

# **Sizewell C: Final Recommendations from the Government of Austria**

ONR Response to the Secretary of State

June 2022

CM9 Ref. 2022/36295

# Introduction

The Secretary of State for Business, Energy & Industrial Strategy (“the Secretary of State”) has invited comments from ONR and the developer (NNB GenCo (SZC) Ltd – for brevity henceforth referred to as SZC Co) on the Final Recommendations from the Government of Austria on the proposed development of a nuclear power station at Sizewell C (SZC): [Request from Secretary of State for comments on Austrian Government's final recommendations regarding Sizewell C](#).

Previous ONR advice to the Secretary of State in April 2022 had provided information relating to the Austrian Government’s submission in accordance with the ESPOO Convention, concerning possible transboundary effects from Sizewell C [ONR Response to Secretary of State's request for information of 31 March 2022](#).

## Comments on the Austrian Government’s final recommendations

The latest submission from Austria makes 12 recommendations. ONR’s technical specialists have considered these along with the responses prepared by SZC Co and we are in general agreement with SZC Co’s responses. Our position is indicated below for each recommendation, with additional ONR commentary where we consider this to be relevant and helpful.

**FR1: To demonstrate the safe management of nuclear waste and spent fuel from Sizewell C, detailed information on the interim storage and final disposal should be provided; also, alternative nuclear waste management solutions in case these facilities will not be operable in time.**

**ONR response:** *We have discussed this with SZC Co and are content that its response satisfactorily reflects our views on this matter. In addition, we will expect that the design, construction, and operation of the SZC Interim Spent Fuel Store (ISFS) to take account of learning from the ISFS at Hinkley Point C (HPC).*

**FR 2: It is recommended that the solution of the problem that occurred at the operating EPR at Taishan NPP be closely followed to avoid the occurrence of the same or similar problem at the EPRs in Sizewell C.**

**ONR response:** *The latest update provided to us by the Chinese regulator in January 2022 was that fuel inspections had been completed, and analysis and review of root causes was ongoing. We remain in contact with the Chinese, French, and Finnish regulators. A further engagement will be arranged once there is further information to share.*

*We are aware that the HPC licensee has started to consider whether any modifications are required as a result of the learning from Taishan, although no formal submissions have yet been made to us. We will ensure that the HPC licensee considers and addresses learning as necessary. If modifications were to be required, we would assess any that were safety*

*significant. In line with our regulatory strategy, we will be permissioning the delivery of fuel to site, fuel load and approach to first criticality at HPC allowing for robust regulatory oversight.*

*Given that fuel is not expected to be delivered to the Hinkley Point C site for several years, we are content that if design modifications are necessary, they can be made prior to delivery of fuel. Our current regulatory strategy is such that HPC will not be able to bring fuel onto site or load fuel into the reactor without our permission, which will have to be supported by an adequate safety justification. We expect this to include consideration of any prior operational experience gained from EPRs elsewhere.*

*The proposed SZC development is a number of years behind that at HPC, so in the event that a nuclear power station is deployed, a solution to the problem would be expected to be in place well before fuel for the SZC reactors would need to be ordered. We do not, therefore, consider that this issue should influence our assessment of the nuclear site licence application for SZC Co. However, we will engage with SZC Co to ensure any learning from HPC is carried forward to SZC.*

**FR3: It is recommended to re-assess external hazards at the Sizewell C site before the design process for the NPP starts. The re-assessment should be based on the latest state-of-the-art methods and take into account most current data. Especially the climate change should be appropriately considered in the scenarios for flooding including the scenario of failing the limit of global warming to 1.5 degrees.**

**ONR Response:** *We are satisfied that the statements by SZC Co in relation to this recommendation are factually correct and have no further observations to make on this matter.*

**FR4: It is recommended to use a conservative approach that should address the loss of major sections of the marshlands whether from depletion of the Sizewell-Dunwich banks or climate change sea level rise of anything above 1.5°C.**

**ONR Response:** *This is essentially an environmental/habitats matter and therefore outside ONR's vires. There is nothing we would wish to add to the response provided by SZC Co.*

**FR5: To achieve the safety goal of new nuclear power plants consisting in the requirement that accidents leading to early or large releases have to be practically eliminated, it is necessary to also consider hazard events with frequencies be- low  $<10^{-4}$  if their impacts reach beyond the design basis. For ensuring compliance with the safety goals, a comprehensive Probabilistic Safety Analysis (extended PSA) is necessary, taking into consideration all relevant internal and external events and possible accident causes.**

**ONR Response:** *We are satisfied with SZC Co's statements regarding this recommendation. In addition, please note that we assessed the PSA submission made for HPC at the Nuclear Island Concrete (NIC) milestone in 2018. This included Level 1, 2 and 3 PSAs which we found to be adequate when judged against our Safety Assessment Principles (SAPs). While the Level 1 and 2 PSA was a comprehensive internal events analysis, the hazards PSAs was not part of the submission at NIC, and to assess the impact to offsite risk through Level 3*

*PSA, the licensee performed analysis based on the risk contributions apportionment from GDA hazards PSAs.*

*Development of hazards PSAs for HPC is subject to our ongoing assessment and we are currently satisfied with the licensee's progress on this matter.*

**FR6: It is recommended to require the implementation of appropriate margins to external hazards in the design of the Sizewell NPP that are based on current scientific studies and data.**

*ONR Response: Our specialists have reviewed SZC Co's statements regarding this recommendation and consider that these form an adequate response. We therefore have no further observations to make on this matter.*

**FR7: It is recommended to apply the concept of practical elimination consistently in the safety requirements for Sizewell C. Practical elimination of accident sequences has to be demonstrated with state-of-the-art probabilistic and deterministic methods, fully taking into account the corresponding publications of WENRA in 2019.**

*ONR Response: Our specialists have reviewed SZC Co's statements regarding this recommendation and consider that these form an adequate response. We therefore have no further observations to make on this matter.*

**FR8: It is recommended to consider severe accident scenarios with possible late containment failure in the notion of practical elimination and therefore plan a filtered containment venting systems at Sizewell C like at the Finnish EPR OL3.**

*ONR Response: ONR assessments of the safety case for the HPC EPR™ are carried out in accordance with our Safety Assessment Principles (SAPs) and Technical Assessment Guides. The design has continued to evolve, and the safety case is being developed to take account of this. Our assessments thus far have concluded that the design is acceptable against our deterministic and probabilistic criteria for design basis and severe accidents, with risks reduced as low as reasonably practicable (ALARP). The design of the nuclear island for the Sizewell C plant is identical to that at HPC, so the conclusion regarding severe accidents is expected to be the same.*

**FR9: It is recommended to provide information about the upcoming demonstration proving that the level of risk of Sizewell C is as low as reasonably practicable (ALARP).**

*ONR Response: We are satisfied that the statements by SZC Co in relation to this recommendation are factually correct and have no further observations to make on this matter.*

**FR10: It is recommended to include a conservative worst-case release scenario which should have been part of the EIA. A severe accident with a source term for e.g. containment failure or bypass scenario should be analysed as part of the EIA – in particular because of its relevance for impacts at greater distances.**

**ONR Response:** *We note the response of SZC Co on this and have no further observations to make on this matter.*

**FR11:** Concerning the protection of the Sizewell C against aircraft crash it is recommended that the NPP should be designed in a way that vital safety functions can be fulfilled despite of the thermal and mechanical impacts corresponding to the assumed crash of passenger aircrafts of the largest class (Airbus A-380) and fast military jets.

**ONR Response:** *We are satisfied that SZC Co's statements form an adequate response to this recommendation. We therefore have no further observations to make on this matter.*

**FR12:** Because the source term used in the accident analysis of the Environmental Statement does not reflect a severe accident, it is recommended to calculate the consequences of a severe accident with a large release since the effects of severe accidents can be wide-spread and long-lasting and even countries in Central Europe, such as Austria, can be affected.

**ONR Response:** *We were party to the oral presentation to the Article 37 Expert Group in February 2021 and are therefore familiar with the contents of the UK submission. We are content that SZC Co's statements regarding the UK submission are accurate and that these represent an appropriate response to this recommendation. We have no additional comments.*

ONR, June 2022