: 1.SZC.COM	COMMON PLANT	02-Jan-2040	22-Jan-2160
EPRWBS: 1.SZC.COM.01	FUEL MANAGEMENT (Activity 01)	02-Jan-2040	22-Jan-2160
EPRWBS: 1.SZC.COM.01.000	Activity 1 Milestones	02-Jun-2098	21-Jan-2157
EPRWBS: 1.SZC.COM.01.000.005	Key Date Milestones	02-Jun-2098	21-Jan-2157
EPRWBS: 1.SZC.COM.01.015	Reactor Defuelling and Fuel Despatch	02-Jan-2040	22-Jan-2160
EPRWBS: 1.SZC.COM.01.015.002	Design and Construction of the ISFS	02-Jan-2040	20-Dec-2047
EPRWBS: 1.SZC.COM.01.015.003	Interim Spent Fuel Store Operations during power generation (incl	23-Dec-2047	28-Nov-2092
EPRWBS: 1.SZC.COM.01.015.016	Design and Construction of the SFIRF	10-Jun-2087	27-May-2097
EPRWBS: 1.SZC.COM.01.015.018	Operation of SFIRF	03-Jun-2098	12-Apr-2137
EPRWBS: 1.SZC.COM.01.015.020	Replacement of essential services to enable operation of fuel facili	28-Nov-2095	23-Nov-2096
EPRWBS: 1.SZC.COM.01.015.022	Relicense Autonomous ISFS/ISFIRF	30-Nov-2093	04-Apr-2095
EPRWBS: 1.SZC.COM.01.015.025	Operation of the ISFS/SFIRF	01-Dec-2092	20-Jan-2157
EPRWBS: 1.SZC.COM.01.015.030	Spent Fuel Transport and Disposal	04-Dec-2147	20-Jan-2157
EPRWBS: 1.SZC.COM.01.015.035	Interim Spent Fuel Store Decommissioning	21-Jan-2157	18-Jan-2159
EPRWBS: 1.SZC.COM.01.015.037	SFEF/RSCPF Planning	08-Dec-2140	05-Dec-2142
EPRWBS: 1.SZC.COM.01.015.040	Conversion and extension of the SFIRF into the SFEF and design a	16-Apr-2136	28-Nov-2147
EPRWBS: 1.SZC.COM.01.015.045	Operation of the SFEF and RSCPF	04-Dec-2147	21-Jan-2157
EPRWBS: 1.SZC.COM.01.015.050	SFEF and RSCPF Decommissioning	21-Jan-2157	22-Jan-2160



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6 DECOMMISSIONING AND WASTE MANAGEMENT COSTS

Site specific decommissioning costs for SZC have been developed. A summary of the costs is presented in this section. The costs are largely underpinned by the work carried out for the EPR at HPC.

HPC's DWMP forms the foundation of this SZC DWMP and since its issue in 2014 [3], the HPC site has evolved with a number of ancillary buildings either being removed or introduced, with a greater number of buildings having been removed. The changes against the HPC DWMP have affected activities associated with conventional decommissioning of the plant with which the impact on the overall site being insignificant in terms of decommissioning costs and the overall decommissioning planning process. To ensure consistency with the replication approach adopted for SZC the costs remain in line with those captured in the HPC's DWMP.

6.1 Base Cost Estimate, P80 Cost Estimate and Cash Flow

Where there have been no changes from the scope associated with HPC DWMP the SZC DWMP directly replicates the HPC costs with an RPI uplift to 2022 values. Where scope has changed as a result of the strategy changes at HPC to dry storage new estimates have been developed for this DWMP. These estimates were created in 2013 monetary values in alignment with the HPC original estimates. These new estimates were uplifted to 2022 values. This approach maintains the HPC underpinning for the SZC DWMP.

All new costs were developed in line with the process described in section 8 of the HPC DWMP. No additional risk or contingency modelling has been performed for this DWMP, however in order to include appropriate prudence in the SZC estimate, three new costed activities have been inserted into the schedule to mitigate potential risks associated with Dry Storage of spent fuel that were not part of the HPC assessment. This DWMP has maintained the uncertainty uplifts calculated for the corresponding decommissioning and waste management activities within the HPC DWMP. Where costs have been modified to account for the change in spent fuel storage strategy the HPC DWMP uncertainty uplift that most closely represents the new activity has been applied in order to maintain consistency.

The summary costs for SZC DWMP by Work Breakdown Structure (WBS) and the anticipated cash flow are shown below. This sets out the current estimate which was prepared at a detailed level. The costs formatted against the EPRWBS in Table 5, Table 6 and Table 7 reflect the way in which the work is expected to be carried out, while Table 8 presents the same cost data against the EPRCRS which reflects the structure of the cost estimates required by the department for BEIS[1]. Following a review of the EPCRS coding, the EPCRS codes against a number of the cost elements have been revised. This has the effect of allocating the costs more appropriately to the cost centres, in line with government guidance, whilst not changing the total cost. Further detail is provided in HPC (D)DWMP [4] Chapter 18. Section 8 of the HPC DWMP [3] sets out the processes used in the derivation of the cost estimates and an analysis of the level and source of risk and uncertainty in those estimates. The basis of the methodologies and their application to the HPC cost estimates is further detailed in the HPC (D)DWMP [4].

[1] In 2016, DECC became part of The Department for Business, Energy and Industrial Strategy (BEIS) and from this point in the document DECC is referred to as BEIS.

Table 5 . Sizewell C Unit 1 Decommissioning and Waste Management Costs Estimate formatted by EPRWBS

Activity ID *MVs= money values	SZC Base Cost (Aug 22 MVs)*	SZC P80 (Aug 22 MVs)*
1 EDF ENERGY NNB GenCo NUCLEAR FLEET	£7,676.68	£9,236.92
1.SZC Sizewell C	£7,676.68	£9,236.92
1.SZC.U1 UNIT 1	£561.01	£772.32
1.SZC.U1.01 FUEL MANAGEMENT (Activity 01)	£0.00	£1.57
1.SZC.U1.01.015 Reactor Defuelling and Fuel Despatch	£0.00	£1.57
1.SZC.U1.01.015.005 Fuel Removal Operations from Reactor	£0.00	£0.02
1.SZC.U1.01.015.010 Fuel Storage in Cooling Pond	£0.00	£1.13
1.SZC.U1.01.015.015 Multi Purpose Canister (MPC) loaded and despatch (from Fuel Buildings Spent Fuel Pool to the ISFS)	£0.00	£0.43
1.SZC.U1.02 SITE OPERATION & PLANT PREPARATION (Activity 02)	£27.61	£69.03
1.SZC.U1.02.001 Making Safe Redundant Systems & Plant	£0.00	£0.00
1.SZC.U1.02.001.000 Non Maintenance Group Specific	£0.00	£0.00
1.SZC.U1.02.003 Primary Circuit Decontamination (PCD)	£27.61	£69.03
1.SZC.U1.02.003.005 PCD Engineering Design	£3.28	£8.20
1.SZC.U1.02.003.010 PCD Installation and Commissioning	£2.09	£5.22
1.SZC.U1.02.003.015 PCD Operations	£9.75	£24.37
1.SZC.U1.02.003.025 PCD Waste Management	£12.50	£31.25
1.SZC.U1.02.045 Site Plant Maintenance during Decommissioning	£0.00	£0.00
1.SZC.U1.02.045.020 During Plant Decommissioning	£0.00	£0.00
1.SZC.U1.02.050 Plant Operations During Decommissioning	£0.00	£0.00
1.SZC.U1.02.050.020 During Plant Decommissioning	£0.00	£0.00
1.SZC.U1.03 MANAGEMENT OPERATIONAL WASTES (Activity 03)	£28.07	£35.35
1.SZC.U1.03.005 Retrieval, Processing, Transport and Disposal	£28.07	£35.35
1.SZC.U1.03.005.005 ILW Operational Waste	£17.65	£19.46
1.SZC.U1.03.005.010 LLW Operational Waste	£10.42	£15.88
1.SZC.U1.04 PLANT & REACTOR DECOMMISSIONING (Activity 04)	£505.32	£666.37
1.SZC.U1.04.005 Nuclear Island (NI)	£486.48	£639.41
1.SZC.U1.04.005.005 Reactor Building	£255.33	£331.78
1.SZC.U1.04.005.010 Fuel Building	£44.68	£58.76
1.SZC.U1.04.005.015 Safeguard Buildings	£45.34	£64.92
1.SZC.U1.04.005.020 Safeguard Mechanical Buildings	£14.86	£19.61
1.SZC.U1.04.005.025 Nuclear Auxiliary Building	£32.26	£43.12
1.SZC.U1.04.005.035 Other Nuclear Island Buildings	£13.25	£15.83
1.SZC.U1.04.005.040 Access Building	£3.97	£5.00

Activity ID *MVs= money values	SZC Base Cost (Aug 22 MVs)*	SZC P80 (Aug 22 MVs)*
1.SZC.U1.04.005.045 Waste / Effluent Building (HQA / HQB)	£1.08	£1.32
1.SZC.U1.04.005.050 Backup Diesels	£3.48	£4.13
1.SZC.U1.04.005.055 Functional Simplification	£16.01	£20.65
1.SZC.U1.04.005.060 New Works	£15.32	£18.38
1.SZC.U1.04.005.065 Dismantling Preparation	£6.96	£8.98
1.SZC.U1.04.005.070 Nuclear Island Demolition Support	£14.61	£18.12
1.SZC.U1.04.005.075 Nuclear Island Dismantling Secondary Wastes	£19.33	£28.80
1.SZC.U1.04.010 Conventional Island (CI)	£8.67	£13.49
1.SZC.U1.04.010.005 Turbine Hall	£7.44	£11.69
1.SZC.U1.04.010.010 Other Conventional Island Buildings	£1.23	£1.80
1.SZC.U1.04.015 Balance Of Plant (BOP)	£10.17	£13.47
1.SZC.U1.04.015.005 CW System	£9.79	£12.92
1.SZC.U1.04.015.010 Other Balance of Plant	£0.38	£0.55

Table 6 Sizewell C Unit 2 Decommissioning and Waste Management Costs Estimate formatted by EPRWBS

Activity ID	SZC Base Cost (Aug 22 MVs)	SZC P80 (Aug 22 MVs)
1 EDF ENERGY NNB GenCo NUCLEAR FLEET	£7,676.68	£9,236.92
1.SZC Sizewell C	£7,676.68	£9,236.92
1.SZC.U2 UNIT 2	£560.41	£772.30
1.SZC.U2.01 FUEL MANAGEMENT (Activity 01)	£0.00	£1.57
1.SZC.U2.01.015 Reactor Defuelling and Fuel Despatch	£0.00	£1.57
1.SZC.U2.01.015.005 Fuel Removal Operations from Reactor	£0.00	£0.02
1.SZC.U2.01.015.010 Fuel Storage in Cooling Pond	£0.00	£1.13
1.SZC.U2.01.015.015 Multi Purpose Canister (MPC) loaded and des-patch (from Fuel Buildings Spent Fuel Pool to the ISFS)	£0.00	£0.43
1.SZC.U2.02 SITE OPERATION & PLANT PREPARATION (Activity 02)	£24.33	£60.83
1.SZC.U2.02.001 Making Safe Redundant Systems & Plant	£0.00	£0.00
1.SZC.U2.02.001.000 Non Maintenance Group Specific	£0.00	£0.00
1.SZC.U2.02.003 Primary Circuit Decontamination (PCD)	£24.33	£60.83
1.SZC.U2.02.003.010 PCD Installation and Commissioning	£2.09	£5.22
1.SZC.U2.02.003.015 PCD Operations	£9.75	£24.37
1.SZC.U2.02.003.025 PCD Waste Management	£12.50	£31.25
1.SZC.U2.02.045 Site Plant Maintenance during Decommissioning	£0.00	£0.00
1.SZC.U2.02.045.020 During Plant Decommissioning	£0.00	£0.00
1.SZC.U2.02.050 Plant Operations During Decommissioning	£0.00	£0.00
1.SZC.U2.02.050.020 During Plant Decommissioning	£0.00	£0.00
1.SZC.U2.03 MANAGEMENT OPERATIONAL WASTES (Activity 03)	£28.07	£35.34
1.SZC.U2.03.005 Retrieval, Processing, Transport and Disposal	£28.07	£35.34
1.SZC.U2.03.005.005 ILW Operational Waste	£17.65	£19.46
1.SZC.U2.03.005.010 LLW Operational Waste	£10.42	£15.88
1.SZC.U2.04 PLANT & REACTOR DECOMMISSIONING (Activity 04)	£508.01	£674.56
1.SZC.U2.04.005 Nuclear Island (NI)	£490.61	£650.52
1.SZC.U2.04.005.005 Reactor Building	£248.78	£328.05
1.SZC.U2.04.005.010 Fuel Building	£44.68	£58.76
1.SZC.U2.04.005.015 Safeguard Buildings	£63.10	£88.87
1.SZC.U2.04.005.025 Nuclear Auxiliary Building	£32.26	£43.12
1.SZC.U2.04.005.035 Other Nuclear Island Buildings	£13.25	£15.83
1.SZC.U2.04.005.040 Access Building	£3.97	£5.10
1.SZC.U2.04.005.045 Waste / Effluent Building (HQC)	£8.85	£11.72
1.SZC.U2.04.005.050 Backup Diesels	£3.48	£4.13
1.SZC.U2.04.005.055 Functional Simplification	£16.01	£20.65

Activity ID	SZC Base Cost (Aug 22 MVs)	SZC P80 (Aug 22 MVs)
1.SZC.U2.04.005.060 New Works	£15.32	£18.38
1.SZC.U2.04.005.065 Dismantling Preparation	£6.96	£8.98
1.SZC.U2.04.005.070 Nuclear Island Demolition Support	£14.61	£18.12
1.SZC.U2.04.005.075 Nuclear Island Dismantling Secondary Wastes	£19.33	£28.80
1.SZC.U2.04.010 Conventional Island (CI)	£7.24	£10.57
1.SZC.U2.04.010.005 Turbine Hall	£6.01	£8.77
1.SZC.U2.04.010.010 Other Conventional Island Buildings	£1.23	£1.80
1.SZC.U2.04.015 Balance Of Plant (BOP)	£10.16	£13.46
1.SZC.U2.04.015.005 CW System	£9.79	£12.92
1.SZC.U2.04.015.010 Other Balance of Plant	£0.37	£0.55

Table 7 Sizewell C Common Decommissioning and Waste Management Costs Estimate formatted by EPRWBS

Activity ID	SZC Base Cost (Aug 22 MV)	SZC P80 (Aug 22 MV)
1 EDF ENERGY NNB GenCo NUCLEAR FLEET	£7,676.68	£9,236.92
1.SZC Sizewell C	£7,676.68	£9,236.92
1.SZC.COM COMMON PLANT	£6,555.26	£7,692.30
1.SZC.COM.00 PRE CLOSURE PREPARATORY WORK (Activity 0)	£28.35	£38.78
1.SZC.COM.00.001 Strategic Review and Decommissioning Plan Development	£4.91	£5.40
1.SZC.COM.00.015 Environmental Impact Statement	£0.67	£0.76
1.SZC.COM.00.020 National & Local Planning Permission	£0.29	£0.32
1.SZC.COM.00.025 Article 37 Submission	£0.15	£0.16
1.SZC.COM.00.045 Revise Station Maintenance Schedule	£1.73	£1.97
1.SZC.COM.00.050 Revise Discharge Authorisations	£2.15	£2.62
1.SZC.COM.00.060 Programme Management Development	£14.66	£21.84
1.SZC.COM.00.060.010 Preliminaries	£4.11	£6.13
1.SZC.COM.00.060.020 Integration Workstreams	£3.19	£4.75
1.SZC.COM.00.060.030 Workstreams Tranche 1	£3.52	£5.24
1.SZC.COM.00.060.040 Workstreams Tranche 2	£3.84	£5.72
1.SZC.COM.00.070 Pre-Closure Planning Staffing Requirements	£3.68	£5.56
1.SZC.COM.00.200 Environmental Monitoring programme	£0.11	£0.15
1.SZC.COM.00.200.010 Environmental Monitoring	£0.11	£0.15
1.SZC.COM.01 FUEL MANAGEMENT (Activity 01)	£4,871.81	£5,446.69
1.SZC.COM.01.015 Reactor Defuelling and Fuel Despatch	£4,871.81	£5,446.69
1.SZC.COM.01.015.003 Interim Spent Fuel Store Operations during power generation (Technical Matter)	£119.40	£143.28
1.SZC.COM.01.015.016 Design and Construction of the SFIRF	£367.41	£448.24
1.SZC.COM.01.015.018 Operation of SFIRF	£60.08	£73.30
1.SZC.COM.01.015.020 Replacement of essential services to enable operation of fuel facilities, conversion of IFSD/SFIRF to autonomous ops.	£2.47	£3.01
1.SZC.COM.01.015.022 Relicense Autonomous ISFS/ISFIRF	£0.27	£0.40
1.SZC.COM.01.015.025 Operation of the ISFS/SFIRF	£272.51	£319.48
1.SZC.COM.01.015.030 Spent Fuel Transport and Disposal	£3,229.09	£3,457.87
1.SZC.COM.01.015.035 Interim Spent Fuel Store Decommissioning	£3.84	£4.69
1.SZC.COM.01.015.037 SFEF/RSCPF Planning	£13.60	£16.59
1.SZC.COM.01.015.040 Conversion and extension of the SFIRF into the SFEF and design and construction of RSCPF	£371.92	£453.75
1.SZC.COM.01.015.045 Operation of the SFEF and RSCPF	£341.43	£416.54
1.SZC.COM.01.015.050 SFEF and RSCPF Decommissioning	£89.79	£109.54
1.SZC.COM.02 SITE OPERATION & PLANT PREPARATION (Activity 02)	£1,259.34	£1,744.84
1.SZC.COM.02.010 Activity 2 Staffing Levels	£390.27	£589.31
1.SZC.COM.02.030 New Decommissioning Electrical Supply & Electrical Distribution System (DSEDS)	£10.57	£15.74
1.SZC.COM.02.030.010 New Decommissioning Site Incoming Electrical Supply (DSIES)	£5.62	£7.78
1.SZC.COM.02.030.020 New Decommissioning Site Electrical Distribution System (DSEDS)	£4.95	£7.97

Activity ID	SZC Base Cost (Aug 22 MV)	SZC P80 (Aug 22 MV)
1.SZC.COM.02.035 Active Waste Treatment System	£5.31	£7.70
1.SZC.COM.02.035.040 New Effluent Discharge Arrangements	£5.31	£7.70
1.SZC.COM.02.050 Plant Operations During Decommissioning	£1.99	£2.75
1.SZC.COM.02.050.020 During Plant Decommissioning	£1.99	£2.75
1.SZC.COM.02.100 Site Overheads	£466.08	£594.11
1.SZC.COM.02.100.020 Site Management & Arrangements, Facilities, Services and Admin	£279.57	£363.44
1.SZC.COM.02.100.030 Operations and Project Support to Decommis-sioning	£55.51	£72.16
1.SZC.COM.02.100.050 Records & Knowledge Management for De-commissioning	£9.06	£12.20
1.SZC.COM.02.100.060 Project Management (Operations and Project Support)	£1.94	£2.52
1.SZC.COM.02.100.070 Programme Management and Controls	£50.57	£65.74
1.SZC.COM.02.100.080 Site Staff Redundancy costs	£55.50	£59.94
1.SZC.COM.02.100.200 Environmental Management	£13.93	£18.11
1.SZC.COM.02.200 Corporate Support Costs	£385.11	£535.22
1.SZC.COM.02.200.010 Corporate Staff Support	£86.37	£113.15
1.SZC.COM.02.200.020 Regulatory Costs	£57.90	£75.28
1.SZC.COM.02.200.030 Civil Nuclear Constabulary Costs	£103.59	£119.13
1.SZC.COM.02.200.040 Fundco Operating Costs	£18.95	£30.51
1.SZC.COM.02.200.050 BEIS Charges	£6.54	£10.52
1.SZC.COM.02.200.070 Insurance Costs During Decommissioning & Spent Fuel Management	£111.76	£186.65
1.SZC.COM.03 MANAGEMENT OPERATIONAL WASTES (Activity 03)	**£239.75**	**£265.00**
1.SZC.COM.03.020 ILW Interim Storage Facility (ILW ISF)	£237.00	£261.17
1.SZC.COM.03.020.015 ILWISF - Store Emptying	£234.41	£257.99
1.SZC.COM.03.020.020 Interim Waste Storage – Decom. & Demolition	£2.59	£3.19
1.SZC.COM.03.025 Active Waste Treatment Systems	£2.75	£3.83
1.SZC.COM.03.025.060 Mobile AETP	£2.75	£3.83
1.SZC.COM.04 PLANT & REACTOR DECOMMISSIONING (Activity 04)	**£119.35**	**£151.12**
1.SZC.COM.04.005 Nuclear Island (NI)	£23.21	£32.27
1.SZC.COM.04.005.045 Waste / Effluent Building (HQA / HQB)	£23.21	£32.27
1.SZC.COM.04.010 Conventional Island (CI)	£90.44	£110.53
1.SZC.COM.04.010.005 Turbine Hall	£89.64	£109.37
1.SZC.COM.04.010.010 Other Conventional Island Buildings	£0.80	£1.17
1.SZC.COM.04.015 Balance Of Plant (BOP)	£5.70	£8.32
1.SZC.COM.04.015.005 CW System	£0.02	£0.02
1.SZC.COM.04.015.010 Other Balance of Plant	£5.68	£8.30
1.SZC.COM.05 SITE CLEARANCE & RELEASE for REUSE (Activity 05)	**£36.65**	**£45.87**
1.SZC.COM.05.010 Site Delicencing	£1.58	£2.38
1.SZC.COM.05.010.005 Power Generation Site Area - Delicensing	£0.79	£1.19
1.SZC.COM.05.010.010 Transferred ISFS Area of Site - Delicensing	£0.79	£1.19
1.SZC.COM.05.200 Environmental Management	£35.07	£43.49
1.SZC.COM.05.200.005 Landscaping of Generating Plant Area of Site	£33.18	£41.13
1.SZC.COM.05.200.010 Landscaping of Interim Spent Fuel Store Area	£1.90	£2.35

6.2 SZC Cost Changes

This section of the SZC DWMP has been included to provide clarity on the key changes that have been made between the publication of the HPC DWMP (Revision 4.0) and the SZC DWMP. A number of activities have been modified, added, or removed due to the change in spent fuel strategy. Modifications to costs are seen across the whole estimate associated with the uplift of all costs to constant August 2022 money values. These changes are summarised in the following sections.

Table 8 below provides a summary level comparison of the current SZC costs. Equivalent HPC costs have been uplifted from December 2013 to August 2022 money values and are also presented in Table 8. The detailed tables within this section do not provide this direct comparison but are included to allow reconciliation to the published HPC DWMP which is quoted in December 2013 money values.

6.2.1 Overall Change in the Base Cost estimate

The overall base cost change (costs before application of risk and uncertainty uplifts), incorporating the modification to spent fuel strategy and a global uplift by using a published UK Price Index (RPI) to August 2022 money values, has resulted in an overall cost increase of £1,691.3m. When compared with the equivalent HPC Revision 4.0 costs that have also been uplifted to August 22 money values this translates to a real terms reduction in the decommissioning cost estimate of -£477.6m.

Table 8 Sizewell C DWMP Summary of Cost Changes

Cost Change Category	HPC Rev 4.0 Base Cost £ (Dec 13 MVs)	HPC Rev 4.0 Base Cost £ (Aug 22 MVs)	SZC Rev 3.0 Base Cost £ (Aug 22 MVs)	HPC Rev 4.0 (Dec 13 MVs) to SZC Rev 3.0 cost change (Aug 22 MVs)	HPC Rev 4.0 (Aug 22 MVs) to SZC Rev 3.0 (Aug 22 MVs) Cost Change
Change in cost due to uplift by RPI to August 2022 money values	£4,468,434,593	£6,087,807,813	£6,087,807,813	£1,619,373,220	-£0
Change due to spent fuel storage strategy and revised cost estimates for spent fuel management	£1,495,166,128	£2,036,824,447	£1,426,002,092	-£69,164,036	-£610,822,355
Change due to revised operational waste packaging assumptions	£21,634,858	£29,472,583	£18,973,014	-£2,661,844	-£10,499,569
SZC Risk Mitigation Tasks	£0	£0	£143,892,395	£143,892,395	£143,892,395
Buildings removed from plot plan	£170,042	£231,643	£0	-£170,042	-£231,643
Total Base Cost	£5,985,405,621	£8,154,336,486	£7,676,675,313	£1,691,269,693	-£477,661,173

The breakdown of the cost changes has been reviewed and categorised as follows:

1. Change in cost due to uplift by RPI to August 2022 money values

2. Change due to spent fuel storage strategy and revised cost estimates for spent fuel management
3. Changes due to revised operational waste packaging assumptions
4. SZC risk mitigation activities added due to the adoption of dry store approach
5. Removal of two HPC activities which are no longer applicable to SZC

Each of the changes that contributes to the modified cost are considered, in turn, in the following sections and a clear explanation and reference is provided to validate the change.

Non inflation related significant cost changes between the HPC 2014 submission and the SZC submission are set out in Tables 9 to 30. All of the estimated costs for these activities have been escalated by RPI to bring them to August 2022 values for this SZC DWMP.

6.2.2 Change in Cost Due to Uplift by RPI to August 2022 Money Values

6.2.2.1 Activities Impacted

All costed activities in the SZC DWMP have been subject to a modification in cost to account for the change in money values. This includes all costs extracted directly from the HPC DWMP Revision 4.0 and those spent fuel management costs modified specifically for use in the SZC DWMP.

6.2.2.2 Money Values in the SZC DWMP

A number of site-specific modifications, as captured in section 2.3, have been considered as part of the development of SZC's DWMP. The overall impact versus HPC has been small with the largest impact attributed to modifications associated with the change in spent fuel storage strategy. In accordance with the replication strategy for SZC, the decommissioning aspects including costs from the approved HPC DWMP have been replicated for all costed activities of the SZC DWMP, the exception being, activities linked to the management of spent fuel. The cost estimates used in the production of HPC DWMP were quoted in constant December 2013 money values, while the current version of the SZC DWMP presents costs in August 2022 money values. In order to bring those values up to date, an appropriate index has been used to adjust for inflation to August 2022 money values.

6.2.2.3 Adjusting for Inflation

For the uplift of costs used in the SZC DWMP, a published value for RPI has been used to uplift costs and replaces the projected index applied in previous revisions of the SZC DWMP.

To adjust a cost for inflation from an existing base cost to August 2022 money values the following formula has been used:

$$£_{2022} = £_{Base} \times \frac{I_{2022}}{I_{Base}}$$

Where I_{2022} is the actual value of the relevant index in 2022 and I_{Base} is the value of that index at the time corresponding to the money value of the base data (as presented in RPI published data by the Office for National Statistics (ONS)).
(https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/chaw/mm23).

6.2.2.4 Escalation of all Costs from 2013 (Dec) to 2022 (Aug)

Moving all HPC DWMP Revision 4.0 costs from December 2013 money values to August 2022 money values has been undertaken. This has been applied to the resource pool and to all transcribed costs calculated outside of P6 using the following calculation:

$$£_{Aug\ 2022} = £_{Dec2013} \times \frac{345.2}{253.4}$$

Representing an onward escalation of 36.2%.

6.2.3 Cost change due to revision of SZC Spent Fuel Strategy

The most significant change in the scope of the SZC DWMP is the revision of the spent fuel strategy. The cost estimate and schedule for the HPC DWMP was developed on the basis of a wet interim storage facility, constructed during the construction phase, and maintained and operated through the decommissioning phase. The spent fuel strategy adopted for SZC is Dry Storage. This strategy requires a dedicated interim dry store to be located on site at SZC and will be constructed during the operational phase. The ISFS enables the dry storage of the spent fuel and/or activated in-core components sealed within MPCs which are each stored within a HI-STORM over-cask, providing shielding and protection from aircraft impact. The ISFS contains the facilities for transfer of an MPC from the HI-TRAC over-cask to a HI-STORM (on MPC arrival from the Fuel Building) or from a HI-STORM to the HI-TRAC (when an MPC is to be transferred from the ISFS for periodic inspection of the spent fuel – either at the Fuel Building, or when this is no longer available, at the Spent Fuel Inspection and Repackaging Facility (SFIRF) which will be constructed after EoG).

6.2.4 Operation of the ISFS after EoG

There is a modification in the scope of spent fuel storage resulting from the change from wet to dry storage facility. The HPC Revision 4.0 costing assumed a large fuel storage pool, spent fuel import and export facilities and all other facilities necessary for the safe management of the fuel over the storage period, including the management of solid wastes and liquid effluents arising from pool based spent fuel storage.

The change to Dry Storage significantly reduces the complexity of fuel management operations and impacts on the following costed activities.

6.2.4.1 SZC.COM.01.015.025 Interim Spent Fuel Store Operation

6.2.4.1.1 SZC.COM.01.NT2255 - ISFS Operations - Spent Fuel Storage and Receipt Operations

The SZC DWMP uses the outturn operational costs provided from the currently operating SZB dry spent fuel storage facility as the basis for all operational costs. SZB power station have successfully constructed facilities required to safely dry store spent fuel and these facilities have been in operation since early 2017. The out-turn costs associated with operating the interim spent fuel storage facility at SZB have been used as the basis in understanding what the operational cost could be for a similar facility in size and complexity at SZC.

Table 9 ISFS Operations - Spent Fuel Storage and Receipt Operations

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.NT2255	ISFS Operations - Spent Fuel Storage and Receipt Operations	£34,512,923	£12,030,375	-£22,482,548	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

SZC.COM.01.NT2257 - ISFS Operations - Spent Fuel Storage ONLY

This activity continues to use the SZB dry spent fuel storage facility costs as its basis therefore seeing a decrease in the costs compared to the HPC Wet Store costs.

Table 10 ISFS Operations - Spent Fuel Storage Only

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.NT2257	ISFS Operations - Spent Fuel Storage ONLY	£310,592,256	£108,251,581	-£202,340,675	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.2.4.1.2 SZC.COM.01.NT4685 - ISFS Operations - Spent Fuel Storage and Recover Operations

This activity continues to use the SZB dry spent fuel storage facility costs as its basis therefore seeing a decrease in the costs compared to the HPC Wet Store costs.

Table 11 ISFS Operations - Spent Fuel Storage and Recovery

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.NT4685	ISFS Operations - Spent Fuel Storage and Recover Operations	£70,940,061	£19,985,242	-£50,954,819	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.2.5 Removed Spent Fuel Storage Activities

The move to a dry store strategy has removed the need for a spent fuel pool and all associated supporting systems. Wet storage requires water to be actively monitored and managed to ensure that water conditions within the pool are appropriate for continued safe storage of spent fuel.

The dry store approach provides confinement of spent fuel by two independent containment barriers. The primary barrier is the fuel cladding itself and the secondary is provided by a stainless steel MPC which has been specifically designed to safely and passively store spent fuel. The MPC is stored in a concrete/ steel overpack know as a HI-STORM which provides both radiological shielding and impact protection. The dry store facility itself does not contribute to the confinement of radioactive material nor does it provide any radiation shielding. The fabric of the building acts as a visual screen which shelters the MPC's from any inclement weather. The change in strategy from wet to dry storage has led to a significant simplification of how spent fuel is stored on site.

As a result the operations in Table 12 (which are captured in HPC's plan) are no longer required and the costs associated with these activities are not needed as a result of the adoption of passively safe dry storage approach.

Table 12 ISFS Operations – Removed Activities

HPC Rev 4.0 Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Revision 4.0 to SZC Revision 3.0 cost change	Change Category
HPC.COM.01.NT2265	ISFS Operations - ILW Transport	£803,878	£0	-£803,878	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management
HPC.COM.01.NT2270	ISFS Operations - ILW Disposal	£8,971,853	£0	-£8,971,853	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management
HPC.COM.01.NT2275	ISFS Operations - LLW Transport	£53,969	£0	-£53,969	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management
HPC.COM.01.NT2280	ISFS Operations - LLW Disposal	£186,604	£0	-£186,604	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.2.6 SZC.COM.01.NT2260 - ISFS Operations - Equipment Renewal

The change from wet to dry storage and the simplification with regard to equipment and safety systems within the facility has resulted in a significant reduction in the cost of equipment renewal reflecting the reduced complexity of those systems. SZC DWMP uses the Bill of Quantities for the dry store building at SZB as the basis of decommissioning estimate for SZC. An annual equipment maintenance/renewal cost equivalent to 4% of the total build cost has been applied to determine an annual cost to be applied to the SZC DWMP. This represents the complete renewal of the building equipment and structures within a 25-year timeframe.

Table 13 ISFS Operations – Equipment Renewal

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.NT2260	ISFS Operations - Equipment Renewal	£190,936,151	£51,263,126	-£139,673,025	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.3 SZC.COM.01.015.035 Interim Spent Fuel Store Decommissioning

6.3.1 SZC.COM.01.NT3450 - ISFS Decommissioning: Building Decommissioning

The total cost of decommissioning of the ISFS has also been considerably reduced due to the change in storage strategy from a complex heavily shielded facility with contaminated pool and active ventilation and effluent systems to a basic dry storage facility.

Table 14 ISFS Building Decommissioning

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.NT3450	ISFS Decommissioning: Building Decommissioning	£13,212,794	£3,841,557	-£9,371,237	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.3.2 Removed Spent Fuel Store Decommissioning Activities

Activities associated with decommissioning the wet fuel storage facility have been removed from the decommissioning proposal and replaced with dry store decommissioning activities. This has led to a significant decommissioning cost reduction and is directly linked to the more simplified approach that is now needed to decommission such a facility versus wet storage.

Table 15 Removed ISFS Decommissioning Activities

HPC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
HPC.COM.01.NT3455	ISFS Decommissioning - Flask Decommissioning (Fuel Pool to ISFS)	£748,497	£0	-£748,497	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management
HPC.COM.01.NT3460	ISFS Decommissioning - Flask Decommissioning (ISFS to Encapsulation Facility)	£748,497	£0	-£748,497	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management
HPC.COM.01.VE8680	ISFS Decommissioning - Aircraft Shield Decommissioning	£2,320,878	£0	-£2,320,878	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management
HPC.COM.01.NT2282	Procure Flasks (to Encapsulation Facility)	£4,330,480	£0	-£4,330,480	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.4 Spent Fuel Encapsulation Facility (SFEF) and Cost Changes

The move to a dry storage strategy has required a significant new group of activities to be inserted into the DWMP to demonstrate the ongoing ability to retrieve and, if necessary, repackage spent fuel from the dry store throughout the decommissioning phase.

The HPC DWMP Rev 4.0 assumption of wet interim storage allowed for the ongoing inspection and retrieval of fuel throughout the decommissioning phase, the move to dry storage results in the loss of this ability as soon as

the reactor SF pools are shutdown. The SZC DWMP therefore needs a new facility to allow inspection and repackaging to be constructed soon after EoG. A costed outline design for the new facility has been completed and this work underpins the costs captured within this DWMP. Greater detail can be found within the Spent Fuel Inspection and Repackaging Facility Outline Design document [13].

6.4.1 SZC.COM.01.015.016 Design and Construction of the SFIRF

6.4.1.1 SZC.COM.01.VE8830 - Phase 1 - Inspection and Repackaging Facility Construction

This new facility is not included in the HPC DWMP due to the wet spent fuel storage assumption. It represents an interim facility for inspection and repackaging of MPCs and it will be extended, and repurposed, as the SFEF. The construction of the inspection and repackaging facility is therefore a new costed activity.

Table 16 Design and Construction of the SFIRF

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.VE8830	Phase 1 - Inspection and Repackaging Facility Construction	£0	£367,413,705	£367,413,705	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.4.2 SZC.COM.01.015.018 Operation of the SFIRF

6.4.2.1 SZC.COM.01.VE8835 - Phase 2 - Inspection and Repackaging Facility Operation

This new facility is not included in the HPC DWMP due to the wet spent fuel storage assumption allowing for inspection in-situ prior to availability of the UK Geological Disposal Facility. The operation of the inspection and repackaging facility is therefore a new costed activity [13].

Table 17 . Inspection and Repackaging Facility Operation

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.VE8835	Phase 2 - Inspection and Repackaging Facility Operation	£0	£60,080,577	£60,080,577	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.4.3 Conversion and extension of the SFIRF into the SFEF and design and construction of RSCPF

The conversion of the SFIRF to a SFEF requires a modification of the HPC Rev 4.0 DWMP, which assumed the encapsulation facility was a new construction activity. New design, construction and commissioning costs have been generated, these replace the costs in the HPC DWMP. Some activities have been revised, some removed and some added.

Once a geological disposal facility becomes available, spent fuel held within the ISFS will need to be repackaged into complaint containers that are suitable for disposal. This activity requires conversion and extension of the SFIRF into a SFEF and will also include design and construction of a new Redundant Storage Canister Processing Facility (RSCPF) which will process all spent fuel casks used to interim store spent fuel.

6.4.3.1 SZC.COM.01.NT3485 - Spent Fuel Encapsulation Facility Construction - Design and Engineering

The conversion of the SFIRF to the SFEF is broken down into its various sub-components in the DWMP this activity includes the Design and Engineering aspects of the facility.

Table 18 Design and Engineering aspects of the SFEF

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.NT3485	Spent Fuel Encapsulation Facility Construction - Design and Engineering	£100,628,830	£58,198,764	-£42,430,066	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.4.4 SZC.COM.01.NT3495 - Spent Fuel Encapsulation Facility Construction - Building and Civil

The conversion of the SFIRF to the SFEF is broken down in to its various sub-components in the DWMP this activity includes the Civil Construction aspects of the facility.

Table 19 Civil Construction aspects of the SFEF

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.NT3495	Spent Fuel Encapsulation Facility Construction - Building and Civil	£97,909,132	£136,192,680	£38,283,548	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.4.5 SZC.COM.01.NT3500 - Spent Fuel Encapsulation Facility Construction - Mechanical Plant and Equipment (excluding installation)

The conversion of the SFIRF to the SFEF is broken down into its various sub-components in the DWMP this activity includes the plant and equipment aspects of the facility.

Table 20 Mechanical Plant and Equipment aspects of the SFEF

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.NT3500	Spent Fuel Encapsulation Facility Construction - Mechanical Plant and Equipment (excluding installation)	£114,227,321	£108,242,130	-£5,985,191	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.4.6 SZC.COM.01.VE8865 - Replacement of Refurbishment of Phase 2 equipment - Design & Engineering

This new activity is associated with the design and engineering of equipment within the SFIRF that will be required for onward use in the SFEF.

Table 21 Replacement and Refurbishment of SFEF Equipment (Design and Engineering)

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.VE8865	Replacement of Refurbishment of Phase 2 equipment - Design & Engineering	£0	£33,184,898	£33,184,898	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.4.7 SZC.COM.01.VE8870 - Replacement of Refurbishment of Phase 2 equipment - Upgrade of Phase 2 equipment

This new activity is associated with the installation and commissioning of equipment within the SFIRF that will be required for use in the SFEF.

Table 22 Replacement and Refurbishment of SFEF Equipment (Installation and Commissioning)

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.VE8870	Replacement of Refurbishment of Phase 2 equipment - Upgrade of Phase 2 equipment	£0	£7,901,166	£7,901,166	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.4.8 SZC.COM.01.VE8875 Design, Construction & Commissioning - Storage Canister Waste Management Facility - Design & Engineering

This is the Design and Engineering cost of a new facility required due to the change in spent fuel storage strategy, this facility will process the empty MPC canisters which have held the spent fuel.

Table 23 Storage Canister Waste Management Facility Design

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.VE8875	Design, Construction & Commissioning - Storage Canister Waste Management Facility - Design & Engineering	£0	£8,974,472	£8,974,472	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.4.9 SZC.COM.01.VE8880 Design, Construction & Commissioning - Storage Canister Waste Management Facility - Building & Civil

This is the Civil Construction of a new facility required due to the change in spent fuel storage strategy, this facility will process the empty MPC canisters which have held the spent fuel.

Table 24 Storage Canister Waste Management Facility Civil Construction

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.VE8880	Design, Construction & Commissioning - Storage Canister Waste Management Facility - Building & Civil	£0	£4,668,620	£4,668,620	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.4.10 SZC.COM.01.VE8885 - Design, Construction & Commissioning - Storage Canister Waste Management Facility - Mechanical Plant & Equipment

This is the Mechanical Plant and Equipment cost of a new facility required due to the change in spent fuel storage strategy, this facility will process the empty MPC canisters which have held the spent fuel.

Table 25 Storage Canister Waste Management Facility Mechanical Plant and Equipment

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.VE8885	Design, Construction & Commissioning - Storage Canister Waste Management Facility - Mechanical Plant & Equipment	£0	£13,503,048	£13,503,048	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.4.11 SZC.COM.01.VE8890 Design, Construction & Commissioning - Storage Canister Waste Management Facility - Installation & Commissioning

This is the Installation and Commissioning cost of a new facility required due to the change in spent fuel storage strategy, this facility will process the empty MPC canisters which have held the spent fuel.

Table 26 Storage Canister Waste Management Facility Installation and Commissioning

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.VE8890	Design, Construction & Commissioning - Storage Canister Waste Management Facility - Installation & Commissioning	£0	£1,057,167	£1,057,167	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.4.12 Removed Spent Fuel Encapsulation Facility Construction Costs

The following activities have been removed, having been superseded by the revised design, construction and commissioning costs set out above.

Table 27 Removed SFEF Activities

HPC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
HPC.COM.01.NT3505	Spent Fuel Encapsulation Facility Construction - Installation of Mechanical Plant and Equipment	£10,878,792	£0	-£10,878,792	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management
HPC.COM.01.NT3490	Spent Fuel Encapsulation Facility Construction - System Performance Demonstration	£50,314,415	£0	-£50,314,415	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management
HPC.COM.01.NT3510	Spent Fuel Encapsulation Facility Construction - Control, electrical and Installation	£130,545,509	£0	-£130,545,509	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.5 SZC.COM.01.015.045 Operation of the SFEF and RSCPF

Although the scope of the activity is unchanged from the HPC DWMP, the costs associated with the repackaging of spent fuel from storage canisters into disposal packages has been revised using updated costs. This has resulted in one new activity capturing revised operational cost and one modified activity retaining disposal package procurement costs.

6.5.1 SZC.COM.01.VE8855 - Phase 4 - Disposal Packaging Facility Operation

This activity represents operational costs of the Spent Fuel Encapsulation facility. The operational costs were previously included in SZC.COM.01.NT3530 but having been modified these have been separated for clarity.

Table 28 SFEF Operational Costs

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.VE8855	Phase 4 - Disposal Packaging Facility Operation	£0	£61,445,996	£61,445,996	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.5.2 SZC.COM.01.NT3530 - SZC Spent Fuel Encapsulation Facility Operations

For the HPC DWMP this activity previously included both the operational costs and disposal canister costs for the processing of spent fuel into disposal canisters. The updated operational costs for the SFEF are now captured in the new activity set out above (SZC.COM.01.VE8855 - Phase 4 - Disposal Packaging Facility Operation), therefore this cost now only includes the cost for purchase of the spent fuel disposal canisters, there is no change to canister numbers or source data cost for these aspects of the activity.

Table 29 SFEF Disposal Canister Costs

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.NT3530	SZC Spent Fuel Encapsulation Facility Operations (Spent Fuel Disposal Cost Accounted for in SF ISF Emptying)	£331,605,688	£279,979,444	-£51,626,243	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

The disposal canister cost for HPC Rev 4.0 was taken from a document developed by RWM. This document provided both an operational cost per canister and a disposal package cost in 2008 mvs. This remains the underpinning figure used in the SZC DWMP, with the only change being the uplift by RPI to August 2022.

6.6 SZC.COM.01.015.050 - SFEF and RSCPF Decommissioning

Decommissioning of the SFEF and RSCPF have been developed to reflect the requirements of dry storage. The modified design of the SFEF has included a review of the decommissioning costs. This has resulted in a significant increase in costs when compared to the equivalent HPC activity cost.

Table 30 SFEF Decommissioning Costs

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.NT3545	Spent Fuel Facility Decommissioning	£20,697,600	£89,787,544	£69,089,944	Change due to spent fuel storage strategy and revised cost estimates for spent fuel management

6.7 Change in cost due to operational waste packaging assumptions

The HPC DWMP assumed that all operational ILW would be packaged into French design C1 or C4 concrete casks. As mentioned in section 3.3.4, this assumption has been modified for the SZC waste strategy which now assumes that, with the exception of ILW Ion Exchange Resin which will continue to use the French design package, all other operational ILW will be packaged into standard UK 500L drums. This is the only change to the waste management strategy since the issue of the HPC DWMP.

Comparison of the ILW operational waste changes between the HPC DWMP and the SZC DWMP highlights that the change in waste packaging strategy results in an increase in overall package numbers [6]. However, due to the design and waste loading of the 500L drum, compared to the C1/C4 concrete cask, this still results in a significant reduction in disposal volume.

The impact of these changes differs across the waste streams, however the general trend is for a above RPI packaging cost due to the higher cost of 500L drums against the concrete casks, but a reduction in disposal and transport costs due to the significant reduction in overall volume of waste requiring transport/disposal.

All activities originally in the HPC DWMP that are associated with the packaging, transport, and disposal of operational ILW, with the exception of Ion Exchange Resins which has retained C1 cask packaging, have been modified to capture the change to use of a 500L drum with greater detail captured in the reconciliation document and its supporting documents [6]. The impacted activities are set out below.

6.7.1 SZC.U1.03.005.005.030 – Unit 1 Spent Cartridge Filters High Activity (ILW)

The change of packaging choice results in a decrease in overall waste volume. This reduces overall disposal cost and transport costs, however the number and cost of individual packages is greater under the revised proposals resulting in an above inflation packaging cost.

Table 31 Spent Cartridge ILW Management Costs

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change
SZC.U1.03.NT6615	Unit 1 Spent Cartridge filters High Activity (ILW) - Disposal (5 YEARS)	£1,530,525	£1,616,196	£85,670
SZC.U1.03.NT6610	Unit 1 Spent Cartridge filters High Activity (ILW) - Transport for Disposal (5 YEARS)	£137,135	£145,790	£8,655
SZC.U1.03.NT6605	Unit 1 Spent Cartridge filters High Activity (ILW) - Disposal (2 YEARS)	£621,866	£642,584	£20,718
SZC.U1.03.NT6600	Unit 1 Spent Cartridge filters High Activity (ILW) - Transport for Disposal (2 YEARS)	£55,719	£57,965	£2,245
SZC.U1.03.NT6595	Unit 1 Spent Cartridge filters High Activity (ILW) - Packaging on site (5 YEARS)	£588,546	£1,145,633	£557,086
SZC.U1.03.NT6590	Unit 1 Spent Cartridge filters High Activity (ILW) - Packaging on site (2 YEARS)	£239,097	£455,493	£216,396

6.7.2 SZC .U2.03.005.005.030 – Unit 2 Spent Cartridge Filters High Activity (ILW)

The change of packaging choice results in a decrease in overall waste volume. This reduces overall disposal cost and transport costs, however the cost of individual packages is greater under the revised proposals resulting in an above inflation packaging cost.

Table 32 Spent Cartridge ILW Management Costs (unit 2)

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change
SZC.U2.03.NT8030	Unit 2 Spent Cartridge filters High Activity (ILW) - Disposal (5 YEARS)	£1,530,525	£1,616,196	£85,670
SZC.U2.03.NT8025	Unit 2 Spent Cartridge filters High Activity (ILW) - Transport for Disposal (5 YEARS)	£137,135	£145,790	£8,655
SZC.U2.03.NT8020	Unit 2 Spent Cartridge filters High Activity (ILW) - Disposal (2 YEARS)	£621,866	£642,584	£20,718
SZC.U2.03.NT8015	Unit 2 Spent Cartridge filters High Activity (ILW) - Transport for Disposal (2 YEARS)	£55,719	£57,965	£2,245
SZC.U2.03.NT8010	Unit 2 Spent Cartridge filters High Activity (ILW) - Packaging on site (5 YEARS)	£588,546	£1,145,633	£557,086
SZC.U2.03.NT8005	Unit 2 Spent Cartridge filters High Activity (ILW) - Packaging on site (2 YEARS)	£239,097	£455,493	£216,396

6.7.3 SZC.U1.03.005.005.030– Unit 1 Spent Cartridge Filters Low Activity (ILW)

The change of packaging choice results in a decrease in overall waste volume. This reduces overall disposal cost and transport costs, while the cost of individual packages is greater under the revised proposals the reduced volume has resulted in an overall below inflation packaging cost for this waste stream.

Table 33 Spent Cartridge Low Active Waste Management Costs (unit 1)

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change
SZC.U1.03.NT6655	Unit 1 Spent Cartridge filters Low Activity (ILW) - Disposal (5 YEARS)	£1,476,274	£545,223	-£931,051
SZC.U1.03.NT6650	Unit 1 Spent Cartridge filters Low Activity (ILW) - Transport for Disposal (5 YEARS)	£132,274	£49,182	-£83,092
SZC.U1.03.NT6645	Unit 1 Spent Cartridge filters Low Activity (ILW) - Disposal (2 YEARS)	£590,557	£214,195	-£376,363
SZC.U1.03.NT6640	Unit 1 Spent Cartridge filters Low Activity (ILW) - Transport Disposal (2 YEARS)	£52,914	£19,322	-£33,592
SZC.U1.03.NT6635	Unit 1 Spent Cartridge filters Low Activity (ILW) - Packaging on site (5 YEARS)	£584,907	£386,479	-£198,428
SZC.U1.03.NT6630	Unit 1 Spent Cartridge filters Low Activity (ILW) - Packaging on site (2 YEARS)	£233,963	£151,831	-£82,132

6.7.4 SZC.U2.03.005.005.030– Unit 2 Spent Cartridge Filters Low Activity (ILW)

The change of packaging choice results in a decrease in overall waste volume. This reduces overall disposal cost and transport costs, while the cost of individual packages is greater under the revised proposals the reduced volume has resulted in an overall below inflation packaging cost for this waste stream.

Table 34 Spent Cartridge Low Active Waste Management Costs (unit 2)

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change
SZC.U2.03.NT8070	Unit 2 Spent Cartridge filters Low Activity (ILW) - Disposal (5 YEARS)	£1,476,274	£545,223	-£931,051
SZC.U2.03.NT8065	Unit 2 Spent Cartridge filters Low Activity (ILW) - Transport for Disposal (5 YEARS)	£132,274	£49,182	-£83,092
SZC.U2.03.NT8060	Unit 2 Spent Cartridge filters Low Activity (ILW) - Disposal (2 YEARS)	£590,557	£214,195	-£376,363
SZC.U2.03.NT8055	Unit 2 Spent Cartridge filters Low Activity (ILW) - Transport Disposal (2 YEARS)	£52,914	£19,322	-£33,592
SZC.U2.03.NT8050	Unit 2 Spent Cartridge filters Low Activity (ILW) - Packaging on site (5 YEARS)	£584,907	£386,479	-£198,428
SZC.U2.03.NT8045	Unit 2 Spent Cartridge filters Low Activity (ILW) - Packaging on site (2 YEARS)	£233,963	£151,831	-£82,132

6.7.5 SZC.U1.03.005.005.040 – Unit 1 Dry Active Waste >2mSv/hr

The change of packaging choice results in a decrease in overall waste volume. This reduces overall disposal cost and transport costs, while the cost of individual packages is greater under the revised proposals the reduced volume of waste has resulted in an overall below inflation packaging cost for this waste stream.

Table 35 Dry Active Waste Management Costs >2mSv/hr (unit 1)

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change
SZC.U1.03.NT6695	Unit 1 Dry Active Waste (>2mSv.hr) (ILW) - Disposal (5 YEARS)	£764,785	£545,223	-£219,562
SZC.U1.03.NT6690	Unit 1 Dry Active Waste (>2mSv.hr) (ILW) - Transport for Disposal (5 YEARS)	£68,525	£49,182	-£19,343
SZC.U1.03.NT6685	Unit 1 Dry Active Waste (>2mSv.hr) (ILW) - Disposal (2 YEARS)	£334,593	£214,195	-£120,399
SZC.U1.03.NT6680	Unit 1 Dry Active Waste (>2mSv.hr) (ILW) - Transport for Disposal (2 YEARS)	£29,980	£19,322	-£10,658
SZC.U1.03.NT6675	Unit 1 Dry Active Waste (>2mSv.hr) (ILW) - Packaging on site (5 YEARS)	£102,093	£287,962	£185,869
SZC.U1.03.NT6670	Unit 1 Dry Active Waste (>2mSv.hr) (ILW) - Packaging on site (2 YEARS)	£44,666	£113,128	£68,462

6.7.6 SZC.U2.03.005.005.040 – Unit 2 Dry Active Waste >2mSv/hr

The change of packaging choice results in a decrease in overall waste volume. This reduces overall disposal cost and transport costs, while the cost of individual packages is greater under the revised proposals the reduced volume has resulted in an overall below inflation packaging cost for this waste stream.

Table 36 Dry Active Waste Management Costs >2mSv/hr (unit 2)

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change
SZC.U2.03.NT8110	Unit 2 Dry Active Waste (>2mSv.hr) (ILW) - Disposal (5 YEARS)	£764,785	£545,223	-£219,562
SZC.U2.03.NT8105	Unit 2 Dry Active Waste (>2mSv.hr) (ILW) - Transport for Disposal (5 YEARS)	£68,525	£49,182	-£19,343
SZC.U2.03.NT8100	Unit 2 Dry Active Waste (>2mSv.hr) (ILW) - Disposal (2 YEARS)	£334,593	£214,195	-£120,399
SZC.U2.03.NT8095	Unit 2 Dry Active Waste (>2mSv.hr) (ILW) - Transport for Disposal (2 YEARS)	£29,980	£19,322	-£10,658
SZC.U2.03.NT8090	Unit 2 Dry Active Waste (>2mSv.hr) (ILW) - Packaging on site (5 YEARS)	£102,093	£287,962	£185,869
SZC.U2.03.NT8085	Unit 2 Dry Active Waste (>2mSv.hr) (ILW) - Packaging on site (2 YEARS)	£44,666	£113,128	£68,462

6.7.7 SZC.U1.03.005.005.050 – Unit 1 Wet Sludge (ILW)

The change of packaging choice results in a decrease in overall waste volume. This reduces overall disposal cost and transport costs, while the cost of individual packages is greater under the revised proposals the reduced volume has resulted in an overall below inflation packaging cost for this waste stream.

Table 37 Unit 1 Wet Sludge (ILW)

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change
SZC.U1.03.NT6735	Unit 1 Wet Sludges (ILW) - Disposal (5 YEARS)	£956,459	£739,945	-£216,514
SZC.U1.03.NT6730	Unit 1 Wet Sludges (ILW) - Transport for Disposal (5 YEARS)	£85,699	£66,747	-£18,952
SZC.U1.03.NT6725	Unit 1 Wet Sludges (ILW) - Disposal (2 YEARS)	£382,632	£292,084	-£90,548
SZC.U1.03.NT6720	Unit 1 Wet Sludges (ILW) - Transport for Disposal (2 YEARS)	£34,284	£26,348	-£7,936
SZC.U1.03.NT6715	Unit 1 Wet Sludges (ILW) - Packaging on site (5 YEARS)	£1,264,241	£1,220,649	-£43,593
SZC.U1.03.NT6710	Unit 1 Wet Sludges (ILW) - Packaging site (2 YEARS)	£505,696	£481,835	-£23,862

6.7.8 SZC.U2.03.005.005.050 – Unit 2 Wet Sludge (ILW)

The change of packaging choice results in a decrease in overall waste volume. This reduces overall disposal cost and transport costs, while the cost of individual packages is greater under the revised proposals the reduced volume has resulted in an overall below inflation packaging cost for this waste stream.

Table 38 Unit 2 Wet Sludge (ILW)

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change
SZC.U2.03.NT8150	Unit 2 Wet Sludges (ILW) - Disposal (5 YEARS)	£956,459	£739,945	-£216,514
SZC.U2.03.NT8145	Unit 2 Wet Sludges (ILW) - Transport for Disposal (5 YEARS)	£85,699	£66,747	-£18,952
SZC.U2.03.NT8140	Unit 2 Wet Sludges (ILW) - Disposal (2 YEARS)	£382,631	£292,084	-£90,548
SZC.U2.03.NT8135	Unit 2 Wet Sludges (ILW) - Transport for Disposal (2 YEARS)	£34,284	£26,348	-£7,936
SZC.U2.03.NT8130	Unit 2 Wet Sludges (ILW) - Packaging on site (5 YEARS)	£1,264,241	£1,220,649	-£43,593
SZC.U2.03.NT8125	Unit 2 Wet Sludges (ILW) - Packaging on site (2 YEARS)	£505,696	£481,835	-£23,862

6.8 Removal of Buildings

Review of HPC's DWMP programme identified two discrete activities which are no longer required and wholly attributed to specific buildings that have been removed from the SZC plot plan. The majority of other changes identified do not have discrete decommissioning activities within the HPC DWMP and are constituent parts of larger costed demolition activities. For simplicity all other demolition activities have been retained consistent with HPC's DWMP. These changes will be dealt with in detail as part of a sitewide update to be carried out at HPC as part of the as-built HPC DWMP. During the as-built updates, all changes to the site layout and buildings will be captured and updated decommissioning costs will be prepared. The updated HPC DWMP will become part of the underpinning documentation for the SZC DWMP, a future as-built SZC DWMP will record any deviations, from this reference decommissioning plan.

The removal of two Balance of Plant activities have been removed from SZC DWMP. This represents a small reduction in cost.

Table 39 Removed BOP Building Decommissioning Activities

HPC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
HPC.COM.04.NT3800	Other BOP Decommissioning and Demolition - EDF Restaurant	£64,657	£0	-£64,657	Building Removed from SZC plot plan
HPC.COM.04.NT3805	Other BOP Decommissioning and Demolition - EDF Site Offices	£105,385	£0	-£105,385	Building Removed from SZC plot plan

6.9 Risk Mitigation Activities – Delay to fuel transfer from pools

In order to provide underpinning to the existing schedule, establish greater confidence in key milestone dates and provide a level of prudence for the use of HPC risk uplifts, it has been considered necessary to include and cost for some early activities within the pre-closure planning phase associated with the ability to ensure transfer of fuel from pools can take place as currently scheduled. The risk mitigation costs are presented in the following sub-sections and greater detail over how these costs have been derived presented in the Cost Reconciliation document [6].

6.9.1 SZC.COM.01.RM001 – Risk Mitigation Activity - Development of the case for 3 year cooled spent fuel transfer

During the operating life of the station it is assumed that spent fuel will remain in the reactor pool for 10 years prior to transfer to the spent fuel store. A specific task has therefore been identified to undertake pre-works to develop the justification for earlier transfer of the final core. This will be a desktop exercise to establish the

validity of the existing schedule and to determine if there are any requirements for mixing of shorter and longer cooled fuel within the pool to enable the 3-year transfer to be undertaken. Limited design costs associated with potential modification of the standard MPC, used throughout operations, are to be included within this activity.

Development of the justification for earlier transfer of the final core will be a desktop exercise to establish the validity of the existing schedule and to determine if there are any requirements for mixing of shorter and longer cooled fuel to enable the 3 year transfer to be undertaken.

It is anticipated that the task will be undertaken by specialist external consultant support and liaise with MPC cask suppliers to develop the justification and, if required, schedule the mixing plans for spent fuel transfer. This task would require specialist knowledge and heat modelling capabilities and as such will be undertaken by an experienced Principal Engineer supported by a Senior Engineer over a 6 month time period.

Costs associated with data acquisition from the MPC supplier and the possibility for limited design costs associated with modification of the standard MPC, used throughout operations, are to be included within this activity. An allowance of £336,120 is to be included within this activity to cover these costs.

Table 40 Risk Mitigation Activity – Development of case for 3yr transfer of spent fuel

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.RM001	Risk Mitigation Activity - Development of the case for 3 year cooled spent fuel transfer	£0	£336,120	£336,120	New risk mitigation activity

6.9.2 SZC.COM.01.RM002 - RISK MITIGATION - Early purchase of MPC SF (MPCs not Funded from Generation Revenue)

It is assumed that procurement of MPCs will be an operational cost and that sufficient MPCs will be available at the end of generation to empty the full inventory of the pools, however this strategy is not yet confirmed. Given the significance to critical path of Spent Fuel Transfer from the reactor spent fuel pool allowing decommissioning to progress, it is considered prudent to include procurement of the required number of MPCs early in the DWMP schedule to ensure that sufficient canisters are available and fuel can be removed from cooling pools as scheduled without delay. The quantity of MPCs required for transfer of all fuel and reactor components from the full spent fuel pools, assuming two full pools at shutdown will require approximately 50 MPCs. Full details of how the costs have been derived to support this activity are captured in the reconciliation document

Table 41 Risk Mitigation Activity - Early Procurement of SF Canisters MPCs

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.RM002	SZC RISK MITIGATION - Early purchase of MPC SF Canisters not Funded from Generation Revenue	£0	£119,403,165	£119,403,165	New risk mitigation activity

6.10 SZC.COM.01.RM003 - RISK MITIGATION - Spent Fuel Inspection and Repackaging Campaign

The Phase 2 operational cost activity (SZC.COM.01.VE8835 - Phase 2 - Inspection and Repackaging Facility Operation) includes an assumed requirement to repackage a single Dry Storage Canister every 5 years.

Although it is not expected or planned that there will be a regular, systematic program of inspection of spent fuel in dry storage, there is a risk that the current assumption would not be considered prudent. In order to account for the potential for inspections which may need to be made at the request of the regulator, to demonstrate the continued safety of dry storage; a small number of canisters may need to be opened so that fuel can be inspected and re-packaged in response to loss of pressure or other anomalies detected in the storage cask.

For the purposes of this risk mitigation activity estimate, it is assumed that an average of one storage cask will be opened every 5 years of storage. Each cask opened will have its contents inspected and then packaged in a fresh MPC and returned to storage.

The following are included in the cost make up of the activity:

- **Replacement MPC Cost**

Assuming a replacement MPC required every five years during the spent fuel storage phase of the DWMP from construction of the Inspection and Repackaging Facility until the commencement of Spent Fuel repackaging for disposal, between 2096 and 2147, a 50 year period. Therefore a total of 10 additional MPCs would be required through the interim storage phase.

- **Staff Costs**

Inspection campaigns will be carried out by permanent staff whose cost of employment is already included in the cost estimate, the only major cost expected to be associated with these fuel inspection operations is therefore the cost of the replacement MPC in which the fuel will be packaged.

- **Primary Waste**

As MPCs cannot be reused after opening, each time a canister of Spent Fuel is inspected, the old MPC will be consigned as waste. The primary waste arising from repackaging will be the redundant storage canisters since it is assumed that these cannot be reused after emptying. Total primary waste arisings are estimated below [13].

Table 42 Estimate of primary waste arisings

	Lifetime no. of additional storage canisters	Free Release	LLW	ILW
Waste from repackaging during storage	10	197t	7m^3	0.7m^3

These figures are based on the following assumptions:

- Canister and lid weight 22.1t average material density 7.85 t/m^3 ;
- Waste segregated as 1% ILW, 10% LLW, 89% free release;
- Packing efficiency for ILW and LLW 40% (i.e. 60% voidage);
- ILW and LLW volumes quoted as conditioned waste volume and does not account for volume of waste package;
- One storage canister inspected every five years between 2097 and 2147 (50 years);

- **Secondary Waste**

Secondary waste arisings have already been accounted for in the costs associated with the operating lifetime of the Inspection and Repackaging Facility (SZC.COM.01.VE8835 - Phase 2 - Inspection and Repackaging Facility Operation).

Table 43 Risk Mitigation Activity – Spent Fuel Inspection and Repackaging Campaigns

SZC Activity ID	Activity Name	HPC Rev 4.0 Base Cost £ (Dec 2013 MVs)	SZC Rev 3.0 Base Cost £ (Aug 2022 MVs)	HPC Rev 4.0 to SZC Rev 3.0 cost change	Change Category
SZC.COM.01.RM003	RISK MITIGATION - Spent Fuel Inspection and Repackaging Campaign	£0	£24,153,109	£24,153,109	New risk mitigation activity

6.11 Input Data Required for the FAP and WTC

The DWMP provides the input data required by the FAP and WTC to perform the contribution calculations for the production of the contributions notice at each Annual Review and Quinquennial Review. The costs are presented separately in the following categories:

1. The Cost of Pre-closure Decommissioning Planning – All DTM tasks that occur prior to unit 1 EoG. The SZC DWMP schedule assumes Unit 1 EoG falls on 01/12/2092, for simplicity all costs up to 31/12/2092 are assigned as pre-closure planning costs.

2. The Cost of Decommissioning – All costs after 31/12/2092 up to the transfer date with exception of ILW disposal costs. The date on which activities are no longer categorised as Costs of Decommissioning is taken to be end of the year in which Decommissioning End Date falls i.e. 31/12/2113.

3. The Costs of Spent Fuel Management – All costs after the transfer date except for spent fuel disposal costs (Note: ILW Disposal after the transfer date is included in this category). The date from which activities are categorised as Costs of Spent Fuel Management is taken to be the end of the year in which the Transfer Date falls, i.e. 31/12/2113.

4. The Costs of ILW Disposal – All ILW disposal costs up to the transfer date (31/12/2113) only.

5. The Costs of Spent Fuel Disposal – Spent Fuel disposal costs only.

Under the WTC title to the SZC waste, including spent fuel, will transfer to Government along with the payment of a Waste Transfer Fee to meet the costs of waste management and disposal. The expected timing for this will be set out in the WTC. It is currently expected that title to ILW will transfer on delivery to the GDF during the decommissioning period, subject to the availability of the GDF at that time, and that title to and liability for spent fuel will transfer to Government at the end of the decommissioning period.

The DWMP provides a clear link to the WTC by providing the post transfer date waste management costs, the schedule for those costs and the cost and schedule for ILW and spent fuel disposal.

Using the costs provided within the DWMP, the fee payable to Government at the end of the decommissioning period to take title to the SZC waste and storage facility can be calculated through the mechanism set out within the WTC.

The summary schedule within this DWMP shows the completion of decommissioning and delicensing on SZC.COM.05.010.005 falling on the 28/09/2113. This aligns with milestones on which SZC Power Plant Area Decommissioning and Site Clearance is scheduled to be completed (Activity SZC.COM.05.M05), defined as the Decommissioning End Date in the WTC, and the Spent Fuel Transfer Date (Activity SZC.COM.05.M12); these milestones are calculated to occur on 28/09/2113. At this date the SZC site will consist of only the Interim Spent Fuel Store containing the full inventory of SZC spent fuel. The site previously occupied by the SZC reactors and their ancillary buildings, including the ILW Interim Storage Facility, will have been decommissioned and delicensed and the ISFS will have been relicensed and will be operating autonomously.

The transfer date, and therefore the date on which activities begin to be categorised as Spent Fuel Management Costs, is taken to be the end of the year in which the scheduled transfer date falls, i.e. 31/12/2113.
The summary cash flow underpinning the FAP and WTC calculations is provided in the DWMP Annexe A-1. A further DWMP output is required by the FAP in order to calculate a representative cost for additional storage of spent fuel at SZC in the event of closure at year 40. This value is calculated as twenty times the average real yearly cost of waste storage over any continuous period of five Financial Periods. The average yearly cost of spent fuel management has been calculated by selecting those falling between 2118 and 2122 as being suitably representative.

The summary Base and P80 cost associated with each of the 5 categories of cost is presented in Table 44, Figure 8, provides a graphical representation of the SZC summary cash flow and Table 45 presents the cost against the EPRCRS which reflects the structure of the cost estimates required by BEIS.

Table 44 Summary of Input Data for SZC FAP

Category	Base Cost (£m) (Aug 22 MVs)	P80 Cost (£m) (Aug 22 MVs)
Costs of pre closure planning All DTM tasks that occur prior to unit 1 (EoG). The SZC DWMP schedule assumes Unit 1 EoG falls on 01/12/2092, for simplicity this table only assigns costs up to 31/12/2092 as pre-closure planning costs. All costs falling after this date are assigned to the Decommissioning Category.	£384	£477
Cost of Decommissioning All costs up to the transfer date with exception of ILW disposal costs. The date on which activities are no longer categorised as Costs of Decommissioning is taken to be end of the year in which Decommissioning End Date falls i.e. 31/12/2113	£2,524	£3,454
Spent Fuel Management Costs All costs after the transfer date with the exception of spent fuel disposal costs (Note: ILW Disposal after the transfer date is included in this category). The date from which activities are categorised as Costs of Spent Fuel Management is taken to be the end of the year in which the Transfer Date falls, i.e. 31/12/2113.	£1,204	£1,459
Cost of ILW Disposal (up to transfer date only) ILW disposal costs up to transfer date – i.e. 31/12/2113	£357	£415
Cost of Spent Fuel Disposal Spent Fuel disposal costs only	£3,208	£3,433
Total	**£7,677**	**£9,237**

Note: Costs are rounded to nearest £1m

Table 45 Decommissioning and Waste Management Cost Estimate formatted by the EPRCRS

COST CATEGORY	Base Cost (£m)	P80 Cost (£m)
EPR-SITES: 01 SIZEWELL C	£7,676.68	£9,236.92
EPR-COST ALLOCATION: 01 TECHNICAL MATTER	£0.00	£0.00
EPR-CATEGORY: 03 INTERMEDIATE LEVEL WASTE (ILW) MANAGEMENT	£0.00	£0.00
EPR-SUB-CATEGORY: 01 Residual Operational Radwaste Management	£0.00	£0.00
EPR-CATEGORY: 04 SPENT FUEL (SF)	£0.00	£0.00
EPR-SUB-CATEGORY: 01 Residual Operational Radwaste Management	£0.00	£0.00
EPR-SUB-CATEGORY: 11 Construction	£0.00	£0.00
02 DESIGNATED TECH MATTER	£4,111.25	£5,389.50
01 DECOMMISSIONING THE STATION	£2,118.18	£2,899.90
02 Operations after End of Generation	£390.27	£589.33
05 Processing / Encapsulation	£7.05	£8.61
12 Decommissioning	£1,715.22	£2,294.49
14 Planning - Pre-Closure	£5.04	£6.62
15 Planning - During Decommissioning	£0.60	£0.87
02 LOW LEVEL WASTE (LLW) MANAGEMENT	£182.26	£266.82
01 Residual Operational Radwaste Management	£0.30	£0.47
02 Operations after End of Generation	£0.74	£1.15
05 Processing / Encapsulation	£19.56	£23.86
07 Transport - Operational	£0.57	£0.87
08 Transport - Decommissioning	£6.22	£9.27
09 Disposal - Operational	£19.24	£29.28
10 Disposal - Decommissioning	£133.63	£199.13
12 Decommissioning	£2.01	£2.79
03 INTERMEDIATE LEVEL WASTE (ILW) MANAGEMENT	£76.30	£111.42
01 Residual Operational Radwaste Management	£4.99	£5.70
02 Operations after End of Generation	£15.58	£18.63
05 Processing / Encapsulation	£14.59	£30.49
07 Transport - Operational	£20.55	£30.28
08 Transport - Decommissioning	£8.17	£11.41
10 Disposal - Decommissioning	£12.41	£14.89
12 Decommissioning	£0.00	£0.00
04 SPENT FUEL (SF)	£1,659.67	£2,012.11
02 Operations after End of Generation	£272.44	£322.50
05 Processing / Encapsulation	£672.40	£820.33
07 Transport - Operational	£21.13	£25.35
11 Construction	£439.17	£535.80
14 Planning - Pre-Closure	£119.40	£143.29

COST CATEGORY	Base Cost (£m)	P80 Cost (£m)
15 Planning - During Decommissioning	£13.60	£16.61
16 Operation and emptying	£121.53	£148.26
05 NON-RADIOACTIVE HAZARDOUS WASTE	**£0.00**	**£0.00**
10 Disposal - Decommissioning	£0.00	£0.00
06 PLANNING	**£74.84**	**£99.26**
14 Planning - Pre-Closure	£28.35	£38.77
15 Planning - During Decommissioning	£46.49	£60.47
03 DESIGNATED TECH MATTER (Waste Disposal)	**£3,565.43**	**£3,847.42**
03 INTERMEDIATE LEVEL WASTE (ILW) MANAGEMENT	**£357.46**	**£414.89**
09 Disposal - Operational	£228.59	£242.30
10 Disposal - Decommissioning	£128.88	£172.59
04 SPENT FUEL (SF)	**£3,207.96**	**£3,432.53**
09 Disposal - Operational	£3,207.96	£3,432.53

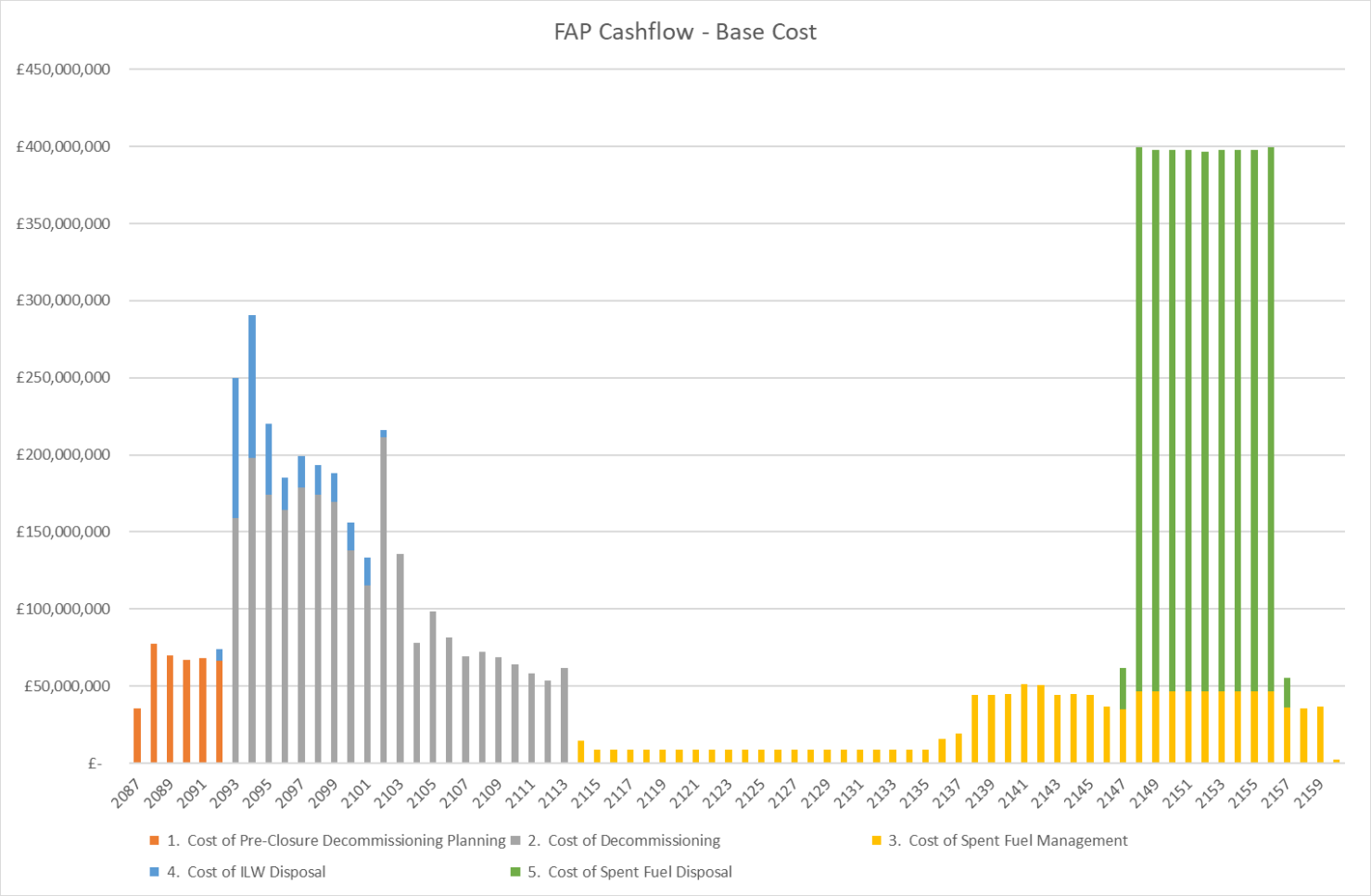

Figure 8 Sizewell C Cash Flow (Base Cost)

7 ASSUMPTIONS AND EXCLUSIONS

The adoption of the replication strategy at SZC has ensured that the design and decommissioning approach for SZC is closely aligned with that outlined for HPC. Consequently, the assumptions and exclusions identified for HPC are equally applicable to SZC. For completeness, the full breakdown of all assumptions and exclusions that are applicable to SZC are presented in the following sub sections.

7.1 Fixed and Notifiable Assumptions

As mentioned in the introduction the DWMP and FAP collectively makeup the FDP submission for SZC. At the time of writing, production of this DWMP for SZC is ahead of that of the FAP. For HPC the FAP specified several assumptions on the DWMP to ensure that the technical approach to decommissioning is based upon the framework of the FAP. Given the replication strategy adopted for SZC it is expected that identical Fixed and Notifiable Assumptions to those in HPC's FAP will be used to underpin SZC's FAP and will be reflected once work commences on the FAP.

The Fixed and Notifiable Assumptions are:

Fixed Assumptions are:

- the regulatory regime that will be applied to waste management and decommissioning at the relevant time will be that in force at the time the DWMP is prepared;
- during the Operational Period, the final site end state will be such that the Site has been returned to a state agreed with the regulators and the planning authority;
- cost estimates will be presented on a consistent money of the day basis;
- decommissioning will be undertaken using equipment and techniques available at the time the DWMP is prepared; and
- all DTM Costs (but, for the avoidance of doubt, not the operational costs of the second (2nd) Reactor) associated with the operation of the Site after the Decommissioning Start Date and prior to achieving the Site End State will be funded as part of decommissioning activity.

Notifiable Assumptions[2] are:

- prompt decommissioning of the Site ("early site clearance") will be employed;
- the operating lifetime of each of the Reactors will be sixty (60) years;
- low level waste will be dispatched to a disposal facility promptly after generation; and
- Waste Management and Waste disposal will be carried out in accordance with the arrangements set out in the Waste Transfer Contract.

7.2 Key Assumptions

The following sets out the base case assumptions provided in the FDP guidance [2] and takes into account the "The Financing of Nuclear Decommissioning and Waste Handling Regulations" [12]. In most cases the base case assumptions have been adopted unchanged. Where there are differences, or assumptions are not included within the base case, these are indicated in *italics*.

[2] Note: This SZC DWMP must reflect these Notifiable Assumptions unless the Operator certifies that it has notified the Relevant Regulators of the change to the Notifiable Assumptions and that it has not received any objection to the change in writing from either of the Relevant Regulators.

In addition, the FAP sets a number of Fixed and Notifiable assumptions as described previously. The assumptions that form the basis of this DWMP respond to the "Base Case" assumptions, "Fixed Assumptions" and "Notifiable Assumptions" are identified below.

These assumptions cover the "DTMs" which are the steps that need to be taken to decommission the installation and clean up the site (which includes the management and disposal of waste) once the reactors have reached the EoG.

7.2.1 Regulatory regime

1. The regulatory regime applied to waste management and decommissioning is that in force at the time the FDP was submitted. (fixed assumption)
2. Definitions of waste categories are unchanged from those current at the time the FDP was submitted.
3. Dose limits for workers and the public remain unchanged from those in current use in the UK (set out in the Ionising Radiation Regulations 2017).

7.2.2 Definition of decommissioning and decommissioning costs (fixed assumption)

1. For the purpose of this DWMP, decommissioning at the site is defined to begin at the End of Generation (EoG) Unit 1, when Unit 1 is permanently shut down with no intention of further use for the purpose of generating electricity.
2. For the purposes of this DWMP, decommissioning is defined to end when all station buildings and facilities have been removed and the site has been returned to an end state which has been agreed with the regulators and the planning authority.
3. Costs for decommissioning have been structured to ensure that the costs of management and infrastructure for the station under decommissioning are fully accounted for and separate from costs for other areas of the business.
4. Demolition and disposal of waste management facilities are regarded as part of the decommissioning activity.
5. Certain activities preparatory to decommissioning, such as pre-decommissioning planning, are a DTM and the cost will be met from the FDP.
6. All other costs associated with operating the site after the end of its generating life and until the site licence is surrendered are included as part of the decommissioning activity.

7.2.3 Decommissioning Facilities

1. All facilities on site will be decommissioned in accordance with a structured plan which is acceptable to the regulators which will reduce the hazards presented by the site in a systematic manner.
2. Prompt decommissioning of the power station (Early Site Clearance) is employed for SZC, with safe and secure interim storage facilities for ILW and Spent Fuel. The storage facilities will ensure that the waste stored is compliant with the Waste Transfer Contract arrangements and will be able to meet the GDF operator's conditions for acceptance at the date the waste is packaged. (notifiable assumption)

7.2.4 Care and maintenance

The Early Site Clearance Strategy employed for SZC includes the commencement of defueling and decommissioning as soon as reasonably practicable following EoG with no care and maintenance period.

7.2.5 Site End State

The final site end state will be such that all station buildings and facilities have been removed and the site returned to a state agreed with the regulators and the planning authority, which is considered to be consistent with the Base Case assumption of "Similar to Greenfield". For cost estimation purposes the assumption is that the site is restored to a state similar to its state prior to construction. The foundations of the buildings are removed to a depth of 1m below ground level. (fixed assumption)

7.2.6 Cost Calculation

The cost estimates are presented on a consistent "money of the year" basis, escalation having been applied as necessary to the source cost estimates to bring the costs in the declared money value. (fixed assumption)

7.2.7 Effect of station design on the Base Case

The basis of this DWMP and associated cost estimate is specific to the SZC site, recognising that a significant proportion is also common to other EPR sites.

7.2.8 Station Operating Lifetime

The assumed operational life for SZC for liabilities planning purposes is 60 years. This departs from the Base Case assumption of a 40 year plant life under the FDP guidance, but aligns with the FAP. *(notifiable assumption)*

7.2.9 Decommissioning techniques

Decommissioning will be undertaken using equipment and techniques available at the time that this DWMP was prepared. While it is recognised that technical advances may well have a significant impact on the way in which new nuclear power stations are eventually decommissioned, this plan utilises current technology to demonstrate a workable plan for decommissioning and waste management for the site before construction of the station has begun. As part of the Quinquennial Review process technological advancements will be considered and their impact reflected in the plan and associated cost estimates. (fixed assumption)

7.2.10 Management and disposal of ILW (notifiable assumption)

1. ILW arising from operations and decommissioning will be stored in safe and secure interim storage facilities on the site of the power station, pending disposal in the same geological disposal facilities to be used for the disposal of ILW from existing nuclear facilities.
2. *The ILW Storage facilities will be constructed during the construction phase of SZC, consequently the maintenance of interim stores for ILW during the operation of SZC are categorised as an Operational DTM and the cost has therefore not been included in this DWMP (See section 4).*
3. It is assumed that ILW from operations and decommissioning will be disposed of in accordance with the Waste Transfer Contract which is predicated on disposal of ILW and Spent Fuel in a GDF, and that operational and decommissioning ILW disposal is completed before the "Transfer Date" as defined in section 2b.37 of the FDP guidance.
4. While SZC Co. is responsible for estimating the cost of transport of the waste to the GDF, the transfer may be undertaken by a third party, acceptable to the UK regulators, under contract.
5. The arrangements for conditioning and storage of ILW both contribute to passive safety which is currently acceptable to UK regulators and ensures that the waste will meet the GDF operator's conditions for acceptance at the date scheduled for its disposal.

6. *It is assumed that the Government will enter into a contract regarding the terms on which it will take title to and liability for the operator's ILW. For the purpose of this baseline DWMP, it is assumed that this occurs on receipt of the ILW at the GDF site, and that the price per m³ of packaged ILW is at an agreed contracted rate.*
7. Conditioning costs for operational ILW arising before EoG are regarded as operational costs and will not be paid for from the FDP.
8. *Conditioning costs for operational ILW arising after EoG are regarded as decommissioning costs and are identified in this DWMP and will be paid for from the FDP.*
9. Conditioning costs for decommissioning ILW are identified in this DWMP and will be met from the FDP.

7.2.11 Management and Disposal of Spent Fuel (notifiable assumption)

1. It is assumed that uranium oxide fuel is utilised in the reactors. It also assumes that there will be no reprocessing of the uranium fuel, and spent fuel will ultimately be disposed of in a GDF.
2. Spent fuel will be stored in cooling ponds for a period of time, followed by storage in a safe and secure interim store on the site of the power station until decommissioning has been completed and disposal facilities are available to accommodate it. Fuel from the latter stages of the power station's life will have to remain in interim storage on site for some years after the station has ceased generation, because of the need to allow it to cool, before it can be transported and disposed of in a GDF.
3. *The interim spent fuel storage facilities will be constructed during the Operational Phase of SZC, consequently the construction and maintenance of interim stores for spent fuel during the operation of the power generating plant are categorised as Operational Designated Technical Matters and the cost at SZC is not identified in this DWMP. Following EoG, all costs associated with storage, transport and disposal of spent fuel are a DTM, are evaluated in this DWMP, and will fall to the Fund (See section 4).*
4. Spent fuel will be disposed of in a GDF under arrangements set out in the Waste Transfer Contract.
5. *SZC Co. is responsible for estimating the costs of transport of the spent fuel to the GDF, although the transfer may be undertaken by a third party, acceptable to the UK regulators, under contract. The basis for this is described in the Waste Transfer Contract as some of these activities will occur after title and liability to waste and spent fuel will have transferred in accordance with the Waste Transfer Contract.*
6. It is assumed that the Government will enter into a contract (the "Waste Transfer Contract") regarding the terms on which it will take title to and liability for the operator's spent fuel.
7. *For the purpose of this DWMP, it is assumed that this occurs at the "Transfer Date" on completion of decommissioning of the SZC power generation plant and following the establishment of the ISFS as an independent facility. It is also assumed that the Government enter into a contract rate per tonne uranium for disposal of spent fuel (the Waste Transfer Contract).*
8. *This DWMP assumes that spent fuel will be encapsulated immediately prior to transfer to a GDF. Whilst SZC Co. do not consider that the provision of an encapsulation plant for each site is a sensible planning assumption it has estimated the costs of providing an encapsulation plant for SZC alone. There is no assumption about the location of such a plant.*

7.2.12 Management and disposal of LLW (notifiable assumption)

1. This DWMP assumes that LLW arising during operation and decommissioning will be packaged on site by the operator and dispatched to a disposal facility promptly after they have been generated. For the purposes of this DWMP, it is assumed that disposal will be at the LLW Repository operating in West Cumbria or a successor facility.
2. It is assumed that LLW will be disposed of in the UK, and that disposal facilities will be available when required, at a price to be agreed between SZC Co. and the operator of the disposal service. NNB GenCo will meet the costs of managing and disposing of operational LLW prior to EoG. These costs will be met from operational revenues.

3. The costs of managing and disposing of operational type LLW arising after EoG and the costs of disposing of decommissioning LLW are evaluated in this DWMP.
4. *The facilities necessary for the processing and packaging of LLW to comply with the conditions for acceptance of that waste will be available at SZC.*
5. It is assumed that the arrangements for packaging are consistent with those currently acceptable to the relevant UK regulators. SZC Co. is responsible for transport of the waste to the disposal facility, although the transfer may be undertaken by a third party, acceptable to the UK regulators, under contract.
6. It is assumed that title to the waste will pass to the disposal facility operator when an individual package has been transported to the facility and accepted by the facility operator as meeting the relevant criteria.

7.2.13 Management and disposal of non-radioactive hazardous waste

1. Non-radioactive hazardous wastes arising as a result of operations and decommissioning will be managed according to regulatory requirements and current practices and will be disposed of using established disposal routes.
2. The costs of managing and disposing of non-radioactive hazardous waste from operations will be met from operational revenue.
3. The costs of managing and disposing of non-radioactive hazardous waste from decommissioning are evaluated in this DWMP and will be met from the FDP.

7.2.14 Waste minimisation

In establishing its Integrated Waste Strategy (IWS), steps have been taken to ensure that waste volumes and the costs of waste management and decommissioning are limited throughout the station life; for example, by avoidance of production of waste by adherence to the waste hierarchy, minimising the production of primary and secondary wastes consistent with the requirements and expectations of the nuclear and environmental regulators, and through careful segregation of waste arisings.

Due account has been taken in determining the IWS and this DWMP of the expectation that new nuclear power stations will meet high environmental standards.

7.2.15 Waste conditioning

Waste will be conditioned in a manner and on a timescale which is consistent with current regulatory requirements.

7.2.16 Treatment of wastes arising as a result of station refurbishment

Wastes arising as a result of station refurbishment will be managed in the same way as operational wastes and paid for from operational expenditure.

7.3 Exclusions

The FDP covers certain liabilities which have arisen as a result of the operation of SZC during its operational life, the scope of the fund being defined by the Energy Act 2008 and the associated FDP guidance. The Act defines certain aspects to be Technical Matters, the cost of which is excluded from the Fund, and others as DTMs, which are included in the Fund (see section 4).

The practical interpretation of the above to the scope of the DWMP and the associated liabilities for SZC are presented below.

The following are considered to be site construction or operational costs covered by construction investment or operational revenue. That is, these are considered to be Technical Matters or Operational Designated Technical Matters which are excluded from the Fund.

- Operation of the site prior to EoG (Technical Matter);
- ILWISF construction and maintenance during operations (Operational Designated Technical Matter);
- ILWISF operation prior to EoG (Technical Matter);
- ILW operational waste management operations up to two years before EoG (Technical Matter);
- LLW operational waste management operations up to two years before EoG (Technical Matter);
- LLW operational waste disposal up to two years before EoG (Technical Matter);
- ISFS construction and maintenance during operations (Operational Designated Technical Matter);
- Spent fuel management and storage operations prior to EoG (Technical Matter);
- The costs incurred by the FDP Co. (if applicable) and BEIS, and their advisors, in carrying out their duties in relation to the FDP prior to EoG (Technical Matter);

8 DECOMMISSIONING AND WASTE MANAGEMENT COST ESTIMATING PROCESS

The adoption of the replication strategy for the EPR design at SZC enables this DWMP for SZC to leverage upon the underpinning work used for HPC [3]. In these instances costs from the HPC DWMP are used and the HPC values uplifted from December 2013 values to August 2022 values using an actual RPI value of 36.2%.

For activities that were not directly replicated from the 2014 HPC DWMP submission, cost changes are captured within the HPC (D)DWMP Technical Addendum. Section 6 of this document lists all the areas where cost changes have been made.

A full description of the costing methodologies used can be found in section 8 of HPC's (D)DWMP [4]. The methodologies employed in generating costs that were not covered by the HPC DWMP are fully consistent with the methodologies described therein and include industry standard approaches such as detailed bottom up estimates, operational experience outturn costs and extrapolation for demolition costs as percentages of building costs.

8.1 Application of Risk and Contingency to New Spent Fuel Management Activities

For new or modified activities no additional risk or contingency modelling was undertaken. However, to ensure compliance with guiding factors, risk and uncertainty has been included through the application of the same P80 uplifts as used for equivalent spent fuel management activities in the approved HPC DWMP.

Review of the HPC DWMP spent fuel activity risks (incorporating defueling, storage, packaging and disposal risks), has identified that all HPC risks remain valid for the SZC Dry Storage Strategy with only a small variation in potential impact or likelihood [14]. This provides confidence that replication of the previous HPC risk and uncertainty uplifts for the updated Spent Fuel management activities is a robust mechanism for calculation of the P80 for the SZC DWMP.

In order to demonstrate prudency of costs, further consideration of additional risks associated with the change in strategy for SZC Spent Fuel Management has been undertaken. This has introduced two new risks into the DWMP that were not captured in the original HPC risk review and are summarised below:

1. Risk Act 1-17: Delay to fuel transfer from fuel pool to ISFS due to lack of availability of containers (MPCs) or inability to make case for transfer of <5yr cooled fuel.
2. Risk Act 1-18: Requirement to retrieve and repackage spent fuel from MPCs during the post-closure storage phase prior to encapsulation for disposal.

For simplicity, and to maintain the link back to the HPC risk exercise, it has been decided that the HPC existing P80 uplift for Spent Fuel activities will be transposed across to the new SZC Dry Storage activities, however in order to include appropriate prudence into the SZC estimate the two new risks have been costed as separate activities inserted into the schedule representing a mitigation activity that will be costed into the DWMP at both base and P80.

It is accepted that this is not a perfect solution, however in order to maintain the link the HPC Risk Register this represents the simplest way of managing these risks and ensuring a clear risk provision is included for these SZC specific risks.

9 NON-DESIGNATED TECHNICAL MATTERS AND OPERATIONAL DESIGNATED TECHNICAL MATTERS

Section 4 of this DWMP defines each of the different categories assigned within the SZC DWMP. This section describes those elements of the work scope that are classified as Technical Matters with the cost of performing works attributed to construction cost or to the station operating revenue. They impact only on part of the works under Activity 01 and Activity 03 as shown below:

SPENT FUEL MANAGEMENT – ACTIVITY 01

- Interim Spent Fuel Store Construction and maintenance during operational phase (Operational Designated Technical Matters)
- Fuel Handling from Reactor to Spent Fuel Store during Station Lifetime (Technical Matters)
- Interim Spent Fuel Store Operation during Generation (Technical Matters)

MANAGEMENT OF OPERATIONAL WASTES – ACTIVITY 03

- Operational LLW Packaging and Disposal Prior to EoG (Technical Matters)
- Operational ILW Interim Storage Facility Construction and maintenance during operational phase (Operational Designated Technical Matters)
- Operational ILW Packaging Prior to EoG (Technical Matters)

It is worth noting that the original intention for the ISFS at HPC was for the ISFS to be built as part of the construction phase of the plant. This is now no longer the case and construction of the ISFS has been deferred and will now be undertaken during the generation phase. SZC will follow this approach and this activity is designated as an operational designated technical matter within this DWMP.

All other aspects are consistent with HPC and a full description of the Non-Designated Technical Matters can be found in the HPC DWMP [3].

10 REFERENCES AND DEFINITIONS

[1] "Energy Act," 2008.

[2] "Energy Act 2008 - Consultation on revised Funded Decommissioning Programme Guidance for New Nuclear Power Stations," 2010.

[3] "Hinkley Point C Decommissioning and Waste Management Plan Revision 4.0," NNB PEA-REP-00009, Version 4.0, May 2014.

[4] "Hinkley Point C Detailed Decommissioning and Waste Management Plan. Rev. 4.0," NNB-PEA-REP-000002, May 2014.

[5] "Sizewell C Manage Design Change Procedure," NNB-202-PRO-000033, 2021.

[6] "Cost Reconciliation of the SZC Decommissioning and Waste Management Plan," 100514775, Rev 2.0, 2022.

[7] "Technical Addendum to "NNB Generating Company Ltd, Company Document, Hinkley Point C Power Station, Detailed Decommissioning and Waste Management Plan, Incorporation of Dry Storage of Spent Fuel and Update to Reference Configuration 2.0, Rev 1.0," 100286599, Dec 2019.

[8] "SZC Development Consent Order - https://sizewellcdco.co.uk/view-documents/," Book 6 - Environmental Statement, Volume 2 - Main Development Site, 2020.

[9] "Health and Safety Executive, "HSE Criterion for Delicensing Nuclear Sites"," May 2005.

[10] "EPR Corporate Decommissioning Strategy and Plan," 100108219, Rev 5.0 , June 2019.

[11] "Funding Arrangements Plan for Hinkley Point C," https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/556770/4_-_Funding_Arrangements_Plan.pdf, 2015.

[12] "UK Government. The Nuclear Decommissioning and Waste Handling (Designated Technical Matters) Order 2010. UK Statutory Instruments 2010 No. 2850," 2010.

[13] "Spent Fuel Inspection and Repackaging Facility Outline Design," A0551-10104, Rev 4.0 , 2016.

[14] "Sizewell C DWMP - Development of P80 Uplifts and Additional Contingency for New Spent Fuel Activities," 100836159, Rev 2.0, 2021.

[15] "Funding Arrangements Plan for Hinkley Point C," 2015.

Term / Abbreviation	Definition
AONB	Area of Outstanding Natural Beauty
AETP	Active Effluent Treatment Plant
BEIS	Department of Business, Energy and Industrial Strategy (formally DECC)
BLF	Beach Landing Facility
BOP	Balance of Plant
CI	Conventional Island
CW	Cooling Water
DECC	Department of Energy and Climate Change (this is now BEIS)
DSEDS	Decommissioning Site Electrical Distribution System
DSIES	Decommissioning Site Incoming Electrical Supply
DTM	Designated Technical Matter
DWMF	Decommissioning Waste Management Facility
DWMP	Decommissioning and Waste Management Plan
(D)DWMP	Detailed Decommissioning and Waste Management Plan
EDF	Électricité de France
EIADR	Environment Impact Assessment for Decommissioning
EoG	End of Generation
EPR	The Pressurised Water Reactor developed and trademarked by AREVA
EPRCRS	EPR Cost Reporting Structure
EPRWBS	EPR Work Breakdown Structure
ESC	Early Site Clearance
FAP	Funding Arrangement Plan
FDP	Funded Decommissioning Programme
Fund	Funding Arrangements established under the terms of the FDP
GDA	Generic Design Assessment
GDF	Geological Disposal Facility
GRR	Guidance on Requirements for Release of Nuclear Sites from Radioactive Substances Regulation
HMG	Her Majesty's Government
HPC	Hinkley Point C
HQA/HQB/HQC	Waste Effluent Buildings
ILW	Intermediate Level Waste
ILWISF	Intermediate Level Waste Interim Storage Facility
ISFS	Interim Spent Fuel Store
LLW	Low Level Waste
MPC	Multi Purpose Canister
MV	Money Value
NDA	Nuclear Decommissioning Authority
NI	Nuclear Island
NNB GenCo	Nuclear New Build Generation Company
ONS	Office for National Statistics

Term / Abbreviation	Definition
PCD	Primary Circuit Decontamination
POCO	Post Operational Clean Out
PWR	Pressurised Water Reactor
QQR	Quinquennial Review
RCCA	Rod Cluster Control Assemblies
RPI	Retail Price Index
RSCPF	Redundant Storage Canister Processing Facility
SF	Spent Fuel
SFEF	Spent Fuel Encapsulation Facility
SFIRF	Spent Fuel Inspection and Repackaging Facility
SLA	Special Landscape Area
SPND	Self Powered Neutron Detector
SSSI	Site of Special Scientific Interest
SWESC	Site Wide Environment Safety Case
SZA	Sizewell A Power Station
SZB	Sizewell B Power Station
SZC	Sizewell C Power Station
SZC Co.	NNB Generation Company (SZC) Limited
WBS	Work Breakdown Structure
WMP	Waste Management Plan
WTC	Waste Transfer Contract

11 EPRWBS CODING

11.1 EPRWBS for Sizewell C Unit 1

Activity ID and Name
EPRWBS: 1 EDF ENERGY NNB GenCo NUCLEAR FLEET
EPRWBS: 1.SZC Sizewell C
EPRWBS: 1.SZC.U1 UNIT 1
EPRWBS: 1.SZC.U1.01 FUEL MANAGEMENT (Activity 01)
EPRWBS: 1.SZC.U1.01.015 Reactor Defueling and Fuel Despatch
EPRWBS: 1.SZC.U1.01.015.005 Fuel Removal Operations from Reactor
EPRWBS: 1.SZC.U1.01.015.010 Fuel Storage in Cooling Pond
EPRWBS: 1.SZC.U1.01.015.015 Multi Purpose Canister (MPC) loaded and despatch (from Fuel Buildings Spent Fuel Pool to the ISFS)
EPRWBS: 1.SZC.U1.02 SITE OPERATION & PLANT PREPARATION (Activity 02)
EPRWBS: 1.SZC.U1.02.001 Making Safe Redundant Systems & Plant
EPRWBS: 1.SZC.U1.02.001.000 Non Maintenance Group Specific
EPRWBS: 1.SZC.U1.02.003 Primary Circuit Decontamination (PCD)
EPRWBS: 1.SZC.U1.02.003.005 PCD Engineering Design
EPRWBS: 1.SZC.U1.02.003.010 PCD Installation and Commissioning
EPRWBS: 1.SZC.U1.02.003.015 PCD Operations
EPRWBS: 1.SZC.U1.02.003.025 PCD Waste Management
EPRWBS: 1.SZC.U1.02.045 Site Plant Maintenance during Decommissioning
EPRWBS: 1.SZC.U1.02.045.020 During Plant Decommissioning
EPRWBS: 1.SZC.U1.02.050 Plant Operations During Decommissioning
EPRWBS: 1.SZC.U1.02.050.020 During Plant Decommissioning
EPRWBS: 1.SZC.U1.03 MANAGEMENT OPERATIONAL WASTES (Activity 03)
EPRWBS: 1.SZC.U1.03.005 Retrieval, Processing, Transport and Disposal
EPRWBS: 1.SZC.U1.03.005.005 ILW Operational Waste
EPRWBS: 1.SZC.U1.03.005.010 LLW Operational Waste
EPRWBS: 1.SZC.U1.04 PLANT & REACTOR DECOMMISSIONING (Activity 04)
EPRWBS: 1.SZC.U1.04.005 Nuclear Island (NI)
EPRWBS: 1.SZC.U1.04.005.005 Reactor Building
EPRWBS: 1.SZC.U1.04.005.010 Fuel Building
EPRWBS: 1.SZC.U1.04.005.015 Safeguard Buildings
EPRWBS: 1.SZC.U1.04.005.025 Nuclear Auxiliary Building
EPRWBS: 1.SZC.U1.04.005.035 Other Nuclear Island Buildings
EPRWBS: 1.SZC.U1.04.005.040 Access Building

Activity ID and Name
EPRWBS: 1.SZC.U1.04.005.045 Waste / Effluent Building (HQA / HQB)
EPRWBS: 1.SZC.U1.04.005.050 Backup Diesels
EPRWBS: 1.SZC.U1.04.005.055 Functional Simplification
EPRWBS: 1.SZC.U1.04.005.060 New Works
EPRWBS: 1.SZC.U1.04.005.065 Dismantling Preparation
EPRWBS: 1.SZC.U1.04.005.070 Nuclear Island Demolition Support
EPRWBS: 1.SZC.U1.04.005.075 Nuclear Island Dismantling Secondary Wastes
EPRWBS: 1.SZC.U1.04.010 Conventional Island (CI)
EPRWBS: 1.SZC.U1.04.010.005 Turbine Hall
EPRWBS: 1.SZC.U1.04.010.010 Other Conventional Island Buildings
EPRWBS: 1.SZC.U1.04.015 Balance Of Plant (BOP)
EPRWBS: 1.SZC.U1.04.015.005 CW System
EPRWBS: 1.SZC.U1.04.015.010 Other Balance of Plant

11.2 EPRWBS Coding for Sizewell C Unit 2

Activity ID and Name
EPRWBS: 1 EDF ENERGY NNB GenCo NUCLEAR FLEET
EPRWBS: 1.SZC Sizewell C
EPRWBS: 1.SZC.U2 UNIT 2
EPRWBS: 1.SZC.U2.01 FUEL MANAGEMENT (Activity 01)
EPRWBS: 1.SZC.U2.01.015 Reactor Defueling and Fuel Despatch
EPRWBS: 1.SZC.U2.01.015.005 Fuel Removal Operations from Reactor
EPRWBS: 1.SZC.U2.01.015.010 Fuel Storage in Cooling Pond
EPRWBS: 1.SZC.U2.01.015.015 Multi Purpose Canister (MPC) loaded and despatch (from Fuel Buildings Spent Fuel Pool to the ISFS)
EPRWBS: 1.SZC.U2.02 SITE OPERATION & PLANT PREPARATION (Activity 02)
EPRWBS: 1.SZC.U2.02.001 Making Safe Redundant Systems & Plant
EPRWBS: 1.SZC.U2.02.001.000 Non Maintenance Group Specific
EPRWBS: 1.SZC.U2.02.003 Primary Circuit Decontamination (PCD)
EPRWBS: 1.SZC.U2.02.003.010 PCD Installation and Commissioning
EPRWBS: 1.SZC.U2.02.003.015 PCD Operations
EPRWBS: 1.SZC.U2.02.003.025 PCD Waste Management
EPRWBS: 1.SZC.U2.02.045 Site Plant Maintenance during Decommissioning
EPRWBS: 1.SZC.U2.02.045.020 During Plant Decommissioning
EPRWBS: 1.SZC.U2.02.050 Plant Operations During Decommissioning
EPRWBS: 1.SZC.U2.02.050.020 During Plant Decommissioning
EPRWBS: 1.SZC.U2.03 MANAGEMENT OPERATIONAL WASTES (Activity 03)
EPRWBS: 1.SZC.U2.03.005 Retrieval, Processing, Transport and Disposal
EPRWBS: 1.SZC.U2.03.005.005 ILW Operational Waste
EPRWBS: 1.SZC.U2.03.005.010 LLW Operational Waste
EPRWBS: 1.SZC.U2.04 PLANT & REACTOR DECOMMISSIONING (Activity 04)
EPRWBS: 1.SZC.U2.04.005 Nuclear Island (NI)
EPRWBS: 1.SZC.U2.04.005.005 Reactor Building
EPRWBS: 1.SZC.U2.04.005.010 Fuel Building
EPRWBS: 1.SZC.U2.04.005.015 Safeguard Buildings
EPRWBS: 1.SZC.U2.04.005.025 Nuclear Auxiliary Building
EPRWBS: 1.SZC.U2.04.005.035 Other Nuclear Island Buildings
EPRWBS: 1.SZC.U2.04.005.040 Access Building
EPRWBS: 1.SZC.U2.04.005.045 Waste / Effluent Building (HQC)
EPRWBS: 1.SZC.U2.04.005.050 Backup Diesels
EPRWBS: 1.SZC.U2.04.005.055 Functional Simplification
EPRWBS: 1.SZC.U2.04.005.060 New Works

Activity ID and Name
EPRWBS: 1.SZC.U2.04.005.065 Dismantling Preparation
EPRWBS: 1.SZC.U2.04.005.070 Nuclear Island Demolition Support
EPRWBS: 1.SZC.U2.04.005.075 Nuclear Island Dismantling Secondary Wastes
EPRWBS: 1.SZC.U2.04.010 Conventional Island (CI)
EPRWBS: 1.SZC.U2.04.010.005 Turbine Hall
EPRWBS: 1.SZC.U2.04.010.010 Other Conventional Island Buildings
EPRWBS: 1.SZC.U2.04.015 Balance Of Plant (BOP)
EPRWBS: 1.SZC.U2.04.015.005 CW System
EPRWBS: 1.SZC.U2.04.015.010 Other Balance of Plant

11.3 EPRWBS Coding for Sizewell C (Common Plant)

Activity ID and Name
EPRWBS: 1 EDF ENERGY NNB GenCo NUCLEAR FLEET
EPRWBS: 1.SZC Sizewell C
EPRWBS: 1.SZC.COM COMMON PLANT
EPRWBS: 1.SZC.COM.00 PRE CLOSURE PREPARATORY WORK (Activity 0)
EPRWBS: 1.SZC.COM.00.001 Strategic Review and Decommissioning Plan Development
EPRWBS: 1.SZC.COM.00.015 Environmental Impact Statement
EPRWBS: 1.SZC.COM.00.020 National & Local Planning Permission
EPRWBS: 1.SZC.COM.00.025 Article 37 Submission
EPRWBS: 1.SZC.COM.00.045 Revise Station Maintenance Schedule
EPRWBS: 1.SZC.COM.00.050 Revise Discharge Authorisations
EPRWBS: 1.SZC.COM.00.060 Programme Management Development
EPRWBS: 1.SZC.COM.00.060.010 Preliminaries
EPRWBS: 1.SZC.COM.00.060.020 Integration Workstreams
EPRWBS: 1.SZC.COM.00.060.030 Workstreams Tranche 1
EPRWBS: 1.SZC.COM.00.060.040 Workstreams Tranche 2
EPRWBS: 1.SZC.COM.00.070 Pre-Closure Planning Staffing Requirements
EPRWBS: 1.SZC.COM.00.200 Environmental Monitoring programme
EPRWBS: 1.SZC.COM.00.200.010 Environmental Monitoring
EPRWBS: 1.SZC.COM.01 FUEL MANAGEMENT (Activity 01)
EPRWBS: 1.SZC.COM.01.015 Reactor Defueling and Fuel Despatch
EPRWBS: 1.SZC.COM.01.015.016 Design and Construction of the SFIRF
EPRWBS: 1.SZC.COM.01.015.018 Operation of SFIRF
EPRWBS: 1.SZC.COM.01.015.020 Replacement of essential services to enable operation of fuel facilities, conversion of IFSD/SFIRF to autonomous ops.
EPRWBS: 1.SZC.COM.01.015.022 Relicense Autonomous ISFS/ISFIRF
EPRWBS: 1.SZC.COM.01.015.025 Operation of the ISFS/SFIRF
EPRWBS: 1.SZC.COM.01.015.030 Spent Fuel Transport and Disposal
EPRWBS: 1.SZC.COM.01.015.035 Interim Spent Fuel Store Decommissioning
EPRWBS: 1.SZC.COM.01.015.037 SFEF/RSCPF Planning
EPRWBS: 1.SZC.COM.01.015.040 Conversion and extension of the SFIRF into the SFEF and design and construction of RSCPF
EPRWBS: 1.SZC.COM.01.015.045 Operation of the SFEF and RSCPF
EPRWBS: 1.SZC.COM.01.015.050 SFEF and RSCPF Decommissioning
EPRWBS: 1.SZC.COM.02 SITE OPERATION & PLANT PREPARATION (Activity 02)
EPRWBS: 1.SZC.COM.02.010 Activity 2 Staffing Levels

Activity ID and Name
EPRWBS: 1.SZC.COM.02.030 New Decommissioning Electrical Supply & Electrical Distribution System (DSEDS)
EPRWBS: 1.SZC.COM.02.030.010 New Decommissioning Site Incoming Electrical Supply (DSIES)
EPRWBS: 1.SZC.COM.02.030.020 New Decommissioning Site Electrical Distribution System (DSEDS)
EPRWBS: 1.SZC.COM.02.035 Active Waste Treatment System
EPRWBS: 1.SZC.COM.02.035.040 New Effluent Discharge Arrangements
EPRWBS: 1.SZC.COM.02.100 Site Overheads
EPRWBS: 1.SZC.COM.02.100.020 Site Management & Arrangements, Facilities, Services and Admin
EPRWBS: 1.SZC.COM.02.100.030 Operations and Project Support to Decommissioning
EPRWBS: 1.SZC.COM.02.100.050 Records & Knowledge Management for Decommissioning
EPRWBS: 1.SZC.COM.02.100.070 Programme Management and Controls
EPRWBS: 1.SZC.COM.02.100.080 Site Staff Redundancy costs
EPRWBS: 1.SZC.COM.02.100.200 Environmental Management
EPRWBS: 1.SZC.COM.02.200 Corporate Support Costs
EPRWBS: 1.SZC.COM.02.200.010 Corporate Staff Support
EPRWBS: 1.SZC.COM.02.200.020 Regulatory Costs
EPRWBS: 1.SZC.COM.02.200.030 Civil Nuclear Constabulary Costs
EPRWBS: 1.SZC.COM.02.200.040 Fundco Operating Costs
EPRWBS: 1.SZC.COM.02.200.050 DECC Charges
EPRWBS: 1.SZC.COM.02.200.070 Insurance Costs During Decommissioning & Spent Fuel Management
EPRWBS: 1.SZC.COM.03 MANAGEMENT OPERATIONAL WASTES (Activity 03)
EPRWBS: 1.SZC.COM.03.020 ILW Interim Storage Facility (ILW ISF)
EPRWBS: 1.SZC.COM.03.020.015 ILWISF - Store Emptying
EPRWBS: 1.SZC.COM.03.020.020 Interim Waste Storage - Decommission & Demolition
EPRWBS: 1.SZC.COM.03.025 Active Waste Treatment Systems
EPRWBS: 1.SZC.COM.03.025.060 Mobile AETP
EPRWBS: 1.SZC.COM.04 PLANT & REACTOR DECOMMISSIONING (Activity 04)
EPRWBS: 1.SZC.COM.04.005 Nuclear Island (NI)
EPRWBS: 1.SZC.COM.04.005.045 Waste / Effluent Building (HQA / HQB)
EPRWBS: 1.SZC.COM.04.010 Conventional Island (CI)
EPRWBS: 1.SZC.COM.04.010.005 Turbine Hall
EPRWBS: 1.SZC.COM.04.010.010 Other Conventional Island Buildings
EPRWBS: 1.SZC.COM.04.015 Balance Of Plant (BOP)
EPRWBS: 1.SZC.COM.04.015.005 CW System
EPRWBS: 1.SZC.COM.04.015.010 Other Balance of Plant
EPRWBS: 1.SZC.COM.05 SITE CLEARANCE & RELEASE for REUSE (Activity 05)

Activity ID and Name
EPRWBS: 1.SZC.COM.05.010 Site Delicencing
EPRWBS: 1.SZC.COM.05.010.005 Power Generation Site Area - Delicensing
EPRWBS: 1.SZC.COM.05.010.010 Transferred ISFS Area of Site - Delicensing
EPRWBS: 1.SZC.COM.05.200 Environmental Management
EPRWBS: 1.SZC.COM.05.200.005 Landscaping of Generating Plant Area of Site
EPRWBS: 1.SZC.COM.05.200.010 Landscaping of Interim Spent Fuel Store Area of Site

11.4 EPRCRS Coding for Sizewell C

EPR-SITES: 01 SIZEWELL C
EPR-COST ALLOCATION: 01 TECHNICAL MATTER
EPR-CATEGORY: 03 INTERMEDIATE LEVEL WASTE (ILW) MANAGEMENT
EPR-SUB-CATEGORY: 01 Residual Operational Radwaste Management
EPR-CATEGORY: 04 SPENT FUEL (SF)
EPR-SUB-CATEGORY: 01 Residual Operational Radwaste Management
EPR-SUB-CATEGORY: 11 Construction
EPR-COST ALLOCATION: 02 DESIGNATED TECH MATTER
EPR-CATEGORY: 01 DECOMMISSIONING THE STATION
EPR-SUB-CATEGORY: 02 Operations after End of Generation
EPR-SUB-CATEGORY: 05 Processing / Encapsulation
EPR-SUB-CATEGORY: 12 Decommissioning
EPR-SUB-CATEGORY: 14 Planning - Pre-Closure
EPR-SUB-CATEGORY: 15 Planning - During Decommissioning
EPR-CATEGORY: 02 LOW LEVEL WASTE (LLW) MANAGEMENT
EPR-SUB-CATEGORY: 01 Residual Operational Radwaste Management
EPR-SUB-CATEGORY: 02 Operations after End of Generation
EPR-SUB-CATEGORY: 05 Processing / Encapsulation
EPR-SUB-CATEGORY: 07 Transport - Operational
EPR-SUB-CATEGORY: 08 Transport - Decommissioning
EPR-SUB-CATEGORY: 09 Disposal - Operational
EPR-SUB-CATEGORY: 10 Disposal - Decommissioning
EPR-SUB-CATEGORY: 12 Decommissioning
EPR-CATEGORY: 03 INTERMEDIATE LEVEL WASTE (ILW) MANAGEMENT
EPR-SUB-CATEGORY: 01 Residual Operational Radwaste Management
EPR-SUB-CATEGORY: 02 Operations after End of Generation
EPR-SUB-CATEGORY: 05 Processing / Encapsulation
EPR-SUB-CATEGORY: 07 Transport - Operational
EPR-SUB-CATEGORY: 08 Transport - Decommissioning
EPR-SUB-CATEGORY: 10 Disposal - Decommissioning
EPR-SUB-CATEGORY: 12 Decommissioning
EPR-CATEGORY: 04 SPENT FUEL (SF)
EPR-SUB-CATEGORY: 02 Operations after End of Generation
EPR-SUB-CATEGORY: 05 Processing / Encapsulation
EPR-SUB-CATEGORY: 07 Transport - Operational
EPR-SUB-CATEGORY: 11 Construction
EPR-SUB-CATEGORY: 14 Planning - Pre-Closure
EPR-SUB-CATEGORY: 15 Planning - During Decommissioning

EPR-SUB-CATEGORY: 16 Operation and emptying
EPR-CATEGORY: 05 NON-RADIOACTIVE HAZARDOUS WASTE
EPR-SUB-CATEGORY: 10 Disposal - Decommissioning
EPR-CATEGORY: 06 PLANNING
EPR-SUB-CATEGORY: 14 Planning - Pre-Closure
EPR-SUB-CATEGORY: 15 Planning - During Decommissioning
EPR-COST ALLOCATION: 03 DESIGNATED TECH MATTER (Waste Disposal)
EPR-CATEGORY: 03 INTERMEDIATE LEVEL WASTE (ILW) MANAGEMENT
EPR-SUB-CATEGORY: 09 Disposal - Operational
EPR-SUB-CATEGORY: 10 Disposal - Decommissioning
EPR-CATEGORY: 04 SPENT FUEL (SF)
EPR-SUB-CATEGORY: 09 Disposal - Operational

ANNEXE A1 – FAP CASH FLOW

SZC Rev 3.0. ANNEXE A1 - FUNDING ARRANGEMENTS PLAN CASH FLOW

(Costs in August 2022 m.v.)

Key Definitions:	
1: Cost of Pre-closure Decommissioning Planning	All DTM tasks that occur prior to unit 1 (EoG). The SZC DWMP schedule assumes Unit 1 EoG falls on 01/12/2092, for simplicity this table assigns costs up to 31/12/2092 as pre-closure planning costs. All costs falling after this date are assigned to the Decommissioning Category.
2: Costs of Decommissioning	All costs up to the transfer date with exception of ILW disposal costs. The date on which activities are no longer categorised as Costs of Decommissioning is taken to be end of the year in which Decommissioning End Date falls i.e. 31/12/2113
3: Costs of Spent Fuel Management	Spent Fuel Management Costs All costs after the transfer date with the exception of spent fuel disposal costs (Note: ILW Disposal after the transfer date is included in this category). The date from which activities are categorised as Costs of Spent Fuel Management is taken to be the end of the year in which the Transfer Date falls, i.e. 31/12/2113.
4: Costs of ILW Disposal	ILW disposal costs up to transfer date - 31/12/2113
5: Costs of Spent Fuel Disposal	Spent Fuel disposal costs only

SZC DWMP - Base Costs

CATEGORY	Base Cost Total	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103
1: Cost of Pre-closure Decommissioning Planning	£383,517,685	£0	£35,527,495	£77,269,356	£69,637,548	£66,786,771	£67,850,048	£66,446,466	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
2: Costs of Decommissioning	£2,523,927,430	£0	£0	£0	£0	£0	£0	£0	£158,928,431	£198,049,841	£173,824,253	£164,028,397	£179,015,707	£174,248,651	£169,587,938	£137,870,287	£115,550,814	£211,187,566	£135,616,332
3: Costs of Spent Fuel Management	£1,203,804,684	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
4: Costs of ILW Disposal	£357,461,616	£0	£0	£0	£0	£0	£0	£7,380,443	£90,683,362	£92,614,589	£46,543,277	£20,917,584	£20,324,139	£19,266,737	£18,555,802	£18,092,345	£18,023,026	£5,060,310	£0
5: Costs of Spent Fuel Disposal	£3,207,963,898	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Total	£7,676,675,314	£0	£35,527,495	£77,269,356	£69,637,548	£66,786,771	£67,850,048	£73,826,909	£249,611,793	£290,664,430	£220,367,531	£184,945,982	£199,339,846	£193,515,388	£188,143,740	£155,962,632	£133,573,840	£216,247,877	£135,616,332

Decommissioning End Date from DWMP schedule falls on 28/09/2113
The date on which activities are categorised as Cost of Spent Fuel Management is taken to be the end of the year in which the Transfer Date falls, i.e. 31/12/2113.

Years 2118 to 2122 have been selected as a representative continuous period of five financial periods used to calculate the Additional Storage Amount

CATEGORY	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122
1: Cost of Pre-closure Decommissioning Planning	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
2: Costs of Decommissioning	£78,028,473	£98,640,903	£81,613,399	£69,012,797	£72,280,258	£68,768,441	£64,081,825	£58,364,803	£53,300,539	£61,927,776	£0	£0	£0	£0	£0	£0	£0	£0	£0
3: Costs of Spent Fuel Management	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£14,574,559	£8,696,332	£8,729,651	£8,696,332	£8,663,013	£8,663,013	£8,729,651	£8,696,332	£8,696,332
4: Costs of ILW Disposal	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
5: Costs of Spent Fuel Disposal	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Total	£78,028,473	£98,640,903	£81,613,399	£69,012,797	£72,280,258	£68,768,441	£64,081,825	£58,364,803	£53,300,539	£61,927,776	£14,574,559	£8,696,332	£8,729,651	£8,696,332	£8,663,013	£8,663,013	£8,729,651	£8,696,332	£8,696,332

CATEGORY	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141
1: Cost of Pre-closure Decommissioning Planning	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
2: Costs of Decommissioning	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
3: Costs of Spent Fuel Management	£8,696,332	£8,663,013	£8,696,332	£8,696,332	£8,696,332	£8,729,651	£8,663,013	£8,663,013	£8,696,332	£8,729,651	£8,696,332	£8,696,332	£8,663,013	£15,875,799	£19,124,913	£44,485,069	£44,485,069	£44,929,544	£51,112,491
4: Costs of ILW Disposal	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
5: Costs of Spent Fuel Disposal	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Total	£8,696,332	£8,663,013	£8,696,332	£8,696,332	£8,696,332	£8,729,651	£8,663,013	£8,663,013	£8,696,332	£8,729,651	£8,696,332	£8,696,332	£8,663,013	£15,875,799	£19,124,913	£44,485,069	£44,485,069	£44,929,544	£51,112,491

CATEGORY	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160
1: Cost of Pre-closure Decommissioning Planning	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
2: Costs of Decommissioning	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
3: Costs of Spent Fuel Management	£50,838,456	£44,485,069	£44,655,509	£44,424,507	£36,623,748	£34,858,503	£46,856,338	£46,677,497	£46,677,497	£46,677,497	£46,498,656	£46,677,497	£46,677,497	£46,677,497	£46,856,338	£36,218,424	£35,633,362	£36,599,675	£2,047,336
4: Costs of ILW Disposal	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
5: Costs of Spent Fuel Disposal	£0	£0	£0	£0	£0	£26,912,449	£352,553,086	£351,207,464	£351,207,464	£351,207,464	£349,861,841	£351,207,464	£351,207,464	£351,207,464	£352,553,086	£18,838,653	£0	£0	£0
Total	£50,838,456	£44,485,069	£44,655,509	£44,424,507	£36,623,748	£61,770,952	£399,409,425	£397,884,961	£397,884,961	£397,884,961	£396,360,498	£397,884,961	£397,884,961	£397,884,961	£399,409,425	£55,057,077	£35,633,362	£36,599,675	£2,047,336

SZC DWMP - P80 Costs

CATEGORY	P80 Cost Total	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103
1: Cost of Pre-closure Decommissioning Planning	£476,732,646	£0	£43,223,266	£96,712,056	£85,919,946	£81,306,948	£82,729,600	£86,840,829	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
2: Costs of Decommissioning	£3,453,696,704	£0	£0	£0	£0	£0	£0	£0	£218,643,197	£274,186,246	£251,549,658	£220,538,921	£243,095,478	£239,895,889	£232,213,913	£187,153,990	£156,922,100	£284,386,919	£184,974,793
3: Costs of Spent Fuel Management	£1,459,070,512	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
4: Costs of ILW Disposal	£414,899,485	£0	£0	£0	£0	£0	£0	£7,823,269	£100,623,603	£103,612,405	£59,489,558	£24,705,568	£24,076,516	£22,955,670	£22,202,079	£21,710,814	£21,627,631	£6,072,372	£0
5: Costs of Spent Fuel Disposal	£3,432,521,371	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Total	£9,236,920,718	£0	£43,223,266	£96,712,056	£85,919,946	£81,306,948	£82,729,600	£94,664,098	£319,266,800	£377,798,651	£311,039,216	£245,244,489	£267,171,994	£262,851,559	£254,415,992	£208,864,805	£178,549,732	£290,459,292	£184,974,793

Decommissioning End Date from DWMP schedule falls on 28/09/2113
The date on which activities are categorised as Cost of Spent Fuel Management is taken to be the end of the year in which the Transfer Date falls, i.e. 31/12/2113.

Years 2118 to 2122 have been selected as a representative continuous period of five financial periods used to calculate the Additional Storage Amount

CATEGORY	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122
1: Cost of Pre-closure Decommissioning Planning	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
2: Costs of Decommissioning	£106,701,259	£133,316,109	£111,386,106	£94,268,647	£99,438,920	£95,332,092	£89,899,517	£81,437,206	£70,730,264	£77,625,479	£0	£0	£0	£0	£0	£0	£0	£0	£0
3: Costs of Spent Fuel Management	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£17,220,807	£10,412,156	£10,452,049	£10,412,156	£10,372,263	£10,372,263	£10,452,049	£10,412,156	£10,412,156
4: Costs of ILW Disposal	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
5: Costs of Spent Fuel Disposal	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Total	£106,701,259	£133,316,109	£111,386,106	£94,268,647	£99,438,920	£95,332,092	£89,899,517	£81,437,206	£70,730,264	£77,625,479	£17,220,807	£10,412,156	£10,452,049	£10,412,156	£10,372,263	£10,372,263	£10,452,049	£10,412,156	£10,412,156

CATEGORY	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141
1: Cost of Pre-closure Decommissioning Planning	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
2: Costs of Decommissioning	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
3: Costs of Spent Fuel Management	£10,412,156	£10,372,263	£10,412,156	£10,412,156	£10,412,156	£10,452,049	£10,372,263	£10,372,263	£10,412,156	£10,452,049	£10,412,156	£10,412,156	£10,372,263	£19,171,105	£23,135,024	£54,074,415	£54,074,415	£54,616,675	£62,160,626
4: Costs of ILW Disposal	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
5: Costs of Spent Fuel Disposal	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Total	£10,412,156	£10,372,263	£10,412,156	£10,412,156	£10,412,156	£10,452,049	£10,372,263	£10,372,263	£10,412,156	£10,452,049	£10,412,156	£10,412,156	£10,372,263	£19,171,105	£23,135,024	£54,074,415	£54,074,415	£54,616,675	£62,160,626

CATEGORY	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160
1: Cost of Pre-closure Decommissioning Planning	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
2: Costs of Decommissioning	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
3: Costs of Spent Fuel Management	£61,825,547	£54,074,415	£54,281,596	£53,990,840	£44,458,116	£42,300,971	£56,893,702	£56,676,550	£56,676,550	£56,676,550	£56,459,399	£56,676,550	£56,676,550	£56,676,550	£56,893,702	£44,091,772	£43,387,913	£44,822,738	£2,501,940
4: Costs of ILW Disposal	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
5: Costs of Spent Fuel Disposal	£0	£0	£0	£0	£0	£28,796,321	£377,231,802	£375,791,986	£375,791,986	£375,791,986	£374,352,170	£375,791,986	£375,791,986	£375,791,986	£377,231,802	£20,157,358	£0	£0	£0
Total	£61,825,547	£54,074,415	£54,281,596	£53,990,840	£44,458,116	£71,097,292	£434,125,504	£432,468,537	£432,468,537	£432,468,537	£430,811,569	£432,468,537	£432,468,537	£432,468,537	£434,125,504	£64,249,130	£43,387,913	£44,822,738	£2,501,940

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