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| ONR Project Assessment Report  Proportionate reassessment of an application by Sizewell C Limited for a nuclear site licence |



ONR Project Assessment Report

**Project Name**: Sizewell C licensing

**Report Title**: Proportionate reassessment of an application by Sizewell C Limited for a nuclear site licence

**Dutyholder/ Applicant**: Sizewell C Ltd

**Report Issue No**.: 1

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# Executive summary

**The application**

This Project Assessment Report (PAR) summarises the findings from the Office for Nuclear Regulation’s (ONR) assessment of the application, by Sizewell C Limited (SZC Ltd), for a nuclear site licence to install and operate a nuclear power station at Sizewell C (SZC) in Suffolk and makes recommendations to the ONR Chief Nuclear Inspector in regard to that application.

**Background**

This document draws heavily on an earlier PAR issued in July 2022 (the 2022 PAR) that summarised ONR’s assessment of the licence application submitted in June 2020. As explained in the 2022 PAR, ONR’s assessment found that, relative to the safety and security significance of the activities then being undertaken or planned, the application met almost all the regulatory requirements set out in ONR’s guidance. Specifically, ONR was satisfied that the applicant had put in place an organisational capability and associated arrangements suitable for licence granting and that nothing had been identified regarding the suitability of the site to prevent granting a nuclear site licence.

However, the 2022 PAR noted two matters that would need to be resolved prior to ONR granting a nuclear site licence. The first related to security of land tenure. At that time SZC Ltd did not have full rights of access to the land proposed for the SZC development and ONR required this to be resolved prior to licence grant. The second issue related to the then current shareholders’ agreement which placed control of key policies relating to safety and security with a holding company, rather than the licence applicant. This was unacceptable to ONR.

In a statement accompanying the publication of the 2022 PAR, ONR noted that when these two matters had been resolved, ONR would carry out a proportionate reassessment of the application, focusing on these two items and any other matters relevant to a licensing decision that may emerge during the intervening period. This PAR presents the findings from that proportionate reassessment.

**ONR’s proportionate reassessment of the application**

Prior to the start of its reassessment, ONR reviewed the findings from its previous assessment which are set out in the 2022 PAR and the supporting ONR assessment reports. It was judged that most of those findings were unlikely to be changed through the course of the reassessment period, and that further consideration of many previously assessed topics was unnecessary. The main focus of the reassessment has thus been the resolution of the shortfalls relating to the shareholders’ agreement and the security of tenure of the land. However, a small number of topics were identified where there had been developments since the original assessment, or where changes were anticipated prior to a new licensing decision. To ensure that the basis for our conclusions in 2022 that the application met almost all the regulatory requirements set out in ONR’s guidance, had not been undermined by these developments, the small number of topics identified were selected for proportionate reassessment.

The areas covered in the reassessment fell broadly into two kinds: matters relevant to the licence applicant’s organisation, and matters relating to the suitability of the site.

**Matters relating to SZC Ltd’s organisation**

A key reason why ONR could not grant a licence in 2022 was its concern regarding the shareholders’ agreement which placed control of key policies relating to safety and security with a holding company, rather than the licence applicant. This was inconsistent with ONR’s expectations, due to a risk of undue influence from the holding company over the future licensee.

Since that time a new, interim shareholders’ agreement (iSHA) has been entered into, and ONR is satisfied that it places key policies relating to safety and security within the remit of the future licensee, in line with ONR expectations. ONR is therefore satisfied that this matter is resolved and is no longer an impediment to granting a nuclear site licence.

**Matters relating to the site**

In relation to the proposed nuclear licensed site, the key shortfall identified in the 2022 licensing assessment was the inability of SZC Ltd to demonstrate acceptable security of tenure of the land required. Since that time SZC Ltd has acquired ownership of that land and ONR is satisfied, therefore, that security of tenure is satisfactorily assured.

In addition, ONR’s proportionate reassessment has considered changes to the evidence dossier submitted with the June 2020 licence application, as well as new information concerning the proposed site, station design, and licence applicant organisation that has emerged since the 2022 licensing assessment. ONR’s specialist inspectors have reviewed this information and have not identified any concerns that should prevent ONR granting a nuclear site licence to SZC Ltd.

**Conclusions**

ONR’s proportionate reassessment of SZC Ltd’s application for a nuclear site licence has concluded that those matters that prevented licence grant in 2022 (namely the shareholders’ agreement and security of tenure for the site) have been resolved to ONR’s satisfaction. In addition, ONR has concluded that developments since 2022 relating to both SZC Ltd’s organisation and to the proposed site, do not undermine ONR’s other findings from the previous nuclear site licence assessment.

**Recommendation**

Based on the conclusions set out in this PAR, I recommend that the ONR Chief Nuclear Inspector grants a nuclear site licence to Sizewell C Ltd to construct and operate a twin EPR™ nuclear power station at Sizewell in Suffolk.

List of abbreviations

|  |  |
| --- | --- |
| Term/Acronym | Description |
| ALARP | As Low As Reasonably Practicable |
| AR | Assessment Report |
| BEIS | Department for Business, Energy and Industrial Strategy |
| CDM 2015 | Construction (Design and Management) Regulations 2015 |
| DA | Design Authority |
| DESNZ | Department for Energy Security and Net Zero |
| EdF | Electricité de France |
| ENGL | EdF Energy Nuclear Generation Limited |
| EPR™ | EdF design of pressurised water reactor |
| eSHA | Enduring Shareholder Agreement |
| FID | Final Investment Decision |
| HMG | His Majesty’s Government |
| HPC | Hinkley Point C |
| IC | Intelligent Customer |
| iSHA | Interim Shareholder Agreement |
| IMS | Integrated Management System |
| INA | Independent Nuclear Assurance |
| LC | Licence Condition |
| NB | Nuclear Baseline |
| NIA65 | Nuclear Installations Act 1965 |
| NISR 2003 | Nuclear Industries Security Regulations 2003 |
| NLS | Nuclear licensed Site |
| NSC | Nuclear Safety Committee |
| NSHS | Nuclear Site Health and Safety |
| NSL | Nuclear Site Licence |
| NSSP | Nuclear Site Security Plan |
| OC | Organisational Capability |
| ONR | Office for Nuclear Regulation |
| OPEX | Operational Experience |
| PAR | Project Assessment Report |
| PINS | Planning Inspectorate |
| PWR | Pressurised Water Reactor |
| RAG | Red-Amber-Green |
| RI | Regulatory Issue |
| RRM | Regulatory Review Meeting (ONR EPR regulation sub-division) |
| SCC | Suffolk County Council |
| SoT | Security of Tenure |
| SQEP | Suitably Qualified and Experienced Person/Personnel |
| SZB | Sizewell B |
| SZC | Sizewell C nuclear construction site |
| SZC Ltd | Sizewell C Limited |

Table of contents

[Executive summary 4](#_Toc164927729)

[1. Permission requested 10](#_Toc164927730)

[2. Background 10](#_Toc164927731)

[2.1. Reassessment strategy 11](#_Toc164927732)

[2.2. Reassessment plan 11](#_Toc164927733)

[3. Reassessment outcomes 13](#_Toc164927734)

[3.1. Organisational capability (OC) 13](#_Toc164927735)

[3.1.1. Corporate governance and oversight 13](#_Toc164927736)

[3.1.2. Organisation development 15](#_Toc164927737)

[3.1.3. Quality including management systems 15](#_Toc164927738)

[3.1.4. Training, SQEP and appointments 16](#_Toc164927739)

[3.1.5. Intelligent customer 17](#_Toc164927740)

[3.1.6. Design Authority 17](#_Toc164927741)

[3.1.7. Conclusions on organisational capability 18](#_Toc164927742)

[3.2. Site compliance requirements 18](#_Toc164927743)

[3.2.1. Site and licence compliance 18](#_Toc164927744)

[3.2.2. Nuclear security 19](#_Toc164927745)

[3.2.3. Nuclear safeguards 19](#_Toc164927746)

[3.2.4. Nuclear site health and safety/life fire safety 20](#_Toc164927747)

[3.3. Site suitability 20](#_Toc164927748)

[3.3.1. Security of tenure 20](#_Toc164927749)

[3.3.2. Civil engineering update 21](#_Toc164927750)

[3.3.3. External hazards proportionate reassessment 23](#_Toc164927751)

[3.3.4. Internal hazards proportionate reassessment 24](#_Toc164927752)

[3.4. Regulatory issues raised 2021 to 2024 25](#_Toc164927753)

[4. Third party engagement 26](#_Toc164927754)

[4.1. Environment Agency 26](#_Toc164927755)

[4.2. Department for Energy Security and Net Zero 26](#_Toc164927756)

[4.2.1. Nuclear liability insurance 26](#_Toc164927757)

[4.2.2. Financial standing 27](#_Toc164927758)

[5. Matters of potential public interest 27](#_Toc164927759)

[5.1. Taishan fuel and core OPEX 27](#_Toc164927760)

[5.2. Potable water supply 28](#_Toc164927761)

[5.3. Corrosion in French pressurised water reactor fleet 28](#_Toc164927762)

[6. Applicant’s readiness 29](#_Toc164927763)

[7. Preparation of licence documentation 30](#_Toc164927764)

[8. Conclusions 30](#_Toc164927765)

[8.1. SZC Ltd’s security of tenure of the licensed site 30](#_Toc164927766)

[8.2. The shareholders’ agreement 30](#_Toc164927767)

[8.3. Other findings from ONR’s reassessment 31](#_Toc164927768)

[8.4. Overall conclusion 31](#_Toc164927769)

[9. Recommendations 31](#_Toc164927770)

[10. References 32](#_Toc164927771)

[11. Appendices 35](#_Toc164927772)

[Appendix 1: ONR licensing assessment 2020/22 35](#_Toc164927773)

[Appendix 2: Topics for reassessment 36](#_Toc164927774)

[Appendix 3: Regulatory Issues raised 37](#_Toc164927775)

# Permission requested

1. Sizewell C Ltd (SZC Ltd) has applied to the Office for Nuclear Regulation (ONR) for a nuclear site licence (NSL) to install and operate a twin EPR™ nuclear power station at Sizewell C (SZC) in Suffolk.

# Background

1. On 30 June 2020, SZC Ltd (then known as NNB Generation Company (SZC) Ltd) applied to ONR for a NSL to install and operate a nuclear installation at a site located at Sizewell on the east coast of England, near Leiston, Suffolk. The application is in respect of a nuclear installation comprising two thermal neutron reactors, together with any machinery, equipment, appliance, or storage facilities required for the operation thereof, being reactors fuelled with uranium dioxide enriched with isotope U­235 moderated and cooled by water and known as the SZC power station. The application was made by letter to the ONR Chief Nuclear Inspector [1] and was accompanied by a dossier [2] of evidence supporting the application.
2. ONR’s assessment of the licence application was undertaken during the period from July 2020 to May 2022. That assessment is set out in a series of ONR assessment reports listed in Appendix 1 and is summarised in a Project Assessment Report (PAR) [3]. All of these reports are all published on ONR’s website [4].
3. A statement issued on the ONR website on 11 July 2022, noted that:

* ONR’s licence assessment concludes that the application has met almost all the regulatory requirements set out in regulatory guidance;
* we are satisfied that SZC Ltd has put in place an organisational capability and associated arrangements suitable for licence granting and no issues have been identified regarding the suitability of the site which would prevent a nuclear site licence being granted; and
* there are two outstanding matters which require resolution prior to the formal granting of a nuclear site licence.

1. The first of those matters related to the ownership (security of tenure) of the land intended for the licensed site area. Our regulatory guidance ‘[Licensing Nuclear Installations](https://www.onr.org.uk/licensing-nuclear-installations.pdf)’ [5] states that a nuclear site licensee is expected to have ‘full rights of access to and control of’ the site upon which the nuclear site will operate. This stems from a requirement in the Nuclear Installations Act 1965 (NIA65). At that time SZC Ltd did not have such rights to the land proposed for the SZC development and this therefore needed to be resolved prior to licence grant.
2. The second issue relates to the then current shareholder agreement. As the licensee should be able to exercise effective day-to-day control over all activities on the licensed site, it is essential there is clarity on how that responsibility can be exercised. The then current shareholder agreement for the development phase of the SZC project placed control of key policies relating to safety and security with Sizewell C (Holding) Limited (then known as NNB Holding Company (SZC) Ltd), rather than the licence applicant. This is inconsistent with our regulatory expectations, and we would require control of such policies to rest with the applicant prior to the granting of a nuclear site licence.
3. The statement went on to note that when those two matters were resolved, ONR would carry out a proportionate reassessment of the application, focusing on the two outstanding matters and any other relevant licensing issues that emerge during the intervening period. That reassessment has now been completed and this PAR summarises ONR’s conclusions from its work and makes a recommendation to the Chief Nuclear Inspector on whether the licence should be granted.

## Reassessment strategy

1. ONR’s approach to the proportionate reassessment of SZC Ltd’s licence application is set out in the licensing reassessment strategy [6]. The strategy affirms that the principles by which ONR would undertake and reach a conclusion on its reassessment would be the same as those applied in the original assessment during 2020-22. It notes that as we have already undertaken a robust and extensive assessment of SZC Ltd’s case for licence grant, in undertaking a reassessment we would target our re-examination only on the outstanding matters and those areas of the application where we consider that there were or may be:

* changes in the applicant company impacting the bases for aspects of our previous licensing judgement (e.g., resource, capability, arrangements, tools etc); and
* new information that might warrant a re-examination of areas of the application, including operational experience (OPEX) from other EPR™ or relevant new reactor projects.

1. In the event that the licence is granted, SZC Ltd’s project schedule foresees construction proceeding at pace, with the company placing multi-billion-pound contracts for the supply of key safety-related equipment. Mindful of this, alongside work relating to the licensing reassessment, ONR has been engaging with the company across a number of additional workstreams. These engagements are intended to allow ONR to provide timely advice to SZC Ltd regarding regulatory expectations of the newly licensed company, thus reducing the risk that early post-licencing regulatory engagement will be detrimental to the pace of the project’s development.
2. This additional engagement has enabled ONR to monitor the applicant’s progress towards the resolution of outstanding Regulatory Issues (RI) identified during the previous licensing assessment. Although these issues are not relevant to a decision on licensing, progress towards their resolution, as well as new RIs raised during this reassessment, is set out in Section 3.4 of this PAR.

## Reassessment plan

1. The reassessment strategy [6] is supplemented by a licensing reassessment plan [7]. This document provides information and guidance to ONR’s specialist inspectors involved in the assessments, including a timetable for production of reports required to inform this PAR.
2. The plan noted that the June 2023 ONR EPR™ Regulatory Review Meeting (RRM) agreed on those areas where ONR would undertake a proportionate reassessment of the licence application, based on the two key shortfalls identified above and other areas where work related to licensing assessment had progressed or changed such that a reassessment was warranted. Each area was designated a red-amber-green (RAG) rating, indicating the RRM’s judgement on the level of assessment effort likely to be required, with red indicating a high level of effort, and green a low level. Appendix 2 reproduces a table from the plan showing those areas where the RRM judged that reassessment was needed, or where an ONR document is required to provide an update on a specific matter in this PAR.
3. The plan also identified certain areas for assessment or update which, although not pertinent to a licensing decision, were considered by the RRM to warrant inclusion in this PAR as a means of informing stakeholders of ONR’s wider regulatory interests in the proposed development at SZC.
4. In accordance with the regulatory permissioning strategy ONR has carried out proportionate reassessments in the following areas:

* organisational capability, including:
  + corporate governance and oversight
  + intelligent customer capability
  + quality including management systems
  + training, suitably qualified and experienced persons (SQEP) and appointments
  + Design Authority
  + organisation development
* site and licence compliance arrangements
  + security of tenure
  + construction / site management proposals
  + compliance arrangements
* safety case/site suitability
  + external hazards (climate change and site flooding)
  + internal hazards (including potential turbine disintegration)

1. The conclusions on each of these reassessment topics are reported in the next section. In addition, although not relevant to a decision on licence grant, ONR progress reports have been produced on:

* developments relating to potential turbine disassembly
* early civil engineering works
* nuclear site health and safety (in the early construction phase)
* security and nuclear safeguards

1. The findings and conclusions from these reports are summarised in the following section.

# Reassessment outcomes

## Organisational capability (OC)

1. The report on ONR’s proportionate reassessment of matters relating to the broad theme of organisational capability [8], sets out the findings from engagements with SZC Ltd between July 2022 and February 2024 and from ONR’s review and assessment of new and revised documents supporting the licence application. The findings from the reassessment of the individual topics that contribute to this theme are summarised below.
2. The unacceptability of the shareholders’ agreement was a key reason why ONR was unable to grant a site licence in 2022, and the resolution of this matter is covered in subsection 3.1.1 below. Further subsections address other areas within this theme where there have been changes since the 2022 licensing decision. Some of these changes have been prompted by the ongoing dialogue between ONR and SZC Ltd, and which we support. In our reassessment work we have sought assurance that none of these changes undermine our previous view set out in the 2022 PAR that, apart from the shortfalls in the shareholders’ agreement, SZC Ltd’s organisational capabilities meet our expectations of a new licensee.

### Corporate governance and oversight

**Governance framework**

1. As noted in the organisational capability (OC) report [8], effective corporate governance is essential for maintaining the appropriate level of safety focus across an organisation from the senior leadership, through into the front-line staff. In its reassessment, ONR undertook targeted engagements between November 2023 and February 2024 to build assurance in the governance and oversight model for the project and to ensure SZC Ltd has met the OC commitments made in a letter to ONR in March 2022 (‘the commitments letter’ [9]).
2. Since April 2022, the governance framework has continued to evolve in line with the project’s development. To gain assurance of the robustness of this framework, three forums where safety related matters are considered were selected for detailed review, including observations of meetings and sample interviews of key personnel.
3. ONR’s OC report concludes that the SZC Ltd governance framework is adequately mature for the current phase of the project, with safety being given the appropriate level of focus for the risks currently being presented.

**Shareholders’ agreement**

1. The shareholders’ agreement for the development phase of the project, was reviewed by ONR in December 2021, which showed that it placed control of key policies relating to safety and security with a holding company, rather than the licence applicant. This was inconsistent with ONR’s expectations, due to the potential for undue influence from the holding company over the future licensee. This issue was a key factor in ONR’s decision not to grant the NSL in June 2022.
2. The OC report notes that in the commitments letter [9] SZC Ltd committed to addressing the risk of undue influence from the holding company through a new, interim Shareholders’ Agreement (iSHA) that was entered into when the government made its decision to invest in the project in November 2022. Having reviewed that document, in February 2023 ONR concluded [10] that the key policies relating to safety and security were within the remit of the future licensee, in line with ONR expectations.
3. Since that time, ONR has engaged with SZC Ltd on the development of the draft enduring shareholder agreement (eSHA) which will supersede the iSHA once SZC Ltd has achieved the final investment decision (FID). The draft eSHA is still evolving under the current shareholders and potential investors and will continue do so up until the point of FID.
4. The OC report concludes that based on the iSHA and confidence gained in the direction of development of the draft eSHA, the shortfall identified in 2022 has been adequately addressed.

**Other aspects of corporate governance and ownership**

1. The OC report [8] presents the reassessment findings in relation to other aspects of the licence applicant’s corporate governance and oversight arrangements, on which the report raised no concerns. Namely:

* the company manual and Safety Management Prospectus;
* board level skills and experience; and
* the direct employment of staff (the employment model).

1. Although not covered by the OC report, a change since the 2022 assessment that is nevertheless worth noting, is the change in shareholders of Sizewell C (Holding) Limited. This company is now majority owned by the Department for Energy Security and Net Zero (DESNZ), representing His Majesty’s Government (HMG), with EdF Energy Holdings Limited (ultimately owned by Electricité de France SA) holding a minority stake. Sizewell C (Holding) Limited’s shareholding in SZC Ltd (the applicant) has not changed since the 2022 assessment and it remains the sole shareholder. The corporate structure may raise questions regarding the appropriateness of HMG’s indirect majority ownership in a holding company of SZC Ltd, a nuclear site licensee.
2. One of those questions could relate to the fact that Crown bodies are not subject to the licensing provisions of NIA65. This is not a problem here as SZC Ltd is not a Crown body, despite its level of state ownership. SZC Ltd is registered at Companies House as a private limited body and ONR is satisfied that this allows the full application of NIA65 and other legislation relevant to ONR’s purposes.
3. A further question could relate to the propriety of HMG being the indirect majority owner of a nuclear licensee when it has no nuclear expertise.
4. As explained above, SZC Ltd is a private limited company currently owned by Sizewell C (Holding) Limited. HMG and EdF Energy Holdings Ltd maintain assurances of their investment in SZC Ltd through this holding company. Although HMG is currently the largest indirect shareholder of SZC Ltd, as long as the SZC Ltd Board is appropriately balanced, has appropriate competency, and decision making takes appropriate account for safety and security, then ONR is satisfied that this arrangement is acceptable. A comparative example is Sellafield Ltd, owned 100% by the Nuclear Decommissioning Authority, which is itself a state owned entity. As discussed in the OC report and summarised above, the ownership of the licensee is not a matter of concern, providing there is a shareholders’ agreement that ensures that the licensee has full control over matters which affect safety and security of the construction and operation of the site.

### Organisation development

1. The OC report [8] notes that SZC Ltd should have sufficient resources to lead and manage safety by having a credible Nuclear Baseline (NB) which defines nuclear safety related posts and roles, along with suitable and sufficient organisational structures, staffing and competencies to deliver the project. Given the time elapsed since the original licensing assessment in 2022, it was considered appropriate to seek confidence in the ongoing development of SZC Ltd’s capability to support key activities at the point of licensing and immediately post FID.
2. Amongst the areas sampled was the interim NB check and vulnerability analysis, carried out in July 2023 as part of SZC Ltd’s self-assessment process. In relation to future resources, SZC Ltd provided a resource profile which outlines the planned resources until 2036. In addition, SZC Ltd provided a revised version of its resource strategy, which sets out the mechanisms for securing resources up to future operations.
3. The Technical Services Organisation / Technical Client Organisation, which provides technical resource to SZC Ltd, NNB Generation Company (HPC) Ltd and EdF Nuclear Generation Ltd (ENGL), was considered in the previous licensing assessment. This has now been rebranded as EdF Nuclear Services. An inspection in November 2023 confirmed phase 1 implementation of EdF Nuclear Services was operating adequately and notes that plans for phase 2 were under development. The inspection concluded there were no significant shortfalls in current arrangements for oversight and control of work conducted by EdF Nuclear Services on behalf of SZC Ltd and the other licensees.
4. The OC report concludes that based on the evidence sampled, SZC Ltd’s organisational development arrangements are proportionately mature for this stage of the project.

### Quality including management systems

1. The OC report notes that since ONR’s NSL assessment in 2022, SZC Ltd has encountered a number of resourcing issues within its quality function, which had impacted on the delivery of planned activities. Given the risks associated with not effectively developing and deploying adequate management arrangements, it was considered appropriate to sample the overall resourcing and delivery of the quality function as part of the proportionate reassessment.
2. During routine interactions, the impact of the resourcing issues became apparent and two RIs (RI-11626 and RI-11627) were raised relating to shortfalls in the status and maturity of the Integrated Management System (IMS) contents, and the resourcing and delivery of the IMS audit programme. These have since been satisfactorily closed.
3. Through subsequent interactions with the licence applicant, ONR was able to gain confidence in the ongoing development of the management system, relevant quality management arrangements and resourcing of the quality function. The OC report therefore concludes that SZC Ltd’s quality arrangements are proportionately developed for the current stage of the SZC project.

### Training, SQEP and appointments

1. As a licensee, ONR expects SZC Ltd to have adequate human resources with the necessary competencies and knowledge to provide resilience and maintain the capability to govern, lead and manage safety at all times. Following the NSL assessment in 2022, SZC Ltd sent a commitments letter [9] that included commitments relating to competency and training.
2. The OC report notes that a targeted engagement was held in October 2023 to seek assurance of the ongoing development of SZC Ltd’s competency arrangements, and the progress with relevant commitments [11]. The work undertaken by SZC Ltd since the initial assessment was recognised, including the work to close the commitments. Examples of the work undertaken, included the appointment of a training lead, which enabled a training strategy to be put in place and development of a training plan to underpin it.
3. During its engagement with SZC Ltd on this topic, the ONR team noted a number of areas where improvements could be made including: the need for a periodic review of post holder competency, a review of the local governance arrangements and a forward training strategy. Three RIs were therefore raised (RI-11725, RI-11726 and RI-11727) to secure the appropriate improvements, all of which have been satisfactorily addressed by SZC Ltd and are closed.
4. In its further letter in February 2024 [12] SZC Ltd provided ONR with responses to the training commitments, along with evidence for closure. Having reviewed this evidence, ONR is satisfied that the commitments regarding training have been adequately addressed.
5. Based on the progress that has been observed, the closure of the RIs and the response to the commitments letter, the OC report concluded that SZC Ltd’s training arrangements were proportionately developed for the current stage of the SZC project.

### Intelligent customer

1. The OC report [8] notes that SZC Ltd needs suitable intelligent customer (IC) resource and management arrangements for those activities currently being undertaken, and those planned post-FID, to specify, oversee and accept products or services undertaken by contractors on its behalf.
2. The OC report notes the progress that SZC Ltd has made since 2022 in strengthening the IC governance arrangements and IC training. In addition, SZC Ltd in conjunction with NNB Generation Company (HPC) Ltd and EdF Energy Nuclear Generation Ltd (ENGL), have developed common IC guidance in order to promote greater consistency in the application of their IC management arrangements across the companies.
3. ONR identified the need for improvements relating to the need for the IC guidance to be incorporated in the arrangements and the targeting of IC training, resulting in two regulatory issues (RI-11761 and RI-11762) being raised. These have since been satisfactorily addressed by SZC Ltd and are closed.
4. Based on the progress that has been made and the closure of the RIs, the OC report concluded that SZC Ltd’s intelligent customer arrangements are proportionately developed for the current stage of the project.

### Design Authority

1. As explained in Section 5.7 of the 2022 PAR [3], the Design Authority (DA) is a defined function within the prospective licensee with the responsibility for, and the requisite knowledge to maintain, the design integrity and the overall basis for safety of its nuclear facilities throughout the full lifecycle of those facilities. Since the 2022 licensing assessment, the SZC Ltd DA has undergone a number of changes, and this was therefore a subject for ONR’s proportionate reassessment.
2. The reassessment examined the responsibility of the DA to approve or reject proposed design changes and concessions. As a result, ONR was able to concur with its original view, that SZC Ltd has made and implemented adequate arrangements for compliance with the requirements of Licence Condition (LC) 20, which controls the implementation of design changes during construction.
3. Since the assessment in 2022 the DA resource has increased in line with the resource plan, with a number of key posts now being filled. In technical areas such as internal and external hazards, the OC report concludes that the DA is effectively being managed and that it demonstrates a clear understanding of these key technical areas.
4. The OC report concludes that SZC Ltd’s DA has applied a strategic approach to the development of its capability and taken a proportionate approach to the development of its arrangements.

### Conclusions on organisational capability

1. The ONR OC report [8] concludes that the commitments made by SZC Ltd to address the shortfalls identified within the original licensing assessment, have been adequately addressed.
2. In addition, the OC report notes that SZC Ltd has:

* applied a strategic approach to inform the development of its Design Authority and arrangements;
* quality arrangements and resources that are adequately developed; and
* satisfactorily addressed all RIs raised during the reassessment, resulting in a number of areas of improvement.

1. The OC report’s overall conclusion is that SZC Ltd is ready to be granted a nuclear site licence for the proposed development at SZC.

## Site compliance requirements

### Site and licence compliance

1. The site and licence compliance reassessment report [13] describes work undertaken by ONR’s nominated site inspector for SZC in relation to SZC Ltd’s arrangements for compliance with the Construction (Design and Management) Regulations 2015 (CDM 2015) (complimenting the report from ONR’s nuclear site health and safety inspector [14] discussed in Section 3.2.4 below), as well as developments in relation to SZC Ltd’s arrangements for compliance with relevant nuclear site licence conditions.
2. The report [13] notes that the ONR site inspector has engaged with Suffolk County Council (SCC) in relation to the off-site emergency plan for Sizewell. SCC confirmed that the existing approved emergency plan will be updated later in 2024, and will consider the current state of the SZC site and future requirements as the population on site increases.
3. In addition, the site inspector observed SZC Ltd’s response to Sizewell B’s (SZB) level 1 emergency exercise, which demonstrated SZC Ltd’s ability to utilise its access management system to account for people on the site. Some areas for improvement were identified which will be progressed as part of routine engagements. ONR also intends to engage on the site access design requirements as part of normal regulatory engagements post licensing, to ensure future emergency access and egress arrangements requirements are adequately addressed.
4. The report [13] concludes that SZC Ltd has made and implemented compliance arrangements that are appropriate for the current stage of the project, and that from a site and licence condition compliance perspective, SZC Ltd is ready to be granted a nuclear site licence.

### Nuclear security

1. ONR’s nuclear security inspector [15] provided an update on security matters in relation to the SZC project. It was noted that, in accordance with Regulation 4 of the Nuclear Industries Security Regulations 2003 (NISR 2003), each nuclear premises must have an ONR-approved security plan. Following ONR assessment, the SZC Ltd Nuclear Site Security Plan (NSSP) was approved by ONR in August 2022. This is the key security document which presents the claims, arguments and supporting evidence describing how the dutyholder will maintain a security regime that aligns with regulatory expectations for the life cycle of the facility.
2. ONR has been providing regulatory advice to SZC Ltd security staff on the relevant parts of the ONR Security Assessment Principles, and the level of maturity of the arrangements, expected for this stage of the project, leading up to site licence grant. It is acknowledged that specific details of the security arrangements will continue to evolve as the project progresses, reflecting changes to the risk profile, and these changes will be captured in subsequent iterations of the NSSP as it is further developed.
3. The inspector commented [15] that if ONR grants the site licence, ONR security inspectors will continue to engage with SZC Ltd security staff in the development of the physical, personnel, and cyber security and information assurance arrangements. ONR will expect SZC Ltd to continue to demonstrate that it maintains effective and proportionate security arrangements and remains compliant with the NSSP. Subsequent iterations of the NSSP and related documents will be assessed and, where appropriate, formally approved by ONR.
4. The inspector concluded that the development of the security regime and the documented arrangements have met regulatory expectations and are of an adequate standard for this stage of the project and for the early works post site licence grant. The ONR nuclear security inspector concluded that SZC Ltd is ready to be granted a NSL for the proposed development at SZC.

### Nuclear safeguards

1. Section 6.8 of the 2022 PAR [3] noted that the ONR safeguards inspector had engaged with the applicant to ensure nuclear materials accountancy and safeguards arrangements for SZC are adequate and in line with the regulations set out in theNuclear Safeguards (EU exit) Regulations 2019. The 2022 PAR noted that at that time the ONR safeguards inspector was satisfied that there were no safeguards issues that prevent the granting of a NSL.
2. For the reassessment, the safeguards inspector examined the conclusions from the 2022 assessment and concluded [16] that the changes to the owner and shareholder agreement do not impact the judgements previously made. Based on its proportionate assessment of the safeguards area, the inspector recommended that a NSL is granted to SZC Ltd.

### Nuclear site health and safety/life fire safety

1. Section 6.6 of the 2022 PAR [3] noted that responsibility for the regulation of nuclear site health and safety (NSHS), including fire safety provisions, on nuclear sites is a core purpose of ONR under the Energy Act 2013.
2. Although not considered a matter for consideration in ONR’s proportionate reassessment, ONR’s NSHS and fire safety inspectors have reviewed the arrangements that will be put in place by SZC Ltd to secure the safety of personnel on both the SZC licensed site and on the wider construction site. Some preliminary ground works have already taken place at the proposed SZC site, as permitted under local authority planning laws and, latterly, under the conditions set out in the Development Consent Order [17]. At present, the Health and Safety Executive has the legal responsibilities for regulating work activity at the proposed site. If the licence is granted, that responsibility will pass to ONR.
3. As discussed in the 2022 PAR, post licensing ONR will oversee SZC Ltd’s compliance with CDM 2015 to ensure that as the project evolves it is carried out in a way that manages health and safety risks. In addition, ONR will oversee the dutyholders’ compliance with the Regulatory Reform (Fire Safety) Order 2005 (RRO) which is relevant to fire safety in both the temporary construction and permanent onsite premises.
4. During the reassessment period, the NSHS inspector focused on SZC Ltd’s CDM 2015 arrangements considering the Client, Principal Designer and Principal Contractor duties [14]. The inspector was satisfied that SZC Ltd has continued to develop its organisational arrangements and processes to support delivery of its duties under CDM 2015. Post licensing, the NSHS inspector will focus on sampling SZC Ltd’s implementation of its project arrangements, with particular attention to the management of high-risk activities.
5. The inspector was satisfied that no matters have arisen in relation to NSHS that should influence ONR’s decision on granting a nuclear site licence.
6. The ONR nominated site inspector for SZC worked closely with the NSHS inspector in considering SZC Ltd’s arrangements for compliance with CDM 2015. The nominated site inspector’s site and licence compliance report [13] discussed above, provides further details.
7. ONR’s fire safety inspector noted that since the 2022 assessment, ONR has received version 1 of the SZC Ltd Main Site Fire Safety Plan [18] and confirmed that this will be used to inform discussions with SZC Ltd post-licensing.

## Site suitability

### Security of tenure

1. As set out in ONR’s Licensing Nuclear Installations guidance [5], the licence applicant must have full rights of access to, and control of, the proposed licensed site. The 2022 PAR [3] reported that, at that time, all the land required by SZC Ltd for the proposed nuclear licensed site was owned by ENGL. Although ONR’s assessment had found that SZC Ltd’s intentions regarding security of tenure were sound, the timing of the transfer of freehold ownership of the required land was uncertain. This uncertainty meant that the position on security of tenure at that time, was unsatisfactory. This was a key reason why the 2022 PAR recommended that a nuclear site licence should not be granted.
2. The security of tenure (SoT) reassessment report [19] describes the work undertaken by ONR during the reassessment period to demonstrate that the shortfall identified in 2022 has been satisfactorily addressed. The report notes that there have been a number of extended engagements with SZC Ltd since October 2023, providing ONR with updates on the company’s journey to land ownership.
3. The SoT report notes that the proposed SZC nuclear licence site is located north of Sizewell B (SZB) on land largely owned by ENGL. ENGL has granted an option (via the ‘SZC Option’) to SZC to purchase land currently owned by them. This includes land currently within the SZB nuclear licensed site (NLS) area. At the point of transfer of the freehold land to SZC, the land within the existing SZB NLS would immediately be leased back (via the ‘leaseback’) to the SZB licensee. The leaseback is designed to ensure the continued operational integrity and nuclear site licence compliance of SZB while certain replacement facilities are constructed. This required SZB to seek LC3 Consent from ONR, as it involved freehold sale of part of the SZB NLS. ONR granted that consent on 5 March 2024 [20].
4. The SoT report notes that: the SZC Ltd Board considered the main site transaction on 29 February 2024, with approval being subject to completion of all corporate resolutions; SZC Ltd and NGL exchanged and exercised the Option Agreement on 13 March; and transfer of the freehold land took place on 25 March 2024 [21] [22].
5. The SoT report concludes that SZC Ltd now has freehold ownership of the proposed licensed site, and can demonstrate it has full rights and access and control of the site. The report’s overall conclusion is that SZC Ltd is ready to be granted a NSL for the proposed development at Sizewell C.

### Civil engineering update

1. Section 7.2.1 of the 2022 PAR [3] summarised the findings of the ONR civil engineering inspector’s assessment of the suitability of the proposed licensed site for construction and operation of the power station. The conclusions from that assessment were that the applicant had provided sufficient confidence that the site would be suitable for construction of the civil structures to ensure safe operations. The inspector concluded that, from a civil engineering perspective, a nuclear site licence could be granted to SZC Ltd.
2. Nevertheless, during that assessment the civil engineering inspector identified several areas where further information and development would be required post-licensing, and a number of RIs were raised to track progress in those areas.
3. As part of this proportionate reassessment, the ONR civil engineering inspector was requested to re-examine the conclusions of the 2022 civil engineering assessment report [23] to ensure that no new evidence or OPEX had emerged in the last two years that would challenge the validity of those conclusions. The inspector was also requested to provide updates on progress with the RIs raised during the 2022 assessment.
4. The civil engineering inspector’s proportionate reassessment [24] confirmed that the conclusions from the 2022 assessment report remained valid. The reassessment report also noted progress towards closure of the RIs during the previous assessment. These RIs relate to civil engineering solutions to the ground conditions in the proposed nuclear licensed site area, and the potential consequences for the SZB site of construction activities at SZC. All of these RIs were targeted for closure post-licensing. Progress on these is summarised below.
5. ***RI-10836****: SZC Ltd should ensure, through testing, that the geotechnical parameters of excavated material, including the founding material at the bottom of the excavation, meet the assumptions made in the design*.   
   Presentations have been given to ONR by SZC Ltd on the proposed bottom of excavation testing, with further engagements planned on this aspect. Documentation and presentations to date do not undermine the confidence ONR has in relation to SZC Ltd being able to undertake adequate testing of both the excavated material (for re-use and for confirmation of the ground investigation) and founding material (from which the engineered material is founded upon).
6. ***RI-10838****: SZC Ltd should re-run the groundwater model using detailed design information and validate the assumptions and simplifications made in the preliminary design.*SZC Ltd has provided documentation outlining the scope of work for the groundwater model re-run. The specification for the works appears to include those aspects that would address the concerns raised in ONR’s 2022 assessment. In addition, SZC Ltd has undertaken analysis to identify the groundwater levels that could adversely affect the design.
7. ***RI-10839****: SZC Ltd should undertake further testing and complete the characterisation of the engineered fill material supporting nuclear safety structures. This includes the validation of the design assumptions in support of the safety case.* SZC Ltd has provided a specification documentation for both the main works and engineered fill trials, which are due to take place in 2024. SZC Ltd intends to use the data from these trials to help inform the detailed design and the exact placement and testing methodology for the main engineered fill works. Routine ONR engagements are planned on this topic.
8. ***RI-10840****: SZC Ltd should undertake further settlement studies, taking consideration of the engineered fill material as it develops through continued material testing.* SZC Ltd has provided studies on absolute settlement and outlined how these will be managed in response to this RI (e.g., raising construction levels to ensure door thresholds are maintained, to protect against flooding). SZC Ltd is continuing to develop understanding and to reassess, revise and adapt engineered solutions for differential settlement.
9. ***RI-10841****: Further evidence that the construction activities do not adversely affect the Sizewell B nuclear power plant.*Civil engineering solutions are being developed by SZC Ltd that ensure the SZB site safety case can be adequately maintained. ONR has received a document that outlines the settlement effects on SZB at various stages of the SZC build process, and this provides some confidence in relation to the construction activities, but further work is noted as required.

### External hazards proportionate reassessment

1. Section 7.2.5 of the 2022 PAR [3] summarised the assessment work undertaken by ONR’s external hazards inspector in considering the suitability of the proposed SZC licensed site. That assessment [25] had concluded that from an external hazards perspective a nuclear site licence could be granted to SZC Ltd. The external hazards proportionate reassessment report [26] notes that its aim was to review whether the 2022 conclusion remains appropriate.
2. The external hazards reassessment scope covers:

* updated data in the SZC Ltd Site Data Summary Report;
* progress on three RIs (RI 10805 – seismic hazards; RI 10806 – coastal flood hazard, RI 10807 – lightning hazard) raised in 2022 to address shortfalls that could be closed post licensing; and
* progress in relation to other matters noted in the 2022 external hazards assessment (none of which were considered significant for a decision on licensing). These included hazards arising from: pluvial flooding; high air temperature; high sea temperature; and low seawater level.

1. The external hazards report noted that it excluded consideration of the detailed design of the sea defences as ONR’s civil engineering assessment has confirmed that ONR has confidence that the sea defence classification and outline design can be viably delivered to protect the site from wave overtopping. ONR is aware that SZC Ltd commenced detailed sea defence design in Quarter 3 2023 and that this is ongoing. ONR will continue to engage with SZC Ltd in this area and will consider the detailed sea defence design as part of future submissions post-NSL, prior to its construction.
2. The main points noted in the external hazards reassessment report are:

* SZC Ltd has progressed work on the outstanding external hazards RIs. These are not required to be addressed for nuclear site licensing and they have an identified route to closure.
* A new RI (RI-11960) has been raised to ensure that SZC Ltd provides adequate justification for its revised credible maximum climate change scenario for extreme still seawater level. This is not considered to be an issue for nuclear site licensing, as it will feed into the detailed design of the sea defences.
* SZC Ltd has proposed revisions to its station milestones. ONR will engage with SZC Ltd as part of normal regulatory business on the potential impact on its safety case and design, including external hazards.
* Following consideration of SZC Ltd’s work since the 2022 ONR assessment, nothing has been identified that fundamentally undermines site suitability for external hazards.

1. Taking these points into account, the report concluded that from an external hazards perspective, the nuclear site licence should be granted.

### Internal hazards proportionate reassessment

1. The ONR internal hazards reassessment report [27] focused on the new work undertaken by SZC Ltd to resolve the RIs identified within the 2022 internal hazards assessment report (RI-10936 and RI-10940).

#### Turbine disintegration – RI-10940

1. The 2022 internal hazards assessment report [28] identified that turbine disintegration may present a risk to the neighbouring SZB site. RI-10940 was raised with two specific actions:

* SZC Ltd to identify suitable passive measures to mitigate the effects of missiles which might be generated during a turbine disintegration event from impacting safety significant areas of SZB.
* SZC Ltd to provide a robust ALARP (as low as reasonably practicable) justification for the options selected, with due consideration to passive measures and for any measures not progressed into detailed design on the basis of gross disproportion.

1. Since the 2022 assessment, SZC Ltd has issued a safety case strategy explaining how the turbine disintegration issue will be addressed and has held two confidence building reviews with ONR detailing how the safety case will be built. These confidence building reviews explained how the safety case will include:

* integrity of turbine rotor
* turbine failure mode analysis
* reduction in runaway overspeed initiating event frequency
* provision of passive protection mechanisms

1. The reassessment report [27] notes that engagements with ONR on this issue have involved ONR specialist inspectors from internal hazards, structural integrity, civil engineering, control and instrumentation, mechanical engineering and probabilistic safety analysis topic areas, as well as from the ONR operational reactors team.
2. The internal hazards report concludes that at this point no issues have been identified by any of the ONR inspectors involved in the engagements with SZC Ltd that would significantly undermine the future safety case being made by SZC Ltd for turbine disintegration.

#### Hazards propagating to or impacting nearby facilities – RI-10936

1. The internal hazards reassessment report notes that the 2022 assessment [28] identified that there are a number of hazards on the SZC site which have the potential to propagate to or impact nearby buildings or facilities. RI-10936 was therefore raised with a number of specific actions.
2. The reassessment report [27] reviews the progress made by SZC Ltd on all of the actions raised under RI-10936 and notes that SZC Ltd’s updates to the actions provide assurance that work has either been carried out towards closure, or where work has yet to be done, de-risking has been performed to identify other options if proposed solutions prove not to be viable. As a result, the ONR internal hazards inspector was content that the concerns identified within this RI may be resolved satisfactorily and that the risks arising from the associated hazards can be shown to be ALARP.

#### Internal hazards conclusions

1. The internal hazards reassessment report concludes that progress has been made towards the resolution of both RIs. For both RIs there is still a considerable amount of work to be carried out, but the engagements held and evidence submitted have provided the ONR team with confidence that the issues may be resolved adequately and the risk arising from SZC Ltd operations (to both the SZC and SZB sites) can be reduced ALARP.
2. The report’s overall conclusion is that SZC Ltd is ready to be granted a NSL for the proposed development at Sizewell C.

## Regulatory issues raised 2021 to 2024

1. During the course of the assessments reported in the 2022 PAR, a number of RIs were raised. The various assessment reports listed these RIs and noted that none of them were pertinent to a licensing decision by ONR, but indicated shortfalls where ONR would require evidence to allow closure post-licensing, if ONR should decide to grant the licence. Since those assessment reports were written, SZC Ltd has undertaken work to address some of those shortfalls, and a number of RIs have since been closed to ONR’s satisfaction. A number of these RIs have target closure dates or project milestones which extend well beyond any licence grant, and these remain open.
2. During the current reassessment, further RIs have been raised. As with the 2022 assessment, none of the RIs that remain open are pertinent to a decision by ONR on whether to grant the licence and are matters we would expect to see adequately addressed at some point in the future, in the event that a nuclear site licence is granted.
3. A list of all the RIs raised during both the 2022 assessment and the current reassessment is presented in Appendix 3, along with their status and target closure dates/ milestones. ONR will oversee SZC Ltd’s progress to closure of all of the open RIs as part of normal regulatory business post-licensing, should ONR decide to grant the licence.

# Third party engagement

1. This section reports on ONR’s engagement with the Environment Agency and with the Department for Energy Security and Net Zero (DESNZ) on matters relevant to granting the nuclear site licence. The 2022 PAR [3] additionally reported on other third-party matters relating to Public Body Notification, the proposed Funded Decommissioning Programme and compliance with the Justification of Practices Involving Ionising Radiation Regulations 2004. Nothing has changed in relation to these matters and the 2022 PAR should be referred to for details.

## Environment Agency

1. As reported in the 2022 PAR, NIA65 places a requirement on ONR to consult the appropriate environment regulator before granting a new NSL. This is to ensure that granting the licence will not conflict with the relevant environment regulator’s environmental protection responsibilities or prejudice any legal process under relevant environmental legislation. For SZC the environment regulator is the Environment Agency.
2. We consulted the Environment Agency during our licensing assessment in 2022, which confirmed [29] that granting a NSL to SZC Ltd would be consistent with its principles for the protection of the environment and that it did not believe that it will prejudice any legal process under the Environmental Permitting (England and Wales) Regulations 2016.
3. As part of this reassessment, ONR again consulted the Environment Agency, which confirmed that its previous view still held [30].

## Department for Energy Security and Net Zero

### Nuclear liability insurance

1. A nuclear site licensee is required to provide cover for third-party claims up to limits prescribed by NIA65 with arrangements for such cover approved by the Secretary of State. In the case of SZC, DESNZ is responsible for the review of the adequacy of the licensee’s cover, which may be provided by insurance, indemnity, or other approved means.
2. A NSL may, with the consent of the Secretary of State, include provision regarding the time from which such cover is to apply. For example, this may be linked to the point at which nuclear fuel is to be brought onto the site for the first time. Unless provision has been made for a deferral of cover as described above, appropriate cover must be in place when the new NSL comes into force.
3. We are aware that SZC Ltd is seeking such a deferral and that this is currently being considered by DESNZ. Once this agreed, in compliance with Section 3(5) of NIA65 we will include a suitable provision for deferral in the NSL prepared for consideration by the ONR Chief Nuclear Inspector.

### Financial standing

1. Section 9.6 of the 2022 PAR [3] confirmed that the Department for Business, Energy and Industrial Strategy (BEIS – the predecessor of DESNZ) had confirmed that it was not aware of any issues that it would wish to draw to ONR’s attention relating to the licence applicant’s financial standing.
2. With the passage of time since that judgement, ONR sought the advice of DESNZ on whether the conclusion of its predecessor remained valid. In April 2024, DESNZ confirmed [31] that it anticipates that SZC Ltd will be able to access adequate financial resources to carry out its initial responsibilities under its NSL, should one be granted by ONR, to ensure the safe operation of the intended licensed site.

# Matters of potential public interest

1. The 2022 PAR [3] provided a summary of a number of matters relating to the EPR™ of potential public interest. This was included for information purposes only, as none of those matters were pertinent to ONR’s decision in relation to the licence application as set out in the rest of that PAR. In a similar vein, this section includes an update on those matters and others that may be of public interest. As before, none of these matters are of significance to ONR’s decision regarding the granting of a site licence but, if the licence is granted, will be followed up with the licensee through routine regulatory engagement.

## Taishan fuel and core OPEX

1. As reported in Section 10.1 of the 2022 PAR [3], the EPR™ power station at Taishan in China had experienced fuel rod cladding failures during the early operation of one of the twin EPR™ reactors. Understanding of the causes of these failures has continued to develop since the previous licensing assessment [32] and is informing modifications to the design of the Hinkley Point C (HPC) fuel assemblies. The safety case for these design changes is still being finalised and we expect this to be submitted for ONR assessment at a later date.
2. ONR remains content that any design modifications can be made prior to delivery of first nuclear fuel to HPC. The proposed SZC development remains a number of years behind that at HPC, so a solution to the problem would be expected to be in place well before fuel for the SZC reactors would need to be ordered.
3. In addition to any proposed modifications to the fuel assembly design ONR will also assess other solutions to minimise the risk of fuel rod cladding failure that may be proposed for the HPC or SZC plants. The design of a possible flow distribution device at the bottom of the reactor core [33] that may reduce reactor coolant flow turbulence, will be subject to ONR’s specialist assessment and appropriate permissioning should that be proposed for either HPC or SZC.

## Potable water supply

1. SZC Ltd has announced [34], [35] that in order to guarantee an adequate supply of potable water to the SZC site during construction, it intends to construct a temporary desalination plant on the main construction site. The construction and operation of this temporary desalination plant is secured in the Development Consent Order for the Sizewell C Project as made by the Secretary of State.
2. More recently it was announced that SZC's permanent water supply to commission and operate the plant is to be provided by Northumbrian Water Limited (NWL), which trades locally as Essex & Suffolk Water [36]. It is understood that this permanent connection will be available from the early 2030s.
3. ONR acknowledges that, although the supply of potable water to the area is vital to allow the construction project to proceed, the availability of such water is not a factor in ONR’s decision to grant a nuclear site licence. ONR’s position on this was elaborated in its September 2021 submission to the Planning Inspectorate (PINS) in response to a question raised by the Examining Authority during its consideration of the SZC Development Consent Order [37]. That submission noted that ONR was aware of the uncertainty that existed at that time on the source of SZC‘s long-term supply and did not consider that there were any implications for licensing.
4. The ONR submission went on to note that although there is no specific licence condition covering the requirement for a reliable water supply, LC14 (safety documentation) requires the licensee to make and implement adequate arrangements for the production and assessment of safety cases; LC19 (construction or installation of new plant) requires the licensee to make and implement adequate arrangements to control the construction or installation of any new plant which may affect safety and LC21 (commissioning) requires the licensee to make and implement adequate arrangements for the commissioning of any plant or process which may affect safety.
5. The ONR submission concludes that in fulfilment of these licence conditions, ONR would expect SZC Ltd as the licensee to put in place a reliable source of water before nuclear safety related activities take place on the site that are dependent on such a supply. This may be during the later stages of commissioning, but such a supply will certainly be needed before the station begins to raise power from nuclear reactions in the reactor core.
6. While noting the more recent announcement regarding a new permanent water mains connection to supply SZC, ONR’s views on the availability of potable water at SZC set out in its September 2021 submission to PINS remain unaltered. This matter does not, therefore, raise ONR concerns regarding the granting of a nuclear site licence.

## Corrosion in French pressurised water reactor fleet

1. Section 10.2 of the 2022 PAR [3] noted that in May 2022 EdF France, the operator of the French fleet of pressurised water reactors (PWR), had confirmed the existence of stress-corrosion cracking in pipework of a number of its reactors. No pipework had failed, and the operator was reported to be taking steps to address the issue and to ensure the plants can continue to operate safely.
2. Since that time, the French operator has undertaken a massive programme of inspection and repairs across its reactor fleet [38], which consists of reactors of several designs of PWRs. Many of the affected reactors have returned to power, although the operator has stated that the treatment programme is expected to continue for several years.
3. The 2022 PAR noted that the conditions that cause such corrosion cracking are better understood and controlled compared with the past, and ONR remains of the view that the likelihood of this affecting the EPR™ is lower than for some older designs of pressurised water reactor, such as those affected in France [39].
4. The 2022 PAR also noted that if the SZC design did need to be refined in the light of the French experience, there was time to implement the learning both for SZC and HPC. The welding which occurs on site is yet to start at HPC and for SZC the components are still to be manufactured. The welding process, heat treatment and the welding material can be changed if the learning shows it is needed.
5. ONR’s structural integrity specialists will continue to monitor the outcome of the French investigations to ensure that any necessary actions are taken in respect of the PWR at SZB and the HPC and SZC EPR™ plants. ONR will expect the HPC and SZC licensees to ensure that learning is adequately understood and implemented such that the risk of stress-corrosion cracking in the operational reactors is minimised.

# Applicant’s readiness

1. SZC Ltd has undertaken a readiness review in order to satisfy itself that the organisation is ready to be granted a nuclear site licence; this is set out in a report that has been approved by the SZC Ltd Board [40]. The purpose of the readiness review report is to assure SZC Ltd that:

* the residual issues identified in ONR’s 2022 assessment of SZC Ltd’s NSL application have been brought to a satisfactory conclusion;
* project arrangements have been suitably progressed in line with the NSL forward action plan and the overall evolution of the project; and
* SZC Ltd is thus ready to hold a NSL.

1. The draft report was reviewed by the February 2024 SZC Ltd Nuclear Safety Committee (NSC), which gave its support to the report’s findings. At that meeting [41], although the SZC Ltd Independent Nuclear Assurance (INA) concurrence process was in progress, INA had stated that its conclusion was in broad alignment to that of the readiness review being considered by the NSC. INA considered that, if plans to deliver against agreed actions are progressed, SZC Ltd should be ready to hold a NSL on the timescales proposed. INA noted that the most significant outstanding action referred to security of tenure but was content that there was sufficient focus and progress being made that this risk was unlikely to materialise. The INA concurrence report has since been issued and confirms the views expressed at the February 2024 NSC [42].
2. The readiness report was subsequently submitted for consideration and approval by the March 2024 SZC Ltd Board. The conclusions of the readiness review were affirmed in a presentation to ONR by SZC Ltd’s executive team in a level 2 meeting on 12 April 2024 [43].

# Preparation of licence documentation

1. The proposed nuclear site licence for SZC Ltd (Site Licence No. 104) will be prepared by ONR’s site licensing specialist in accordance with ONR procedures [44]. The licence will have the full suite of standard licence conditions attached to it, apart from LC2(4), which will be excluded. As discussed in the 2022 PAR, the LC2(4) exclusion removes the requirement for the licensee to mark the licensed site boundary during the course of construction, as this would be impractical on a rapidly changing construction site.
2. A map has been prepared by SZC Ltd in accordance with ONR guidance showing the boundary of the SZC nuclear licensed site which will form an attachment to the licence [45].
3. Before presentation to the Chief Nuclear Inspector for consideration and signing, the wording of the licence, including any provision for deferral of nuclear liability insurance, will be discussed and agreed with the Government Legal Department.

# Conclusions

## SZC Ltd’s security of tenure of the licensed site

1. SZC Ltd’s inability to demonstrate security of tenure of the proposed nuclear licensed site was a key reason why ONR was unable to grant a nuclear site licence in 2022. Since that time, SZC Ltd has acquired ownership of the land intended for inclusion in the nuclear licensed site area. ONR’s specialist in this matter has therefore advised that, with regard to security of tenure, SZC Ltd is ready to be granted a nuclear site licence.

## The shareholders’ agreement

1. The second key reason why ONR could not grant a nuclear site licence in 2022 was its concern regarding the shareholder agreement which placed control of key policies relating to safety and security with a holding company, rather than the licence applicant. This was inconsistent with ONR’s expectations, due to a risk of undue influence from the holding company over the future licensee.
2. Since that time a new, interim shareholder agreement (iSHA) has been entered into, and ONR is satisfied that this places key policies relating to safety and security within the remit of the future licensee, in line with ONR expectations. This matter is therefore resolved and is no longer an impediment to granting a nuclear site licence.

## Other findings from ONR’s reassessment

1. ONR’s other reassessment activities have focused on changes to the evidence dossier submitted with the June 2020 licence application, as well as new information concerning the proposed site, station design, or licence applicant organisation that has emerged since the 2022 licensing assessment. ONR’s specialist inspectors have reviewed this information and have not identified any concerns that prevent ONR granting a nuclear site licence to SZC Ltd.

## Overall conclusion

1. Based on the reassessment work carried out by ONR, I am satisfied that the two key shortfalls identified in the 2022 PAR have been satisfactorily resolved.
2. I am further satisfied that other reassessment work undertaken by ONR across a number of topic areas has not identified anything that undermines ONR’s conclusions in the 2022 PAR that, apart from the two key shortfalls referred to above, SZC Ltd’s application for a nuclear site licence met all the regulatory requirements set out in ONR’s regulatory guidance.
3. I therefore conclude that SZC Ltd is ready to be granted a nuclear site licence to construct and operate a nuclear power station at SZC.

# Recommendations

1. Based on the conclusions set out in this PAR, I recommend that the Chief Nuclear Inspector grants a nuclear site licence to SZC Ltd to construct and operate a twin EPR™ nuclear power station at the SZC site in Suffolk, England.

# References

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| [1] | *SZC Ltd, Application for a Nuclear Site Licence for Sizewell C, 30 June 2020, CM9 2020/199126.* |
| [2] | *SZC Ltd licence application dossier https://www.edfenergy.com/sites/default/files/sizewell\_c\_nuclear\_site\_licence\_application.pdf.* |
| [3] | *ONR, ONR-NR-PAR-22-001, Assessment of a request by NNB Generation Company (SZC) Ltd for a nuclear site licence to construct and operate a twin EPR™ nuclear power station at Sizewell C. CM9 2022/27848. June 2022.* |
| [4] | *ONR, 2022 SZC licence assessment reports, https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c.htm.* |
| [5] | *ONR, 'Licensing Nuclear Installations', Nov 2021, https://www.onr.org.uk/licensing-nuclear-installations.pdf.* |
| [6] | *ONR, Sizewell C: ONR strategy up to licensing decision, July 2023, CM9 2023/39194.* |
| [7] | *ONR, Sizewell C Licensing: Assessment Plan 2023/24, August 2023, CM9 2023/41936.* |
| [8] | *SZC Licensing: Organisational capability proportionate reassessment report. WIReD ID: AR-01401, March 2024.* |
| [9] | *NNB GenCo (SZC), Commitments Letter, 28 March 2022, CM9 2022/19719.* |
| [10] | *ONR, ONR-NR-CR-22-508, SZC - Governance Workstream L4. February 2023. CM9 2023/14791.* |
| [11] | *ONR, ONR-NR-CR-23-353, SZC - focused L4 - proportionate reassessment for NSL, October 2023, CM9 2023/55994.* |
| [12] | *SZC Ltd, Letter from SZC Ltd to ONR - SZC Commitments Update, February 2024, CM9 2024/10273.* |
| [13] | *ONR, Site and licence compliance proportionate reassesment report, WIReD ID: AR-01427, March 2024.* |
| [14] | *ONR, Nuclear site health and safety inspector advice, E-mail dated February 15 2024, CM9 2024/7344.* |
| [15] | *ONR, SZC security report, March 2024, CM9 2024/10224.* |
| [16] | *ONR, Safeguards Inspector advice on licensing, E-mail dated 07 February 2024, CM9 2024/5993.* |
| [17] | *https://www.sizewellc.com/news-views/green-light-for-construction-phase-as-sizewell-c-triggers-development-consent-order/.* |
| [18] | *SZC Ltd, SZC main site fire safety plan, CM9 2024/0009572.* |
| [19] | *ONR, Security of tenure proportionate reassessment report, April 2024, WIReD ID: AR-01408, April 2024.* |
| [20] | *ONR, SZB LC3 consent: Transfer of land for the construction and operation of SZC, WIReD ID: PR-01593, March 2024.* |
| [21] | *SZC Ltd, Land Transfer Confirmation, April 5 2024, CM9 2024/15841.* |
| [22] | Land transfer news announcement https://www.suffolknews.co.uk/southwold/sizewell-c-signs-land-freehold-deal-to-build-new-power-stati-9358902/. |
| [23] | *ONR, ONR-NR-AR-22-006, SZC Licensing: Civil Engineering assessment, CM9 2022/23784.* |
| [24] | *ONR, SZC reassessment: ONR Civil Engineering statement, March 2024, CM9 2024/9961.* |
| [25] | *ONR, ONR-NR-AR-22-005, SZC Licensing: External Hazards assessment, CM9 2022/23939.* |
| [26] | *ONR, External Hazards proportionate reassessment of an application by Sizewell C Limited for a Nuclear Site Licence, WIReD ID: AR-01422, March 2024.* |
| [27] | *ONR Internal Hazards proportionate reassessment report March 2024 WIReD AR-1420.* |
| [28] | ONR, ONR, Internal Hazards assessment of an application by NNB Generation Company (SZC) Ltd for a nuclear site licence, ONR-NR-AR-035, CM9 Ref. 2022/25321. |
| [29] | *EA, Response from Environment Agency on 2022 licensing assessment, E-mail dated 9 May 2022, CM9 2022/28691.* |
| [30] | *EA, Confirmation of no concern re licensing from Environment Agency, E-mail dated 15 March 2024, CM9 2024/11219.* |
| [31] | *DESNZ, Confirmation of financial standing, April 2024, CM9 2024/18143.* |
| [32] | *https://www.bloomberg.com/news/articles/2023-07-05/edf-is-changing-nuclear-fuel-cladding-amid-report-of-china-issue.* |
| [33] | *​https://www.irsn.fr/avis-rapports-epr-flamanville-3 Démonstration de sûreté et suffisance du programme d'essais physiques - Retour d'expérience des premiers EPR mis en service..* |
| [34] | *Planning Inspectorate, SZC Ltd Planning Statement - Appendix 8.4K - Site Water Supply Strategy, Revision 2.0, REP7-036, https://national-infrastructure-consenting.planninginspectorate.gov.uk/projects/EN010012.* |
| [35] | *https://www.sizewellc.com/news-views/sizewell-c-and-water/.* |
| [36] | *www.sizewellc.com/news-views/new-pipeline-to-help-deliver-a-secure-and-sustainable-water-supply-for-suffolk/.* |
| [37] | *ONR, Response to Planning Inspectorate, 21 September 2021, https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-007366-DL8 - Office for Nuclear Regulation.pdf.* |
| [38] | *https://www.neimagazine.com/features/featuredealing-with-cracking-in-french-nuclear-fleet-10988297/.* |
| [39] | *ONR, Structural Integrity specialist advice on corrosion in French PWRs, E-mail dated 5 March 2024, CM9 2024/10516 CM9 2024/10516.* |
| [40] | *SZC Ltd, Review of readiness for nuclear site licence grant, March 2024, CM9 2024/16589.* |
| [41] | *SZC Ltd, Minutes of SZC Nuclear Safety Committee (SZC/NSC/024), February 2024, CM9 2024/10314.* |
| [42] | *SZC Ltd, INA Concurrence of Nuclear Site Licence Grant - Summary, April 2024, CM9 2024/15293.* |
| [43] | *ONR, ONR-NR-CR-24-013, Presentation to ONR by SZC Ltd on April 12th 2024, CM9 2024/16961.* |
| [44] | *ONR, The Processing of Licence Applications for New Nuclear Sites, ONR guidance, CM9 2019/326457.* |
| [45] | *SZC Ltd, SZC NSL area, 16 November 2023, CM9 2024/17057*. |

# Appendices

## Appendix 1: ONR licensing assessment 2020/22

ONR assessment reports available at [www.onr.org.uk/civil-nuclear-reactors/sizewell-c/assessment-reports.htm](https://prodonrgov-my.sharepoint.com/personal/colin_potter_onr_gov_uk/Documents/Documents/Offline%20Records%20(P1)/NEW%20~%20Licensing%20Statutory%20Notes(9)/www.onr.org.uk/civil-nuclear-reactors/sizewell-c/assessment-reports.htm)

1. [Electrical engineering assessment - ONR-NR-AR-21-001](https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c/ONR-NR-AR-21-001.docx)
2. [Mechanical engineering assessment - ONR-NR-AR-21-003](https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c/ONR-NR-AR-21-003.docx)
3. [External hazards assessment - ONR-NR-AR-21-005](https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c/ONR-NR-AR-21-005.docx)
4. [Civil engineering assessment - ONR-NR-AR-21-006](https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c/ONR-NR-AR-21-006.docx)
5. Nuclear site [health and safety/life fire safety assessment - ONR-NR-AR-21-007](https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c/ONR-NR-AR-21-007.docx)
6. [Assessment of the safety case delivery strategy - ONR-NR-AR-21-008](https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c/ONR-NR-AR-21-008.docx)
7. [Site activities and licence compliance - ONR-NR-AR-21-009](https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c/ONR-NR-AR-21-009.docx)
8. [Organisational capability assessment - ONR-NR-AR-21-010](https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c/ONR-NR-AR-21-010.docx)
9. [Licensing and legal assessment - ONR-NR-AR-21-011](https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c/ONR-NR-AR-21-011.docx)
10. [Internal hazards assessment - ONR-NR-AR-21-035](https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c/ONR-NR-AR-21-035.docx)
11. [Management of nuclear matter and liabilities - ONR-NR-AR-21-037](https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c/ONR-NR-AR-21-037.docx)
12. [Security arrangements assessment - ONR-CNSS-AN-22-002](https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c/onr-cnss-an-22-002.docx)

## Appendix 2: Topics for reassessment



## Appendix 3: Regulatory Issues raised

Regulatory Issues raised by ONR during the 2022 assessment and the 2023/4 reassessment are shown in the table below. None of the open RIs require closure in advance of a decision to grant a nuclear site licence.

|  |  |  |  |
| --- | --- | --- | --- |
| **Issues raised prior to July 2022 licensing decision** | | | |
| **ONR ID** | **Description** | **Status** | **Closure target** |
| 8546 | Establishment of the quality management function | Closed |  |
| 8582 | Establishment of a sustainable intelligent customer capability | Closed |  |
| 8992 | SZC seismic hazard design basis | Closed |  |
| 9031 | Competency management | Closed |  |
| RI-10560 | Maturity of quality function governance and oversight | Closed |  |
| RI-10561 | Further clarity required on forward delivery programme and expectations | Closed |  |
| RI-10562 | Further clarity required on quality function resourcing for 2022 | Closed |  |
| RI-10566 | Shortfalls in organisational learning | Closed |  |
| RI-10575 | Management of high integrity long lead items | Closed |  |
| RI-10605 | Effective implementation of Licence Condition 14 arrangements | Closed |  |
| RI-10607 | Intelligent customer capability | Closed |  |
| RI-10613 | Design Risk Register (CDM 2015) | Open | May 2024 |
| RI-10621 | Shortfalls in organisational development | Closed |  |
| RI-10623 | Concerns with the current shareholder agreement | Closed |  |
| RI-10624 | Site and Licence Compliance - Licence Condition 2 | Closed |  |
| RI-10625 | Site and Licence Compliance - Licence Condition 19 | Closed |  |
| RI-10626 | Site and Licence Compliance - Licence Condition 16 | Closed |  |
| RI-10627 | Site and Licence Compliance - Licence Condition 9 | Closed |  |
| RI-10633 | Safety culture development | Closed |  |
| RI-10650 | Shortfalls identified in training, SQEP and appointments | Closed |  |
| RI-10656 | Gateway review arrangements on effective specifications | Closed |  |
| RI-10802 | HVAC safety related system design to meet SZC site challenge. | Open | Start of nuclear safety related construction |
| RI-10803 | Impact of SZC seismic response spectra on equipment | Closed |  |
| RI-10805 | Seismic hazards – offshore design basis earthquake and capable faulting | Closed |  |
| RI-10806 | Coastal flood hazard | Open |  |
| RI-10807 | Lightning hazard | Open |  |
| RI-10822 | Consideration of up-to-date loss of offsite power data in safety studies | Open | First nuclear concrete |
| RI-10836 | Validation, through testing, of the geotechnical parameters of excavated material, including the founding material at the bottom of the excavation, meet the assumptions made in the design | Open | End 2024 |
| RI-10838 | Re-run the groundwater model using detailed design information and validate the assumptions and simplifications made in the preliminary design | Open | End 2024 |
| RI-10839 | Further testing and characterisation of the engineered fill material supporting nuclear safety structures. | Open | End 2024 |
| RI-10840 | Further settlement studies, taking consideration of the engineered fill material as it develops through continued material testing | Open | End 2024 |
| RI-10841 | Further evidence that the construction activities do not adversely affect Sizewell B | Open | End 2024 |
| RI-10936 | Identification, characterisation and consequences of hazards with the potential to propagate to or impact nearby buildings and facilities | Open | Start of cut-off wall construction |
| RI-10940 | Development and implementation of options including passive measures to reduce the risks from turbine disintegration to As Low as is Reasonably Practicable (ALARP) | Open | Start of cut-off wall construction |
| **Issues raised during proportionate reassessment, August 2022 to December 2023** | | | |
| RI-11078 | Shortfalls in competency management arrangements | Closed |  |
| RI-11414 | Competency management arrangements | Open | June 2024 |
| RI-11626 | Status and maturity of the Integrated Management System (IMS) contents | Closed |  |
| RI-11627 | Resourcing and delivery of the IMS audit programme | Closed |  |
| RI-11725 | Post holder competency | Closed |  |
| RI-11726 | Forward training strategy | Closed |  |
| RI-11727 | Training governance arrangements | Closed |  |
| RI-11744 | Organisational learning | Open | September 2024 |
| RI-11761 | IC guidance incorporation in SZC’s arrangements | Closed |  |
| RI-11762 | Intelligent customer learning for key posts | Closed |  |
| RI-11871 | Phase 2 implementation of the EPR programme | Open | October 2024 |
| RI-11919 | Optioneering for steam generator post-weld heat treatment | Open | May 2024 |
| RI-11960 | SZC credible maximum climate change | Open | June 2024 |